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CONTEMPORARY ECOLOGIES OF EXPERT KNOWLEDGE: CLASSIC AND NOVEL
CONUNDRUMS ACROSS PROFESSIONAL BOUNDARIES IN THE NHS

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Abstract

Classic studies in the Sociology of the Professions have explored knowledge barriers across traditional forms of professionalism, quintessentially represented by medical doctors, lawyers, and university professors. Thus, the impact of distinctive professional identities and communal boundaries on processes of knowledge sharing have been well documented. More recently, however, many scholars have suggested that those classical analyses need to be revisited and reassessed (see for e.g. the recent call for papers of Teelken and colleagues at EGOS 2011, cf. also Evetts, 2006; Noordegraaf, 2007) in the light of three contemporary trends: a changing context of professional practice, the associated erosion of classic forms of professionalism, and the emergence of new forms.

While classical studies have laid the foundation of our understanding of the conditions that render knowledge sharing across more *established* forms of professionalism problematic, the processes and potential barriers across more novel and *hybrid* forms are less clear (cf. Noordegraaf, 2007). In order to address this gap, this thesis presents a comparative investigation of expert knowledge-sharing across professional boundaries in four cross-occupational teams in the English National Health Service; two of them primarily composed of *established* professionals and two of *hybrid* professionals. By analysing these two types of cross-occupational teams, this thesis' contribution is the identification of a different configuration of knowledge barriers affecting the sharing of knowledge within the two forms of professionalism.

These findings further highlight the existence of two very different ecologies of (*inter*) professional knowledge within *established* and *hybrid* forms of professionalism. First, distinctive knowledge bases underlie professional practice and interaction in *established* and *hybrid* forms of professionalism. For established forms knowledge is more substantive and disciplinary based, whereas for hybrid forms it is general and situated, and characterized by a syncretic use of different disciplines, theories, and information. Second, the types of indeterminacies that permeate the two types of ecologies also vary. While the more established forms of professionalism face higher levels of ambiguity (*semantic indeterminacy*), the more transient and hybrid forms of professionalism face higher levels of uncertainty (*de re indeterminacy*). Finally, the nature of professional boundaries is different between these two types. While in *established* forms of professionalism boundaries are relatively well defined, and hence recognizable; in *hybrids* forms they are vague and transient.

Keywords: knowledge barriers, professionalism, occupations, professional knowledge, ambiguity, knowledge boundaries, National Health Service.

Acknowledgments

Hospes Eram, et Collegistis Me.

A doctorate experience is originally a foreignizing and liminal one. A candidate uproots her/himself from familiar physical, cultural, and conceptual land to plant oneself again in unfamiliar territory. Becoming a foreigner undoubtedly provides new eyes to explore alike the new and the old, the doubts and the certainties bringing the possibility of new and fresh perspectives. Yet becoming a foreigner also means abandoning one's shelter and trusting that others will at some point take care of us. The latter has been my entire Oxonian experience, and a source of my profound gratitude.

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List of Abbreviations

The following abbreviations are used in this thesis:

A&E:	Acute and Emergency
BRCs:	Biomedical Research Centres
CD:	Clinical Directorate
CLAHRCs:	Collaborations for Leadership in Applied Health Research and Care
CQC:	Care Quality Commission
CU:	Clinical Unit
DoH:	English Department of Health
GUMAMM:	Genitourinary Medicine Access Monthly Monitoring
IHI:	Institute for Healthcare Improvement (USA)
PCT:	Primary Care Trust
NDPB:	Non-Departmental Public Body
NICE:	National Institute for Health and Clinical Excellence
NHS:	English National Health Service
NPM:	New Public Management
SHA:	Strategic Health Authorities
WTE:	Whole Time Equivalent

1. Introduction

Professions and their members have received a great deal of attention in both past and current academic debates (see e.g. Greenwood, 1957; Wilensky, 1964; Etzioni, 1969; Abbott, 1988; Freidson, 2001; Sciulli, 2005; Evetts, 2006; Noordegraaf, 2007). This interest seems to find its roots first and foremost in the vitality of this occupational group, which currently represents 20% of the labour force in many advanced industrial societies (Abbott, 2005; Brint, 1994; Hwang & Powell, 2009). Nevertheless, the academic interest appears to go well beyond the simple numerical presence of professions. If contemplated from historical, political, and sociological perspectives, professions have become decisive social actors by exerting a powerful influence on the division of labour and the occupational structure (Abbott, 1989). This is so to the extent that professions, as special and privileged groups, have been traditionally more successful than their non-professional counterparts in claiming and securing autonomy, and in exerting occupational control of the conditions of their work (Freidson, 1994). Finally, and more profoundly, this academic interest seems to be driven by the old and “perhaps insoluble problem of the place of knowledge and skill in human life” (Freidson, 2001:vii).

Against this background, many seminal theories were articulated on the basis of strong (cf. Abbott, 1988), ideal-typical (Freidson, 2001), or pure forms of professionalism, quintessentially represented by medical doctors, lawyers, and university professors (Noordegraaf, 2007). More recently, however, many scholars have suggested that these classical analyses need to be revisited and reassessed (see for e.g. the recent call for papers

of Teelken and colleagues at EGOS 2011, cf. also Evetts, 2006, Noordegraaf, 2007) in the light of three contemporary trends: the change of the context of professional practice (Crompton, 1990; Greenwood & Lachman, 1996; Reed, 1996), the associated erosion of classic forms of professionalism (Fournier, 2000; Noordegraaf, 2007), and the emergence of new forms of professionalism (Grey, 1998; Svensson, 2006; Hwang & Powell, 2009). These recent scholarly efforts have furthered our understanding of the paradoxical status of present-day professionalism: namely, that “knowledge societies call for professionals, but these very same societies are full of barriers for strong professionalism” (Noordegraaf 2007:763). However they have also posed new and unresolved questions about the nature and role of knowledge, and that of professional boundaries and practices, across these different contemporary forms of professionalisms.

These questions are explored in the context of the English National Health Service (NHS)¹. While historically the NHS has been dominated by medical doctors, and some scholars seem to suggest that even today hospital doctors remain pre-eminent (Ackroyd, 1996; Ferlie, Pettigrew, Ashburner, & Fitzgerald, 1996), more recently they have been subjected to nonprofessional and outside control. Partly associated with the implementation of the *new public management* (NPM) reforms, neoliberal managerial and consumer forms of control have weakened autonomies of doctors at working floors (Noordegraaf, 2007; Scott, Ruef, Mendel, & Caronna, 2000). In parallel, this health service has witnessed the

¹ The English NHS, or simply NHS without any qualification, is part of the publicly funded healthcare system in United Kingdom. Together with the English one, there are another four systems: the NHS Scotland, the NHS Wales, the Health and Social Care in Northern Ireland, and Isle of Man National Health Service. Each system operates independently, and is politically accountable to the relevant devolved government. All the data provided in the current thesis refers to the English NHS, as all the four case studies are located in it.

increasing professionalization of formerly non-professional groups such as nursing and health care managers (Brooks, 1999; Leicht, Walter, Sainsailieu, & Scott, 2009; Malin, 2000). This situation has not only fostered the interaction between different professions and functions in domains previously closed to non-medical professions but also blurred the boundaries of interactions. Along with doctors becoming medical managers (Llewellyn, 2001), nurses have become “nurse practitioners” (cf. Barton, Thome, & Hoptroff, 1999), and managers “have also introduced ‘dual’ management systems with both managers and professionals as decision makers” (cf. Noordegraaf & Van der Meulen, 2008:1057). These professional interactions occur not only in traditional NHS organizations, such as primary and secondary care, but also in novel institutions, such as *quangos*, where professional practice is sometimes removed from the original context of enactment, and encounters higher levels of variety, novelty, and uncertainty. Taken together, these characteristics make this public domain highly relevant for the study of the interactions between present-day forms of professionalism.

1.1 Research context

This thesis’ comparative investigation of expert knowledge across occupational boundaries stands in direct line with recent efforts to understand present-day professionalism in changing and ambiguous times (see e.g. Evetts, 2006; Svensson, 2006; Noordegraaf, 2007; Noordegraaf & Van der Meulen, 2008; Hwang & Powell, 2009). By analysing the enactment of workplace professional practices across two types of cross-occupational groups – and the knowledge embedded, located and invested in such practices (cf.

Bourdieu, 1977; Lave, 1988; Carlile, 2002) – I aim to expand the understanding of the nature of professional knowledge and barriers between more traditional and newer forms of professionalism. This attempt is timely and relevant given the growing salience of knowledge workers, redefinition of professional boundaries, and the existence of an “increasing number of jurisdictional domains for which advanced qualifications are deemed necessary” (Hwang & Powell, 2009:268).

Professions, characterized as a form of discretionary specialization (Freidson, 2001), have long attracted the attention of scholars from different traditions (Abbott, 1988; Carr-Saunders & Wilson, 1933; Fournier, 1999, 2000; Freidson, 2001; Larson, 1977; Schön, 1983; Wilensky, 1964). As Sciulli (2005) explains, during the 50’s and the 60’s, the focus of many theorists was on deriving a set of invariants and unique characteristics that could define professions and make them distinct from other types of occupational communities (e.g. Etzioni, 1969; Wilensky, 1964). Such taxonomical approaches proved difficult, and highly contested, as differences between professions and occupations were found to be of degree rather than kind (Evetts, 2006).

By the 70’s, the analysis of paradigmatic forms of professionalism (most notably medicine and law) led many theorists to focus on the power and dominance aspects of the professional project (e.g. Freidson, 1970). These questions emerged by virtue of the historical evidence of the power exercised by professions over other competing occupational groups (Halpern, 1992), and even over the states (which was considered to be an aspect of occupational powers (Evetts, 2006)). The seminal work of Abbott (1988)

brought a more ecological understanding into the Sociology of the Professions. This was to such a degree that his theory advances that professions constitute an interdependent system characterized by the competition for exclusive jurisdictions, and the control of knowledge. Underlying many of these different theories there were two common characteristics, as Noordegraaf has recently pointed out (2007). First, the recognition of the essential role played by professional knowledge and substantive knowledge bases in the professional project (e.g. Wilensky, 1964; see also Abbott, 1988; Freidson, 2001). Second, the appreciation of the vital role of achieving some sort of social closure and boundary control if jurisdictional claims are to succeed.

However, organizational, economic, and political changes have recently problematized many of the main tenets of these seminal theories (Crompton, 1990; Greenwood & Lachman, 1996; Reed, 1996). These different trends have threatened to unmake the professions by limiting professional autonomy, self-control, and expert authority (Fournier, 2000). As a result, professional boundaries have been eroded and a more diffused notion of professionalism has become pervasive in contemporary society (Hwang & Powell, 2009:268).

In light of the still significant role played by professions and professionals in organizational, economic, and political life, it is therefore not surprising the number of recent calls for detailed studies of the reassembly of traditional and new forms of professionalism. Particularly in the traditionally highly professionalized public sectors, the implementation of the NPM reforms has been declared to be significant for public

professional services (Leicht et al., 2009; Noordegraaf, 2007; Svensson, 2006). This is to such an extent that NPM has created new conditions for professional practice affecting traditional and novel forms of professionalism alike. Furthermore, as many of these public reforms have been beset with inherent tensions (Pollitt & Bouckaert, 2000), professional work more frequently occurs amidst ambiguous and contested conditions, and fuzzy service realities (Noordegraaf & Abma, 2003).

Health care sectors have not remained immune to these waves of reforms. Consequently, medical and health professions have had to contend with significant, albeit often ambiguous, changes to healthcare systems and healthcare delivery. While the concrete manifestations of these changes vary from country to country (see e.g. Leicht et al., 2009; Noordegraaf & Van Der Meulen, 2008; Pollitt & Bouckaert, 2000; Scott et al., 2000) they share common attempts to increase competition, incentivization, and disaggregation (Leicht et al., 2009). Many of these contradictory and contested pressures (Noordegraaf & Van der Meulen, 2008) have affected a wide array of professional groups. While medical doctors, historically presenting a more monolithic configuration, have seen their autonomy eroded by such external and bureaucratic pressures, other occupational groups – most notably health care managers – have been empowered.

Finally, together with these recent calls for studies of present-day forms of professionalism in both the private and public sectors, some scholars have recently suggested that this type of sociological enquiry necessitates comparative approaches (see e.g. the special issue on *Current Sociology* 2009). In recognizing the more imprecise and changing nature of

present-day professionalism, Bourgeault and colleagues (2009) analyse the gap in the literature of micro-comparative analyses of the work of professionals and the need for work focusing on comparing interprofessional relations from a micro perspective. In a complementary way, some authors have suggested approaching professionalism from a practice perspective, that is “as a set of workplace practices where boundaries have been redefined in response to social-economic and cultural pressures” (Malin, 2000:1). Such a *re-turn* to practice (Miettinen, Samra-Fredericks, & Yanow, 2009) is led by the desire to explore how the re-delineation of professional boundaries has occurred (Fournier, 2000), and how “workplace practices have become substitutes for conventionally preconceived professional functions” (Malin, 2000:2).

1.2 Research question and contributions

Health care organizations, such as those pertaining to the NHS, are institutional sites that combine, among many other characteristics, two relevant features for the purpose of this study: professional diversity and interdependence. First, as a traditionally highly professionalized sector, the NHS is a locus of many different professions (Savory, 2009), that range from classical ones (such as medical doctors) to novel ones (such as health care managers and *hybrid* professionals). Second, the same professional diversity implies some degree of interdependence and the consequent need for coordination and sharing of diverse knowledge across occupational groups. In addition, as Currie and colleagues (2007:364) have recently pointed out, “the NHS is no exception to the promotion of knowledge sharing as a basis for quality improvement, with health care organizations exhorted to create an

‘open and participative culture in which knowledge sharing flourishes ’ (NHS Executive 1999:5)”. However, such a desired situation is in practice full of inherent tensions. As a collection of research indicates, coordination and sharing of professional knowledge across classic disciplinary boundaries is cumbersome and multiple knowledge barriers exist (see for e.g. Currie et al., 2007; Ferlie, Fitzgerald, Wood, & Hawkins, 2005).

While such studies have considerably increased our understanding of the conditions that render knowledge sharing problematic across more traditional professional groups, our comprehension remains unspecified in relation to the type of knowledge barriers that are at work across more novel and hybrid forms of professionalism (cf. Noordegraaf, 2007). As suggested above (and further analysed in § 2.2.), new pressures and reforms make public sectors more ambiguous for professional practices, re-delineating both the boundaries of interactions across occupations, and the professional identities of their members. Hence, while potentially of great importance, an understanding of the knowledge conundrums across different forms of present-day professionalisms in the public sector is found to be lacking. This gap in understanding leads me to the general research question: *what are the factors and barriers that affect the sharing of knowledge in different cross-occupational groups?*

In order to address this research question, this thesis empirically examines the enactment of practices – and the knowledge embedded, located, and invested in those very practices (cf. Bourdieu, 1977; Carlile, 2002; Lave, 1988) – across two types of cross-occupational groups in the NHS. The first type, labelled in this thesis as *exploitative*, is studied through focusing

on two cross-occupational groups orientated to exploitative tasks (i.e. the delivery of health care services). The second type, labelled in this thesis as *explorative*, is studied through focusing on two cross-occupational groups orientated to explorative tasks (i.e. the development of novel product and services). As argued in § 3.3, this sampling criterion explicitly recognizes the constitutive nature of work and task for the *intra-* and *inter-*professional dynamics, the professional praxis and knowledge (cf. Abbott, 1988; Schön, 1983). In so doing, this thesis attempts to ensure variation across different forms of professionalism; and in turn to contribute to current discussions on present-day professionalism by identifying the factors that condition the sharing of knowledge across professionals.

By analysing these two types of cross-occupational groups, this thesis' initial contribution is in the identification of a different configuration of knowledge barriers affecting the sharing of knowledge between *exploitative* and *explorative* groups. Consequently, while four common classes of knowledge barriers were found across the four cases (i.e. *cognitive*, *social-epistemic*, *pragmatic*, and *structural*), the internal configuration of each barrier (in terms of antecedent conditions and mechanisms) varies between the two types of groups. Moreover, from the analysis of such different configurations, it becomes apparent that two different forms of professionalism permeate the cases. On the one hand, an occupational form of *stasis* seems at play in exploitative groups, one that reflects interactions between more *established* forms of professionalism – i.e. medicine, nursing, and to some extent managerial (cf. Abbott, 1988; Freidson, 2001). On the other hand, a *transient* form seems at play in explorative ones, one that in turn reflects interactions across more *hybrid* and *plural*

forms of professionalism (cf. Noordegraaf, 2007; Schön 1983). This second logic portrays more transient forms of professionalism, with knowledge dynamics and struggles not primarily based on collective grounds, but rather on individual and *sui generis* ones. Considered together, these findings provide the empirical and analytical grounds to explain the dissimilar knowledge conundrums which group members experience.

At a deeper level, these findings also underline the existence of two very different ecologies of (*inter*) professional knowledge between the more *established* and *hybrid* forms of professionalism that comprised the exploitative and explorative groups respectively. The comparative analysis underscores profound epistemic differences across these two types of ecologies. First, distinctive knowledge bases underlie the professional practice and interaction of *classic* and more *transient* forms of professionalism. Simply put, professional knowledge works differently across the two occupational logics. Second, the types of indeterminacies that permeate the two types of groups also vary accordingly. While the more established forms of professionalism in exploitative teams face higher levels of ambiguity (*semantic indeterminacy*), the more transient and hybrid forms of professionalism face higher levels of uncertainty (*de re indeterminacy*). Third, the nature of professional boundaries was also found to be different between these two types of groups.

Finally, this thesis discusses these different ecologies of (*inter*) professional knowledge and provides a more nuanced explanation which theorises the different nature and role of professional knowledge, indeterminacies, and the nature of boundaries between the two proposed ecologies. In sum, this thesis is a comparative attempt to analyse professional

knowledge and barriers across different forms of professionalism. Taken together, the findings from both exploitative and explorative groups speak directly to the complexity of present-day professionalism in which more stable and sovereign professions coexist with the expansion of “diffuse” (Hwang & Powell, 2009), “hybrid” (Noordegraaf, 2007), and “plural” (Schön, 1983) forms of professionalism.

1.3 Research approach

Taking into consideration the exploratory nature of the research question (Yin, 1994), the significant role that inner and outer contexts (Pettigrew, 1987) play in the interaction across occupational groups, and heeding the recent call for detailed comparative studies that focus on workplace and professional practices (Bourgeault et al., 2009; Carlile, 2002; Malin, 2000), this thesis relies on a qualitative multiple-case study approach to explore knowledge barriers in groups comprising distinct occupational communities. Through inductive and comparative analysis of multiple cases, this thesis seeks to generate substantive theory conceived as middle-range theory: one that falls “between the minor working hypothesis of everyday life and the all inclusive grand theories” (Glaser & Strauss, 1967:33).

To substantiate this research aim, I conducted four case studies based on four cross-occupational groups² located within the NHS. The logic of the sampling criteria is to study two cases that are ‘within’ the norms and routines of the NHS (teams that ‘exploit’ existing

² Most of the literatures reviewed for the present thesis use the labels “team” and “group” interchangeably. Although I recognize that there may be degrees of difference between these two terms (see e.g. Katzenbach & Smith (1993)) I will follow this practice.

structures and task content), and two that work with novel tasks, and in contexts characterized by relatively less public scrutiny, procedural formalism, and thin professional norms (teams that have a more ‘exploratory’ orientation). The contrasting characteristics of these cases help to further the understanding of the impact of task-content orientation, and structural and practices enactment conditions on knowledge exchanges in cross-occupational groups.

The study of groups with heterogeneous compositions has become widespread across different theories. In particular, a collection of studies ascribed to the broader literature on product development has focused on cross-functional teams. These teams are usually defined as temporary task teams composed of members from multiple functional areas (Denison, Hart, & Kahn, 1996; Ford & Randolph, 1992; Uhl-Bien & Graen, 1998) which by its very heterogeneous composition can ensure the pooling of a larger amount and variety of information (Brown & Eisenhardt, 1995). The other theoretical stream that has analysed the effects of functional / disciplinary diversity on teams is the cognitive resource perspective. According to this theoretical perspective, functional diversity broadens teams’ cognitive base and stock of knowledge (cf. Webber & Donahue, 2001; Williams & O’Reilly, 1998). A cognitive base – understood as a function of education, functional background and experience – represents the informational and knowledge resources that team members have for decision-making and problem-solving. Consequently, having a broader cognitive base is assumed “to translate into a greater variety of perspectives, which should, in turn, increase performance” (Fay, Borrill, Amir, Haward, & West, 2006). Hence, the cognitive resource perspective focuses on the variables and moderating factors that affect the

relationship between functional diversity and information sharing and the impact of these on team performance (MacCurtain, Flood, Ramamoorthy, West, & Dawson, 2010). These two literatures, inscribed in a more individualist and rationalist tradition, demonstrate that team diversity matters - although the mechanisms by which they matter remain opaque. In particular, the study of professional practices, and the knowledge that transpires through their accomplishment (Nicolini, 2011) is absent and beyond the theoretical and methodological quests of these two perspectives. Here, in contrast, the main reason for using groups as the level of analysis lies in the potential to capture, as a bureaucratic delineated space, a set of practices and interactions that occur across different professionals. Thus, by construction, this thesis does not aim to contribute to either the cognitive literature on teams or to the specific innovation literature on heterogeneous functional groups. As it has been designed, this study is best at illustrating the internal barriers that affect knowledge-sharing across multiple professions and forms of professionalism. Hence, groups provide an initial delimited setting from which to observe expert knowledge in context and across professional boundaries.

Another key consideration of this thesis is how the concept of knowledge can be operationalized. As indicated above, I followed Bourdieu (1977), Lave (1988) and, more recently, Carlile (2002) in understanding knowledge as localized, embedded, and invested in practices. The mutually constitutive relationship between knowledge and practice – i.e. knowledge guides, informs, and enables performing practices, and in turn practices can validate, contradict, augment, or change previous knowledge over time – makes practices a good starting point to explore knowledge across professional boundaries (Carlile, 2002).

This approach also responds to the aforementioned recent calls for studies of workplace practices when exploring the re-delineation of professional boundaries (Fournier, 2000; Malin, 2000).

A number of different methodologies and sources were used for gathering data, following the practice of previous works in the sector (Ashburner, Ferlie, & FitzGerald, 1996; Ferlie et al., 1996; Kitchener, 2000; Llewellyn, 2001; Thorne, 1997). Data stemmed from field interviews and observations as well as from archival sources. First, 78 semi-structured interviews constituted one of the primary data sources for this study. By so doing, this study not only deems the informant knowledgeable and capable of giving articulated insights about groups practices, but also recognizes the value of examining the discourse deployed by professionals (Evetts, 2006; Founier, 1999). Second, I conducted non-participative observations of group meetings for an average period of seven months. This method allows to capture impressions of the enactment of professional practices and social interaction, which has been described as “the common starting ground for all the social sciences” (Bales, 1951:31). Finally, I supplemented the interviewing of informants and non-participative observation of meetings by gathering archival data. I collected both proprietary and public documents that allow me to contextualize and triangulate the findings.

I primarily based my analysis on the methods proposed by Miles and Huberman (1994), though I did take some recommendations from Glaser and Strauss (1967) on comparative analysis, and Rubin and Rubin (1995) on interview analysis. I started by examining the data

and looking for themes and topics associated with the research questions and their operationalization in the initial questionnaire. Through the iterative method of building the cases and contrasting their findings with that of the literatures reviewed, I initially focused on the different practices at group level, and then I explored the theoretical implications in a cross-case comparison (for this inductive categorical analysis I also considered the approach of Anand, Gardner, & Morris, 2007; Gioia & Thomas, 1996; Jarzabkowski, 2008; Pratt, Rockmann, & Kaufmann, 2006).

1.4 Thesis outline

The remainder of the thesis is structured as follows. Chapter two presents a detailed review of the Sociology of the Professions literature to which this thesis aims to contribute. The analysis identifies two broad conceptual streams: one characterized by many seminal studies and theories that have focused on explaining the nature and dynamics of more classic forms of professionalism (e.g. Abbott, 1988; Freidson, 2001). The other, established more recently, has focused on the emergence of novel, plural, and *hybrid* forms of professionalism (e.g. Evetts, 2003; Grey, 1997; Noordegraaf, 2007; Schön, 1983). I conduct an in-depth structured analysis of these two streams. In both cases, I initially discuss the epistemic foundations of, and the role attributed to, knowledge in occupations. Then I move on to analysing the findings of these streams of research on the means for, and barriers to, sharing knowledge. Finally, I summarize the contributions to our understanding of the interactions between occupational communities.

Chapter 1. Introduction

Chapter three describes the research design and methods used in this DPhil thesis. As described above, the thesis draws on multiple case studies and qualitative inductive research methods. The justification for, and the implications of, this choice of research design and methods will be discussed in chapter three. The chapter further spells out the epistemological rationale and the type of theory that this thesis expects to contribute. The remainder of this chapter describes the sampling strategy and, after briefly introducing each case and describing its main characteristics, summarizes the level and unit of analysis (i.e. group level, and group practices respectively). Finally, it describes the progression of the iterative data analysis.

Chapter four presents the data from the exploitative case studies, and examines the enactment of group practices in the two exploitative cross-occupational teams (*AcuGroup* and *MedGroup*) and their impact on knowledge exchanges. From the inductive examination of these practices, and their context of embeddedness, four classes of knowledge barriers emerge: cognitive, social-epistemic, pragmatic, and structural. Each case provides rich descriptions of the knowledge conundrums group members face in their daily work and practice in the delivering of health care services. Cognitive barriers emerge under the high level of ambiguity exploitative groups face, characterized by an overload of externally driven information and demands, within competing frames of reference. Social-epistemic barriers further these challenges by fostering divergent interpretations among group members, which are based on different epistemic (what is known and believed) and doxastic (what is taken for granted) states rooted in the professional schemata. In turn, pragmatic barriers are most immediately related to the perceived consequentiality of

information and knowledge embedded in group practices. In the exploitative cases the awareness of the potential consequences is high among group members, affecting knowledge-sharing processes by fostering divergent consequence identification, limiting certain interactions, and amplifying ambiguity. Finally, structural barriers emerge as a consequence of the structural conditions of embeddedness of each group.

Chapter five investigates the two explorative cross-occupational teams: *CommGroup* and *SaferGroup*. The contrasting characteristics of these two groups vis-à-vis the exploitative ones help to further the understanding of the impact of work and task-content orientation, structural conditions and the characteristics of practice enactment on knowledge exchanges in cross-occupational groups. The evidence shows that explorative groups inhabit spaces somewhat removed from traditional NHS regimes of accountability, jurisdictional boundaries, and professions scripts. Moreover, in explorative groups, the informational space can be characterized as incomplete and uncertain due to the novelty of the task and the fragile and loosely coupled nature of the organization within the overall structure of the NHS. This in turn explains the emergence of cognitive barriers. As for the social-epistemic barriers, and in contrast to exploitative groups in which diverging interpretations are deeply ingrained in professional schemata and collective identity, different understandings seem to be based on personal trajectory and experience, and not immediately related to any specific and defined occupational affiliation. In turn, pragmatic barriers are most directly related to the low perceived consequentiality of information and knowledge embedded in group practices, generating very few incentives to share knowledge. Finally, structural barriers present a different internal configuration in explorative groups based on the characteristics

of the inner context of embeddedness, which can be regarded as a relatively more loosely coupled (cf. Weick, 1976).

Chapter six presents the results of a cross-case analysis. By systematically examining similarities and differences across the explorative and exploitative cases, the intention is to deepen the thesis' conceptual approach and build theory accordingly (Glaser & Strauss, 1967). Initially this chapter pursues a case-oriented analysis in order to preserve the configuration of the cases. In this way the chapter tries to reconcile the need to preserve the cases' uniqueness with that of developing "general understanding of the generic processes that occur across cases" (Miles & Huberman, 1994:173). Secondly, the previous analytical steps are complemented with a more concept-oriented approach. This is done by searching and analysing patterns (Gibbs, 2002), and the presence or absence of certain attributes in three conceptual areas that emerge as relevant across the four cases: nature of information and knowledge, differences between knowledge boundaries and barriers, and types of indeterminacies across cases.

Chapter seven theoretically elaborates on the findings from previous chapters. This is an important theoretical step, not least because the identification and conceptualization of the different knowledge barriers that pervade these two types of cross-occupational groups is a contribution on its own merits. However, at a deeper level, these findings also underline the existence of two very different ecologies of (inter) professional knowledge. This chapter consequently contributes to the existing literature on the reassembly of present-day professionalism by theorizing the different nature of knowledge, indeterminacies, and

boundaries between exploitative and explorative groups. All in all, the diverse knowledge barriers and the underlying professional logics seem to be capturing two contemporary, yet different, knowledge ecologies: one that is related to more institutionalized forms of professional practices, and the other, to novel, emergent and hybrid forms of expert practice.

Chapter eight summarizes the main empirical findings and the theoretical contributions of the study. The analysis of four cross-occupational groups in the context of the NHS provides the empirical basis to develop inductively a theory of knowledge located, invested, and embedded in practices across different forms of present-day professionalism. Through its focus on the mutually constitutive relationships between knowledge and practices, this thesis identifies four major barriers that affect knowledge exchanges across group members. It also advances theoretical explanations of the configurational nature of knowledge and barriers, the distinctiveness of boundaries and barriers, and the different types of indeterminacy that condition group practices.

2. Literature Reviewed

Sociological enquiry has long been attentive to professions and their role in societies. As early as 1893, Durkheim's study on the division of labour analysed their function in the social order. Forty years later, in their classic study Carr-Saunders and Wilson focused on the characteristics, distinctive organisation, and career structure of professions. However, it was not until the 1950s that the Sociology of the Professions emerged as a distinctive field setting out to explain the nature and invariants of these occupational groups (Sciulli, 2005). Many early studies within the field focused on the high social status and credential forms of professionalism – archetypically represented by medical doctors, lawyers and academics – as exemplars of discretionary specialized occupations. This original focus shifted in the 1970s to the study of the power of professions and their dominant position within the division of labour (Freidson, 1970). This new focus was not arbitrary as classic forms of professionalism have historically wielded great influence over clients, other occupational forms, and even States. Finally, the seminal work of Abbott in the late 1980s introduced a more ecological perspective, by studying professions as a distinctive and interdependent system in state of internal competition for jurisdiction (1988). While conceptually different, many of these studies share an interest in classic forms of professionalism, which distinctively base their expertise claims and professional projects on the bearing of substantive and abstract corpus of knowledge, and on the control of both entry and professional praxis (Noordegraaf, 2007).

Chapter 2. Literature Reviewed

However, those classical pillars of professionalism have been recently challenged by organizational, economic, and political changes (Crompton, 1990; Fournier, 1999; Greenwood & Hinings, 1996; Reed, 1996). Such changes, which seem to highlight the historical contingency of professions, have fostered the re-delineation of the professional boundaries (Fournier, 2000), and the substitution of many conventionally professional functions for different and plural forms of professional practice (Malin, 2000). As a result, classic forms of professionalism are weakened (Fournier, 2000; Noordegraaf, 2007), and novel forms of professionalism emerge (Grey, 1997; Hwang & Powell, 2009; Svensson, 2006).

It is therefore the purpose of this chapter to systematically analyse the evolution of the Sociology of the Professions. To motivate this, I first examine the seminal studies and theories that seek to explain the nature and dynamics of more classic forms of professionalism (§2.1). These seminal studies are then contrasted with the more recent studies that focus on the contemporary changes affecting professions and professional practice (§2.2). In both sets of studies, the epistemic foundations of, and the role attributed to, knowledge in occupations is explored, together with the dynamics that occurs across professional groups. Finally, I summarize what is known about classic and novel forms of professionalism and highlight the main gaps in the literature. These will motivate the need to study in a comparative way the knowledge interactions across different contemporary forms of professionalism.

2.1 Classic forms of professionalism: interprofessional competition and the role of knowledge

Profession literature has had a longstanding interest in the interaction across occupational communities. Closely related in its origin to different theories of work (cf. Abbott, 1993), many theorists in this stream have started with the assumption that an occupation is what a worker does (Routh, 1980). This theoretical assumption is followed, in most of the cases, by the historical analysis on how a similar kind of work and/or type of operations have grouped people around similar interests and a common destiny, “drawn together to protect and promote those interests” (Routh, 1980:1). These conceptions inevitably bring into the picture the role of other occupations, against which turf defence and legitimacy is pursued (e.g. Abbott, 1988; Gieryn, 1983; Halpern, 1992 among others). Following Abbott (1988), Manley (1995:299) summarizes this intrinsic occupational dynamic: “As part of a system, occupations compete for exclusive control over their work and for recognition as full profession”.

However, this introductory description is not exempt from problems. The original relationship between occupation membership and identity, and work has become imprecise in post-industrial economies, affecting established divisions of labour and occupational structures (Abbott, 1989; Barley, 1996). Concurrently, the question of what is a profession has become an important starting point for theorists. As a way to answer it, multiple taxonomies have been developed in a gradient that usually goes from turnover occupations to full professions (e.g. Abbott 1988, 1995; Etzioni, 1969; Manley 1995, etc.). The general

argument is that less established forms of occupations lack certain traits usually attributed to professions, such as complex structures, longer persistence, and more power to generate casual consequences for adjacent social groups (cf. Abbott, 1995b). Still, beyond the taxonomies per se, the differences across scholars emanate from the “lack of a clear definition explaining why an occupation is a profession and what steps are required in the process of professionalization” (Manley, 1995:297).

While the answers vary to a great degree, generally these have been grouped on three approaches. The first approach sustains that the possession of certain characteristics – gender or social composition (Manley, 1995), sufficient body of knowledge (Etzioni, 1969), etc. – may help an occupation achieve professional status (Halpern, 1992). In a seminal work of this school of analysis, Ernest Greenwood (1957, in Abbott, 1995a) lists in a comprehensive way the necessary attributes of a full profession: skills based on theoretical knowledge, formal education, code of ethic, a professional organization, and some norms and sanctions. Although such lists have been corrected and / or contested by many, the underlying logic remains the same. For example, following Etzioni (1969), “some sociologists classified technicians as semiprofessionals, members of occupations that had some but not all of the characteristics of a profession” (Barley, 1996:413).

The second approach focuses on the dominance that certain occupational groups exert over others (Halpern, 1992). This perspective, based on professional power theory, sustain that occupations try to control each other, and usually the most powerful win final jurisdiction (Freidson 1970, Manley, 1995). Although different from the previous approach, this stream

is not completely antithetic: possession of the traits listed above usually explains the power of certain occupational communities over others –usually manifested through the ability to exclude other competing occupations from the jurisdictional space – and the access to full professional status (cf. Begun & Lippincott, 1987).

Finally, some scholars have argued that Andrew Abbott’s system of profession theory represents a different third approach. Abbott, who provides a rather loose definition of professions as “somewhat exclusive groups of individuals applying somewhat abstract knowledge to particular cases” (1988:318), sustains that control of knowledge and its application over rival occupational groups is the characteristic note of professions. In latter work, he added a gradient based on the efficacy and richness of this attribute, measured in causal effectiveness of their actions: “I, thus, have four types of occupations so far: strong form occupations, quasi-occupations, workless occupations, and turnover occupations. All of these are entities, in the sense that they can persist, and that they can have causal consequences for adjacent social groups” (Abbott, 1995:874).

As it has been implicitly noted in the previous paragraphs, the interprofessional dynamics are cornerstones for many theoretical scaffolds. Occupations compete with one another, using different resources and strategies to gain autonomy and control over jurisdictions at the expense of their rival occupational groups and/or other institutions. Although the specific dynamics of this professional contest will be examined in depth (see § 2.1.3), it is sufficient to introductorily say that an ecological perspective permeates many of the models – this is so to the extent that they assume inherent interdependencies between professions,

Chapter 2. Literature Reviewed

and between them and the context. For example, Gieryn (1983), in his historical analysis on boundary-work of scientific communities, theorizes on how several groups have competed within this intellectual ecosystem to gain legitimacy. Also, many theorists from the professional power theory understand occupations as competition for zero-sum amounts of authority and elaborate “the influence of political and institutional processes on the outcome of interprofessional struggles” (Halpern, 1992:995). But perhaps the most lucid articulation on this point is that of Abbott, who sustains that “since jurisdiction is exclusive, professions constitute an interdependent system” (1988:2).

In this new theory of mine, the history of professions became a history of turf wars. I theorized the professions as living in an ecology. There were professions and turfs, and a social and cultural mapping – the mapping of jurisdiction – between those professions and turfs. Change in this mapping was the proper focus of studies of professions and happened most often at the edges of professional jurisdiction. These edges could be studied in the three arenas of workplace, public, and state and admitted different kinds and levels of settlements, ranging from full and monopolistic jurisdiction to much looser forms of purely intellectual jurisdiction of clientele differentiation. (Abbott, 1995a:552)

At the intraprofessional level, many scholars have studied how different segments³ within the same occupational group gain intraprofessional prevalence. Processes of segmentation at this level have been attributed to several underlying dimensions, such as income, client status, gender, power, class characteristics, and professional purity (e.g. Abbott, 1981, 1988; Glazer, 1991). The latter dimension has been specially pointed out by Abbott as a key explanatory variable for intraprofessional hierarchies (1995a). High status in the profession is reached through a process of professional regression, i.e. “the ability to exclude nonprofessional issues or irrelevant professional issues from practice. Within a

³ Following Bucher and Strauss, I use the term segment to refer to occupational groups whose members share common work activities, values, identities, and missions (1961).

given profession, the highest status professionals are those who deal with issues predigested and predefined by a number of colleagues” (Abbott, 1981:821).

2.1.1. On professional knowledge

The importance of knowledge and its uses are well established themes in the Sociology of the Professions (Carr-Saunders and Wilson, 1933; Abbott, 1988; Freidson, 1970, 1986, 2001; Halpern, 1992). As it has been suggested above, professional knowledge has been described by many as a central influence on the outcomes of a professional project (e.g. Begun & Lippincott, 1987). As for Freidson (2001), professional knowledge allows occupations organizing and controlling their own work. This is so to the extent that professions claim freedom of judgment under two basic underlying assumptions: 1) that the nature of their work is so specialized as to be inaccessible to those lacking the required training and expertise, and 2) such professional knowledge cannot be standardized. As for Abbott, knowledge systems and their degree of abstraction “are the ultimate currency of competition between professions” (1988:9): through their knowledge system - organized as common set of intellectual resources -, professionals define and redefine their problems and tasks, claim jurisdiction over them, generate techniques, and control the attack of interlopers⁴.

⁴ The centrality of abstract knowledge is pivotal in Abbott’s theory. “Many occupations fight for turf, but only professions expand their cognitive dominion by using abstract knowledge to annex new areas, to define them as their own proper work” (1988:102). In a complementary way, the comprehensive study on technicians conducted by Barley and colleagues (1996) concludes that although technicians (as semi-professionals) do have certain corpus of abstract knowledge, much more important for them is the contextual and semiotic knowledge (e.g. heuristics, sensory-motor skills, local idiosyncrasies, etc).

Chapter 2. Literature Reviewed

The nature of professional knowledge is defined by its level of abstraction, not as a fixed measure, but as a historical and contingent characteristic (Abbott, 1988). Through abstract knowledge – usually based on academic knowledge systems – professions gain legitimacy for claiming jurisdiction, expand their domain of knowledge through research activities, and ensure the training and socialization of their members (Abbott, 1988:57; see also Bechky, 2003a). Consequently, “knowledge and skills are esoteric and well guarded. Few outside the occupation have more than a trivial understanding of the content of occupation’s knowledge base” (Barley, 1996:413).

At the intraprofessional level, the value of knowledge is primarily given by its purity (Abbott, 1988), i.e. “[...] over time professional knowledge develops a system of such relative judgements of purity and impurity. All these judgments follow the same pattern. The professionally defined or definable is more pure than the undefined or undefinable. The clear is more pure than the ambiguous” (Abbott, 1981:824). But the value of knowledge is given not only by its attributes (e.g. purity, efficacy, etc.) but also by the credibility of the claims about such knowledge. “[...] the attributes claimed by occupations, such as the possession of knowledge to perform a valued task competitively, may or may not be ‘real’. What is important (to the occupation) is that social elites, such as state legislators, be convinced of the reality of the attributes” (Begun & Lippincott, 1987:382). In sum, not only knowledge attributes but also the recognition and acceptance of such knowledge claims by third-party make professional knowledge credible, increasing their cognitive legitimacy and aligning them with those adjudicating professional boundaries (Halpern, 1992).

2.1.1.1 Professional knowledge as frame of reference⁵

In addition to the use of knowledge both for intra and interprofessional competitions, the effects of professional knowledge on professional identity, role, and practice have also been addressed. A first effect of professional knowledge is on the construction of professional identity, which has been described by Gieryn in the case of scientific groups. Professional knowledge systems seem to provide cultural repertoires from where to construct ideological self-descriptions (1983:783). In this context, professional ideology is understood as sets of ideas, beliefs, values, and/or world-views that are engrained or inchoate in professional knowledge systems, and serve as bases for professional identity formation.

A second effect of professional knowledge systems is on professional role. Following Schank and Abelson (1977), Barley describes how through scripts – “outlines of recurrent patterns of interaction” (1986:83) – the essence of occupational roles are defined. Additionally to their cognitive aspects, scripts pose normative frameworks over professional role, acting analogously to behavioural grammars (Allen, 2000; Barley, 1986).

Finally, the professional knowledge system, acquired and reinforced via both formal education and on-the-job training, provides programs of action and interpretation which informed occupational practices (Allen, 2000; Barley, 1986). Hughes (1980) provides a

⁵ Although beyond the scope of the current DPhil Thesis, it is worth to note the parallel between some of the concepts developed in this point related to knowledge system as a frame of reference and Kuhn’s concepts of normal science, disciplinary matrix, lexicon, and paradigm, which dictate the kinds of data, standards, and norms of inquiry, and thereby in part the data themselves of scientist’s work (Saunders, S.W. Lecture 5, Univ. of Oxford, 2008)

compelling example on how ambulance crewmen rely on a stock of typified knowledge to recognize and categorize the information of new patients. The occupational knowledge systems provide a set of categories to classify problems and interpret new information (cf. Bowker & Star, 1999). What is interesting to appreciate in such cases is how professional schemata provide the definition of normality (“the normal case” and/or “the normal problem”) on which diagnostic and treatment are based on (Abbott, 1988; Hughes, 1980).

2.1.1.2 Demarcation problem

In preceding points the nature, value, and use of knowledge within and across occupational groups have been examined. As knowledge has been considered one of the main resources for professional competition, then professional knowledge boundaries have been studied in their dual nature of limiting jurisdictional claims and securing turfs against encroachers (Abbott, 1981, 1988; Allen, 2000; Barley, 1996; Gieryn, 1983; Kronus, 1976). Thus, in the context of the literature reviewed, the demarcation problem is assumed to be a dynamic problem⁶. Specifically, demarcation is considered part of ideological and strategic attempts to secure and legitimize professional boundaries (Gieryn, 1983). This relationship between boundaries of knowledge and legitimacy of jurisdictional claims is also clear in Abbott’s work: usually using abstract knowledge, professions construct problems into jurisdictions, and if they do so successfully, professions can claim “certain rights – from others in the workplace, from the public, from clients, and from the state” (Abbott, 1989:278). Hughes

⁶ Originally, the term demarcation was used in a fairly static conception, to distinguish which type of knowledge could be considered scientific and which could not. Initial efforts can be traced back to Carnap (meaningfulness), Popper (falsifiability), Khun (normal science), among others.

(1980) gives a concrete example of such rights: although paramedics have the knowledge to recognize a “dead” patient, only doctors can legally declared him so.

The enactment of demarcation, in analogous terms to those used by Gieryn (1983), is the attribution of certain characteristics to certain professional groups in order to differentiate and legitimize them against competitors. One concrete way to build such a social boundary is through formal education. Kronu (1976) explains how the requirement of a liberal education – which presupposed the knowledgeability of Latin, the language of medical practice – helped establish a clear boundary between physicians and apothecaries. Something similar occurs nowadays, when formal education is attached to certain certification/or qualification as *sine qua non* for professional practice (e.g. physicians, civil engineers, etc.)⁷.

2.1.1.3 Gnosiologic mechanisms

In their simplest expression, “the tasks of professions are human problems amenable to expert service” (Abbott, 1988:35). It is interesting to note how for Abbott, in the genesis of professional work are problems (amenable to professional-work) and certain body of knowledge. The abstract characteristic of these bodies of knowledge allows professions to embrace – and claim jurisdiction over – a number of different concrete problems, limiting their contingent nature and avoiding responses based on very concrete / disaggregate

⁷ It is worth to note that, although the purpose of demarcation is to place clear boundaries between certain sets of legitimate professional knowledge and other types of knowledge, in practice this distinction is not always clear. As Barley (1996) explained in the case of technicians’ knowledge, some element of the technicians’ set of knowledge overlaps the professional knowledge set (notice that a similar situation occurs in the case of nurses and physicians).

knowledge which can be highly contestable. Consequentially, classic forms of professionalism are mostly restricted to inferential occupations (e.g. Schön, 1983) to the extent that professionals make decisions on concrete problems and cases on the basis of the more abstract corpus of knowledge (cf. Wilensky, 1964).

Abbott proceeds by theorizing how jurisdictional claims encompass three actions: “claims to classify a problem, to reason about it, and to take action on it” (1988:40). The interaction between concrete problems and body of abstract professional knowledge takes place through the three modalities described above, which are formally termed by Abbott (1988) as diagnosis, inference, and treatment. In a similar vein, Hughes (1980) illustrates how general types are used to categorize / diagnose concrete emergency cases and problems. Yet, perhaps more interesting for us, these systems of professional knowledge have an order-giving power (Shils 1965, in Abbott 1988): through these gnosiological mechanisms the potentially infinite, uncertain, and discontinuous nature of information on concrete problems are ordered into known types, allowing a clear response in terms of treatment or caretaking (e.g. Barley, 1996).

2.1.2 Sharing knowledge in profession literature

The unit of analysis of the majority of the work reviewed, i.e. historical evolution of single profession or interaction between two occupational groups diachronically analysed, limits our understanding of concrete practices, conduits and mechanisms to share knowledge – or to impede its leaking to other occupational groups – from a more micro perspective (see as

exceptions Barley, 1986, 1996; Bechky, 2003a; Ferlie et al., 2005). The micro perspective advocated can not only expand sociological thought on the link between professional schemata and concrete professional actions, but also further our understanding on how knowledge interaction is enacted across professional boundaries. Nonetheless, the latter comment should not impede our recognition of the contributions of the literature reviewed on more classic forms of professionalism, especially in relation to institutionalized mechanisms for sharing professional knowledge.

One of these mechanisms is that of formal education in academic settings. As Scott (1982:214) explains, formal education ensures socialization and training, acquisition of professional skills and standards, and command of a set of theoretical principles. Although many of such theoretical contents received in universities are irrelevant to the future professional practice (Abbott, 1989), in general they ensure novices internalization of professional criteria. In professional acting, characterized as highly autonomous, this would allow certain level of cohesion and an internalized form of control (see also Abbott, 1988; Scott, 1982). Yet just as formal education represents an institutionalized mean for sharing knowledge within occupational communities, it so too offers a way for reinforcing jurisdictional boundaries (Abbott, 1988; Allen, 2000; Begun & Lippincott, 1987; Glazer, 1991; Halpern, 1992). For example, Kronu (1976) and Manley (1995) show how physicians, by elevating and formalizing educational standards, reinforced professional boundaries by limiting the number of entrants and making the knowledge more esoteric.

Chapter 2. Literature Reviewed

Training is a complementary mean to share knowledge. Facing the increased pace of change – which makes part of professional knowledge obsolete and generates the need for adding new knowledge (Abbott, 1988) – occupations rely on different types of trainings to add to or replace part of their body of professional knowledge. Moreover, training has been used as a way to prevent the tendency toward the commodification of knowledge – which happens through processes of routinization and codification –, which can make knowledge potentially appropriable by competing occupational groups (Begun & Lippincott, 1987).

Through formal education and training, occupations also ensure a common language which facilitates the knowledge sharing and understanding at the intraprofessional level. Still, the control of official language in different arenas represents also an essential resource for jurisdictional competition (Abbott, 1988; Power, 1997). For example, Power (1997) analyses how the incorporation of accountant's language in regulatory documents represented a clear strategy to gain control over the new environmental auditing field.

Other means for sharing and furthering professional knowledge are journals, research institutes and occupational associations. The latter have had an important role not only in the sharing of professional knowledge but also as a resource for boundary maintenance. Analysing the role of the English Apothecaries Association, Kronus concludes that “the association's goal was to function as the occupation's gatekeeper: by admitting and registering *qualified* members, the association could define and prohibit *unqualified* persons (or occupations) from encroachment” (1976:14).

In the case of more situated and less codifiable types of professional knowledge, usually generated at the workplace, other mechanisms – that sometimes resemble the informal apprenticeships way of transmitting knowledge – are in place (e.g. observation, sharing stories, etc.). Such means of sharing knowledge, central in crafts and technicians communities (Barley, 1996), are also important for professions both for sharing tacit knowledge and avoiding encroaching. Begun and Lippincott (1987) examine historical cases of how professional communities failing to substantiate their jurisdictional claims based on formal knowledge, rely on “indeterminate knowledge” claims to do so. Following Atkison (1977:247, in Begun & Lippincott, 1987), “transmission of ‘indeterminate knowledge’ relies upon ‘the observation by practice by a trainee’”. Finally, at more micro level perspective, the role of artefacts as a way to share knowledge has recently received attention within professions literature. Bechky’s ethnographic work examines the use of artefacts not only for sharing knowledge but also as a means to “construct and reflect occupational jurisdiction in the workplace” (2003a:746).

2.1.3 Interactions between professions

Many analysts regard the interrelation between professions as a key variable for the understanding of the evolution of occupations. The increasing division of labour, partially based on the specialization of work, has made the interaction between occupations vital. Although, as Begun and Lippincott (1987) seem to suggest, the theoretical assumption that conflict underlies professions interaction is not always logically necessary, many seminal theories have considered competition and conflict as quintessential for such interaction (cf.

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Mesler, 1991). Both in professional power theory (e.g. Freidson, 1970) and Abbott's theory (1988, 1995), competition and attempts of dominance are inherent to the ecology of professions.

The latter author argues that the exclusive character of jurisdictions forces professions to fight for them. Such potentially conflictive interactions take place in three different arenas: the workplace as well as the public and the legal areas; each one with different speed and characteristics (Abbott, 1988). Kronus exemplifies encroachment in the workplace in the case of apothecaries, which "begins with role expansion as some members of the occupation expanded their activities beyond the border defined for them by physicians" (1976:16). Yet, in general, the fact that the essence of professional activity is not fixed gives space for disputes about its definition, meaning, and appropriation (Abbott, 1988; Allen, 2000).

If interaction and boundary conflicts take place in the already described arenas, dispute resolution can accordingly take place in those arenas too. Although the literature reviewed is full of examples of conflict resolution between professions in work, legal and public settings (see respectively Gieryn, 1983; Mesler, 1991; Power, 1997) and of the role played by political, institutional, cognitive factors in such resolutions (Halpern, 1992), it is Abbott that provides the most accomplished architecture of settlements of jurisdictional disputes (1988):

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“To claim to full and final jurisdiction is only one of the possible settlements of a jurisdictional dispute. There are at least five other important settlements. Each can serve as a transition so some other for, although there are characteristic relations between them. Professions can settle a jurisdictional conflict through the subordination of one under the other. Sometimes the subordination is merely intellectual, the dominant profession retaining only cognitive control of the jurisdiction, while allowing practical jurisdiction to be shared more widely. Alternatively, professions can form a final division of labor that splits the jurisdiction into two interdependent parts, and occasionally they share an area without division of labor. Another solution is to allow one profession an advisory control over certain aspects of the work. Finally, professions can divide their jurisdictions not according to content of work, but according to nature of client” (Abbott, 1988:69).

As for Abbott, the five types of settlements – full, subordinate, intellectual, divided, and advisory jurisdiction – “are or eventually become formal, explicit claims in the public or legal arenas. The last form of settlement is purely workplace settlement. Indeed, it often exists in contradiction to the officially established structure of jurisdiction. It is jurisdictional settlement by client differentiation” (1988:77).

However, it is also important to recognize that professions are not absolutely compacted institutions. Rather, they are composed of multiple segments and sub-groups, with different corpora of knowledge, access to resources, and goals (Scott, 1982). It would then be hasty to understand interprofessional settlements solely from a unified perspective⁸. In this vein, Halpern analyses how multiple sub-groups coexist and interact within professions. If one of these sub-groups initiates dominance against rival groups of competing professions, it needs the cooperation of other segments of its own profession to subordinate its competitors (1992:997). As a result, conflict around professional boundaries and settlement are not only negotiated interprofessionally but also intraprofessionally (cf. Mesler, 1991).

⁸ Though Abbott does not include a detailed description of such internal interaction across sub-groups when defending or competing for jurisdiction, he nonetheless theorizes on the internal stratification in professions and the factors that explain status across sub-groups within each profession (1988:118).

2.1.3.1 Normativeness in classic forms of professionalism

In previous points, the acquisition and enactment of professional schemata and scripts have been discussed for the more classic forms of professionalism, but the normative aspects only sketched. Being a professional presupposes the assimilation of the set of norms that rules the professional praxis. Such norms include cognitive as well as moral aspects. With regard to the former, Abbott (1988:51) affirms that “any profession has rules dictating when a professional must resort to complex inference, and learning these rules is central to learning the profession”. In this respect, in discussing adherence to a work style in technicians communities, Barley describes how membership to these communities entails knowing how to minimize uncertainty and common mistakes when dealing with empirical interfaces (1996:426). These and others cognitive norms are internalized, acting as ways of self-control (Scott, 1982). In addition, these shared ways of acting carry moral standards. The professional moral frameworks provide not only a point of reference to guide professional actions (Scott, 1982) but also a way of legitimization – at intra and interprofessional levels – of professional activities (e.g. Gieryn, 1983).

To the degree that professional norms are internalized and adopted by the different segments within an occupational group, the professional schema is reinforced. But since the corpus of norms is not absolutely coherent – i.e. frequently norms and counternorms coexist (Merton, 1963; see also Gieryn, 1983) –, and is applied in rather different contexts, the enactment of such rules cannot be in any sense homogenous (e.g. Barley, 1986). Moreover, the very fact that there is always room for multiple interpretations of a given

norm – i.e. there are no norms that are self contained (Wittgenstein, 1958) – increases the likelihood of inner conflicts and slippages (e.g. Barley, 1986).⁹

Multiple forms of professional control try to minimize the deviance of individual members. Among the formal way of controls, schools, examinations, licenses, and ethic codes have been analysed by scholars alongside informal ways, usually idiosyncratic to professional worksites (Abbott, 1988; Scott, 1982). Scott (1982), in the specific case of physicians, analyses different forms of professional control associated with diverse structural and governance arrangements. He describes the way that many professions rest on a certain form of collegial control to observe, correct, and/or sanction members or practices, but still place primary responsibility on each individual member:

Colleagues are viewed as (a) capable of exercising control since they have acquired similar skills and standards, and (b) motivated to exercise control since they have a personal stake in maintaining the reputation of their profession” (Scott, 1982:214).

2.1.3.2 Knowledge barriers across professions

The previous analysis on inter-professional dynamics, and on the core assumptions underlying many seminal works within the Sociology of the Professions, helps explain the lack of systematic examination of knowledge barriers across professions. Under the assumptions of conflict and competition, which permeate most of the ecologies of professional work, professional boundaries equate with knowledge barriers. This is so to the extent that contestation occurs at boundaries (Abbott, 1988), and knowledge is one of

⁹ As Barley (1986) has noted, if slippages persist over time, they can become replicated and adopted, potentially changing former norms and practices. In a similar vein, Allen (2000) analyses how previous professional orders are negotiated and partially changed.

the main currencies in the inter-professional struggles. It is hence logically coherent that many of the analysed authors have primarily focused on boundary-work and boundary maintenance as a defensive collective strategy (cf. Freidson, 2001), having subsumed the analysis of knowledge barriers to such defensive strategies. Consequently, it is not surprising that the more systematic analysis of knowledge barriers across professional groups has been advanced by studies located in adjacent theoretical areas, which have worked under more flexible theoretical and epistemological assumptions.

This is the case, for example, for the Ferlie and colleague's study (2005) on the (non) spread of innovation. In their analysis of eight innovation pathways in healthcare, they found that social and cognitive boundaries retard the diffusion of innovation across professional groups. For social boundaries, the authors found that well-developed professional roles, identities, and traditional work practices hamper the spread of innovation across professional boundaries. For cognitive boundaries, they sustained that different professional groups develop distinctive knowledge bases, which in turn explain the emergence of epistemological and cognitive barriers across professional groups. In summary, while the authors treat boundaries in a similar vein to many works in the *Sociology of the Professions*, as a "relatively impermeable frontier between different professional groups that inhibits the spread of new work practices" (2005:125), they have advanced the understanding on the constitutive conditions that allow professional boundaries to become knowledge barriers.

Similarly, Carlile's study (2002) on boundaries affecting new product development helps one to understand the conditions that limit knowledge sharing across different epistemic groups (i.e. functions) by drawing on some classical semiotic categories (syntactic, semantic, and pragmatic ones). The syntactic level recognizes the importance of some intrinsic features of knowledge that could be associated with the syntax level, and once the syntax problem is resolved, then the knowledge barriers can be overcome (cf. Shannon & Weaver, 1949): "It is through the existence of a shared and stable syntax across a boundary that matching occurs and ensures a 'quality information exchange' " (Carlile, 2002:44). Nonetheless, two possible tensions arise when analysing interactions across professional groups; a) the difficulty of apprehending others' grammar, which not only refers to the way knowledge is articulated but also the way knowledge is shared in each community, b) even if the syntactic norms are learnt reasonably well (cognitive level), they always presuppose that correct and incorrect ways of articulating and sharing knowledge exist (normative level). Again, tensions may arise because this latter dimension is embedded in their own professional values and norms, but it may also be demanded by that of the group and the organization.

Semantic barriers, instead, bring to the fore the fact that no language is univocal. Sharing knowledge presupposes, at this level, the existence of different interpretations across the different professional groups, even when interpreting the same concept (Barthes, 1967; Eco, 1976). "A semantic approach recognizes that even if a common syntax or language is present, interpretations are often different which make communication and collaboration difficult" (Carlile, 2002:44). These "representational gaps" (Cronin & Weingart, 2007), a

result of the referred to equivocality, could affect the process of sharing knowledge and generate conflicts. While these observations bring a more interpretive perspective to the study of knowledge sharing (Boland & Tenkasi, 1995), reflecting, at an organizational level, the image of organizations as rich interpretation systems (Daft & Weick, 1984), in the interaction across professional groups, the existence of multiple contexts from where to fix the plurality of meanings may generate tensions. Again, the existence of multiple contexts of reference (inner and outer, native and foreigner, etc.), and the consequent embeddedness of the process of understanding, generates not only cognitive challenges but also normative ones (e.g. each professional group may recognize that other's interpretation is possible but not proper).

However, the tensions analysed in the paragraphs above suggest that the barriers for sharing knowledge are not only bound to syntactic and semantic features. In the context of experts' interaction, knowledge is a resource for their social strategy and may be equated with power (Contu & Willmott, 2003). For many of the accounts I have so far referred to, the understanding of pragmatic barriers is fundamental: sharing knowledge is a relational matter of interacting individuals who attribute knowledge to each other in social settings. Thus, knowledge and knowledge sharing have an evidential character: they express a personal position as a sign to others. But also, as Carlile (2002) describes, knowledge is costly to change and, when put "at stake" in social interaction, agents are reluctant to change it. Bourdieu (1977) explains this at a pragmatic level as "how individuals are committed to and invested in their knowledge as hard-won outcome" (Carlile 2002:445).

2.1.3.2 Power and legitimacy

While the conceptualization of sources and uses of professional power has diverse theoretical roots in the different works analysed, a certain degree of agreement exists on the definition of power. In the interaction between professions, power is considered the profession's ability to ensure and protect their jurisdictional boundaries and autonomy against interlopers and third parties (see as e.g. Freidson 1970, 1986; Abbott, 1988; Kronus, 1976; Scott, 1982). Kronus posits that a central measure of power is the extent to which a certain profession can protect task domain from encroachment (1976:5). Scott extends this understanding to include the power to determine organized settings (1982). A similar definition is given by Abbott, for whom incumbents' power is defined as the capacity to slow or thwart processes of jurisdiction exchange (1988:139) and exercise in all three settings: before the public and the state, and in the workplace (1988:138).

Differing from these analogous definitions, the identification of sources of power is much more diverse and deep-rooted in the different theoretical models. As for Freidson (1970:79) the organization of work explains the concept and level of professional power, whereas for Manley, sex, race, class and prevailing social consciousness rather than professional knowledge are the main sources of professional power (1995:301). Instead, Halpern (1992) associates credible knowledge and cognitive legitimacy with professional power, not unlike Kronu (1976), who analyses how the demonstration of superior task competence historically was vital in the turf struggles between physicians and pharmacists. This latter author also provides an extended list of different sources of professional power – such as

formal education, the size of such a community (positing a curvilinear relation with power), and type and size of the economic base – but concluding that the professions’ client base is the main source of their power.

A related issue concerns the professions’ sources of legitimacy. In supporting their jurisdictional claims, professions may look for the support of other social institutions whose “interest are compatible with their own” (Halpern, 1992:1015), as it is the case of some professions that highlight “scientific knowledge” as their foundations (cf. Abbott, 1995a; Bechky, 2003a). This and other strategies tend to ensure cognitive legitimacy and obtain for professions symbolic power, which is acquired when such groups have “monopoly of the legitimate – i.e. the explicit and public – imposition of the legitimate vision of the social world” (Bechky, 2003a:745, see also Bourdieu, 1994).

2.2 New trends and the definitional question: a broader understanding of professionalism

The previous section’s description generally matches with what has been labelled as classic forms of professionalism. Noordegraaf summarizes this “pure” professionalism (quintessentially represented by medical doctors, lawyers, and university professors) as a restricted view that represents an “associative logic that interweaves occupational content and institutional control that therefore establishes occupational closure” (2007:765). As described earlier, the content of classic forms of professionalism are first and foremost based on their knowledge bases (cf. Wilensky, 1964), and the rules for applying the

generally abstract and esoteric knowledge to concrete cases (cf. Abbott, 1983). Moreover, control is expressed in terms of a profession's ability to ensure and protect their jurisdictional boundaries and autonomy against interlopers and third parties (e.g. Freidson, 2001). However, this traditional analysis has been challenged by at least three contemporary trends: the weakening of classic forms of professionalism (Fournier, 2000; Noordegraaf, 2007), the emergence of new forms of professionalism (Grey, 1998; Svensson, 2006; Hwang & Powell, 2009), and the consequent broadening of the definitional question of what is a profession (Evetts, 2006).

2.2.1 The weakening of classic form of professionalism

It has been widely discussed how classic forms of professionalism are being threatened by different organizational, economic, and political changes (e.g. Crompton, 1990; Greenwood & Lachman, 1996; Reed, 1996). From an organizational perspective, even as early as 1964, Wilensky had already discussed how bureaucracy and client orientations may weaken professional service ideals and norms, together with traditional forms of colleague control. This is so to the extent that organizational practices force professions to adopt a set of "external" values, practices, and accountabilities; an attempt that by its very nature undermines the legitimacy of the traditional boundaries that demarcate "areas of exclusive and single professional jurisdiction" (Fournier, 2000:78). Furthermore, it is perhaps the very pervasiveness of the organizational logic that has turned classic forms of professionalism into organizational professions (cf. Larson, 1977), subjecting them to bureaucratic forms of control.

From an economic perspective, it has been argued that the advanced forms of liberalism have forced traditional professions to adopt a series of market techniques – such as marketability, budget control, and audit (Fournier, 1999) – and even include market criteria as a new form of professional accountability, making them answerable not only to clients but also to a new range of stakeholders. This more ambiguous situation, as Fournier (1999:288) argues, “makes the meaning of professionalism highly contestable and malleable, and that loosens the grip of the disciplinary logic of professionalism”. Moreover, the extension of the market into professional domains forces professionals to compete for public funding or clients, blurring traditional boundaries between the professions and the market (Fournier, 2000:81).

Finally, from a political perspective, the assumptions of complexity and novelty that lay at the core of many political reforms have led the opening up of traditional professional fields to new occupations, blurring traditional boundaries across professional groups (Fournier, 2000). More profoundly, the very definition of disciplinary monopolies seems to be at odds with both current market and many western political ideologies. It is under these ideas that traditional professional attempts to increase power, privilege, and status have been highly criticized as “forms of enact class bias and social closure” (Noordegraaf 2007:768).

The above description does not imply, however, that traditional forms of professionalism are extinguishing species. Simply that under these new organizational, economic, and political trends, professional groups need to draw upon different symbolic resources if they

want to legitimize their practice. In this process, classic forms of professionalism might need to reinvent themselves to map onto these new contextual considerations (cf. Fournier, 2000). It is in this vein that Noordegraaf (2007) describes the broader concept of *situated professionalism*, as a more realistic understanding of present-day forms of professionalism. Primarily referring to organizational considerations, Noordegraaf describes how “professionals can no longer evade organizational and financial considerations” (2007:772) which limit, yet do not eliminate, professional control. Similarly, Whitley analyses the emergence of occupational professionals, “groups [that] rent their certified skills to employers who coordinate and organize them for their own purposes and so control task allocation and work evaluation” (1989:217). In this context, even boundaries between professional and managerial roles might shift and become blurred (Grey, 1998).

The public sector and the professionals working in it have experienced many of the trends described above. Particularly, with the introduction of *new public management* (NPM) reforms, market-like forms of control “in public professional service have been implemented in many countries” (Svensson, 2006:581, for a comparative analysis see Pollit and Bouckaert, 2000). By fostering a range of management doctrines and techniques, such as competition and incentivization, the NPM has re-shaped the traditional boundaries and accountabilities of classic forms of professionalism such as medical doctors in health care settings. In the medical field, all these reforms have greatly limited the autonomy and dominance of doctors (Scott et al., 2000). What these changes suggest is not a ‘de-professionalization’ of health care (cf. Malin, 2000) but rather that traditional professionals are forced to find ways to cope “with the contradictory pressures that flow from managerial

reforms” (Noordegraaf & Van Der Meulen, 2008:1057). Such pressures, first and foremost, come in the form of nonprofessional and external control over professional practice. Thus, the limitations of the cherished professional autonomy and colleague control pose new questions for medical doctors, as well as finding different resolutions (see e.g. Leicht et al., 2009), such as the emergence of medical managers roles (Llewellyn, 2001:596).

2.2.2 The professionalization of non-professional groups

The weakening of classic forms of professionalism has been accompanied by the amplification of professionalism (Hwang and Powell, 2009), or the “professionalization of everyone” (Wilensky, 1964). This seeming paradox occurs as “knowledge societies call for professionals, but these very same societies are full of barriers for strong professionalism” (Noordegraaf 2007:763, see also Evetts 2006). Consequently we seem to be witnessing, as many recent studies underscore, a broader tendency of different occupational groups claiming the status of professions (e.g. Grey, 1997, Kunda and Barley, 2004, Hodgson, 2005). Interestingly, such attempts are not solely based on traditional forms of social closure and control (such as accreditation) but on more general and unspecific claims, such as that of “being a professional” (Grey, 1998) or “putting on a professional performance” (Hodgson, 2005). In other words, professionalism seems to be related to not only the possession of specific knowledge and skills but also with acting in a “professional way”.

This more general trend of professionalization of non-professional groups has been explained in the context of “the expansion of higher education and the concomitant growth

of organizational populations” (Hwang & Powell, 2009:268). On the one hand, the broader access of the so-called *quasi-* or *semi-*professions to higher education, as discussed in previous points for classic forms of professionalism, allows these occupational groups to systematize and transfer a corpus of knowledge (i.e. beliefs and values) from which professional identities can be developed. On the other hand, the growth of formal organizations (and their bureaucratic logic (cf. Freidson, 2001)) not only limits the autonomy of classic and *status* forms of professionalism, but also allows multiple occupational groups to flourish and gain legitimacy within the organizational boundaries. Consequently, “modern professions have turned into *occupational* professions (Elliott, 1972) and perhaps into *organizational* professions (cf. Larson, 1977) that primarily face organizational control” (Noordegraaf 2007:763).

In her analysis Evetts (2006) also seems to suggest that the pervasiveness of organizational logic and contexts reduces the differences between traditional and new forms of professionalism. While she ascribes to the aforementioned dual vision of present-day professionalism (i.e. the existence of two contrasting forms of professionalism in knowledge-based service sector work: *organizational* and *occupational* professionalism), she also suggests that both forms are influenced by the same contexts of practice enactment. This is so to the extent that both types of professionalism need to draw upon similar values (i.e. organizational ones), are exposed to the same forms of control (bureaucratic and hierarchical), and similar budgetary restrictions and rationalizations. These insights are particularly relevant for the discussion of the occupational status of managers. Although some authors reject the idea of investing managers with such a status

(see e.g. Whitley, 1989), many others see the managerial professional project as a reality (see for e.g. Grey, 1997; Noordegraaf, 2007; Schön, 1983). Noordergraaf and Van der Meulen (2008) have recently argued that not only managers can establish occupational identities, but also they do that by differently drawing in political and symbolic resources. Authors like Grey (1997), for instance, have described the professionalization of management in terms of “responsibilization” of managers, and Hodgson (2005) has emphasized the performing character of managerial practice.

In comparison with the analysis of established professions (§ 2.1), the more recently *professionalized* groups illustrate some known characteristics of the *classic* professional project while departing from others. Many of these groups form associations, develop higher education and training programs, organize conferences, and even write codes of conduct (see for a recent analysis De Vries, Dingwall, & Orfali, 2009). Thus they resemble classic professions in their attempts to develop a substantive and abstract corpus of knowledge, institutionalizing some mechanisms of social closure and identity formation, and generate some normative structures. However, such attempts are limited – as they are mapped onto – the material, symbolic and ideological contours of organizations. This situation seems to be indicating a departure from the *classic* professional project in at least three critical points: the nature of professional knowledge, control, and boundaries.

First, while many newly *professionalized* groups might develop a substantive and abstract knowledge, in practice the ambiguous, idiosyncratic, and highly context-specific nature of organizational problems makes experiential and general knowledge more relevant (see

Schön, 1983). Second, even when these groups might try to enact classical collegial forms of control, any strict substantive and institutional control are hard, if not impossible, to accomplish in organizational settings, and in the face of ambiguous problems and highly experiential knowledge (Noordegraaf, 2007:776). At its best, these *new* professional groups might aspire, resembling their *classical* counterparts, to maintain a mixed-up form of control (i.e. bureaucratic and professional). Finally boundaries, as Fournier (2000:79) points out, become less rigid as professionals in organizations are “now required to participate in functions and to acquire knowledge formerly reserved to other specialist”.

The above discussion is highly relevant in public domains such as health care, as different groups such as nursing (Brooks, 1999; Malin, 2000) and health care managers (Noordegraaf & Van der Meulen, 2008) have advanced their own professional project. By so doing, they have not only imitated many of the strategies deployed by classic professions (i.e. high education, associations, etc.) but also extended and rethought their work domains. Along with doctors becoming medical managers (Llewellyn, 2002), nurses have become “nurse practitioners”, and managers “have also introduced ‘dual’ management systems with both managers and professionals as decision makers” (Noordegraaf & Van der Meulen, 2008:1057). These different groups interact in very ambiguous settings (Noordegraaf & Abma, 2003), where multiple and mixed-up forms of control coexist, and where professional boundaries are not monolithic yet they are ostensible enough as to allow shared senses of direction and belonging to emerge (Noordegraaf, 2007).

2.2.3 The broadening of the definitional question and new research directions

The above described contemporary trends, i.e. the weakening of classic forms of professionalism and the emergence of new ones, have had perceptible effects on the current debates on the Sociology of the Profession. Perhaps the most noticeable one has been the re-engagement with the definitional question. Questions such as *what is a profession?* or *how can professions be distinguished from other expert occupations?* have become central questions in current debates (e.g. Fournier, 1999, 2000, Malin, 2000; Sciulli, 2005; Torstendahl, 2005; Malatesta, 2005; Evetts, 2006; Noordegraaf, 2007). More profoundly, this line of sociological enquiry addresses a vital epistemological question about the utility, feasibility, or even desirability of such definitional integrity. The answers are diverse, however for analytical purposes they can be grouped into two mainstreams. On the one hand, there are some scholars that emphasize the need for theoretically and/or empirically, sharply identifying the particular characteristics of professions vis-à-vis other groups and logics (see e.g. Freidson, 2001, Sciulli, 2005). On the other hand, there are many scholar that have either followed a more pragmatic approach to answer these questions (e.g. Abbott, 2002), or even accepted “definitional uncertainty and move on” (Evetts, 2006:133).

Exemplary of the first mainstream is the late Sciulli’s advocacy for a definitional integrity of professions, in the appreciation that any definition is “simultaneously constitutive of the field of study itself” (2005:919). In that article, he is highly critical of many extant theories in that, he claims, they fail to provide a distinctive definition of professions vis-à-vis other

forms of expert groups. Successively, Sciulli proposes three criteria that more universally apply to professions: 1) to advance the well-being of their clients, 2) to bear responsibility within the institutional arrangement where they work, and 3) to establish and maintain ongoing deliberation within the professional community (see pages 935-937). While this article has sparked a series of critical responses (see e.g. Malatesta, 2005, Evetts, 2006) – not least because it somehow dismisses previous definitions and proposed his as the precise one (Torstendahl, 2005) – it has the merit of re-opening the debate about the definitional aspect of professions (Bourgeault et al., 2009). However, before Sciulli others scholars (perhaps most notably Freidson, 2001) have recently attempted to maintain a proper or *purified* definition of professionalism, one that rejects “the idea of professionalism outside traditional professional domains” (Noordegraaf, 2007:771).

As for the second mainstream, its proponents understand that any strong form of definitional purity is either untenable or is the consequence of a reification and/or theoretical homogenization (Cohen, Wilkinson, Arnold, & Finn, 2005; Evetts, 2006). Consequently, many scholars have followed a more pragmatic approach with regards to the definitional problem. It is interesting to note that Abbott in his seminal work *The Systems of Professions* provides a rather loose definition of professions as “somewhat exclusive groups of individuals applying somewhat abstract knowledge to particular cases” (1988:318). More recently, he proposes an even more minimalistic definition of professions, as any expert occupation ‘that competes’ for workplace jurisdiction (Abbott, 2002). Evetts, summarizing this second stream, sustains that “definitional precision is now regarded more as a time-wasting diversion in that it did nothing to assist understanding of

the power of particular occupational groups (...) or of the contemporary appeal of the discourse of professionalism in all occupations.” (2006:134). Similarly, Noordegraaf (2007:780) sustains that the idea of professionalism does not have to be purified, as it might be reflecting the ambiguous situation of present-day professionalism. In general, then, the emergence of alternative ideas of professionalism is considered not only empirically but also theoretically relevant, as they have provided new directions in the research field (Evetts, 2006).

One of these new research directions, which have emerged from the different analysed trends, looks at professionalism as a set of workplace practices. While the interest in occupational and professional practices is by no means new (for e.g. Barley, 1986, 1996; Bechky, 2003a; Carlile, 2002; Østerlund & Carlile, 2005), more recent studies have endorsed this practice approach based on the explicit recognition that traditional professional boundaries have been eroded, challenged, and redefined; and these processes have primarily occurred within organizational settings. This *re-turn* to practice (Miettinen et al., 2009) hence, is led by the desire to explore how re-delineation of professional boundaries contours has occurred (Fournier, 2000), and how “workplace practices have become substitutes for conventionally preconceived professional functions” (Malin, 2000:2). Moreover, in defining professionalism as a set of workplace practices, there is also an explicit recognition of the impact that both the discourse of enterprise and the bureaucratic logic have had on occupational groups, challenging professional segmentation, division and monopoly. As professionals become “organizational professionals” (Larson, 1977), and ambiguity around boundaries increases (Noordegraaf, 2007), the study of

workplace practices provides a coherent focus from where to understand the constitution of different forms of present-day professionalism. Finally, this renewed interest in professional practices coincides with the emergence of a more radical understanding of practice, one that posits that the relationship between knowledge and practice is a specific form of equivalence (Cook & Yanow, 1993; Gherardi & Nicolini, 2002; Lave, 1988; Nicolini, 2011; Orlikowski, 2002; Tsoukas, 2005). More specifically, this perspective asserts that knowledge is not a pre-existent and/or independent substance (cf. Popper, 1967) but essentially an action tied to the enactment of practices (Orlikowski, 2002). As a consequence of this performative understanding of knowledge, authors within this theoretical stream favour the study of knowing as a situated and collective accomplishment that “inherently transpires in, and through, sociomaterial practices: knowing and practicing are ontologically equivalent” (Nicolini, 2011:604).

Another different, though related, research direction proposes to interpret professionalism as a set of discourses of occupational change and control (Fournier, 1999, 2000; Evetts, 2003, 2006; Cohen et al., 2005). Fournier (1999) suggests that both classic and novel forms of professionalism equally rely on the professional discourse as means for not only external legitimization but also internal control. This is so to the extent that the mobilization of professional discourse can serve to regulate employees’ actions. Fournier (1999) - following a foucauldian perspective – understands it as a disciplinary logic. She considers that this disciplinary logic “inscribes ‘autonomous’ professional practice within a network of accountability and governs professional conduct at a distance (Fournier, 1999:280). Furthermore, Cohen and colleagues argue that this particular focus might help to extend the

sociological “understanding of how differently situated professionals account for the work they do in their changing contexts, both in terms of what they see as its fundamental purpose and how they see it as being enacted on a day-to-day basis” (2005:776).

These new directions, alongside the analysed trends, have more recently led some scholars to re-analyse the methodological approaches traditionally used within the Sociology of the Professions. By explicitly recognizing the erosion of established professional boundaries and practices, and the emergence of new and mixed-up forms of professionalism, Noordegraaf (2007) suggests that methodologies that allow a more direct observation of present-day professional practices in the workplace, such as ethnographic and in-depth case studies approaches, become more relevant. Moreover, as the recent special issue in *Current Sociology* (2009) seems to indicate, the recognition of the confusing and changing contexts of professional work has led many scholars to re-engage in comparative analysis (see e.g. Bourgeault, et al., 2009; Leicht et al., 2009). Finally, it has been argued that the emphasis on professionalism as a discourse necessitates engagement in comparative research “about how and in what ways the discourse of professionalism is being used (by states, by employers and managers, and by some relatively powerful occupational groups themselves) as an instrument of occupational change (and resistance to change) and social control” (Evetts, 2006:141).

2.2.4 Hybrid forms of professionalism

The analysis of both classic studies within the Sociology of the Professions, and more recent ones on present-day forms of professionalism seems to indicate not only the coexistence of traditional professions with newly professionalized groups (Hwang & Powell, 2009), but also the emergence of more plural forms of professionalism (cf. Schön, 1983). In line with Wilensky's prediction (1964), this new form seems to encompass a large range of knowledge workers. What appears to be distinctive in this third group is that professional identity and identification might occur without necessarily resorting to traditional social and professional categories such as occupational membership, education, training, etc. Under both the erosion of professional boundaries and, perhaps more importantly, the high degree of uncertainty and uniqueness that characterized many work practices (Noordegraaf and Abma, 2003), professional identity might become hazy. Consequently, as Noordegraaf (2007:775) has recently noted, "this is not as much about *being* a professional as it is about *becoming* professional in modern times, or more precisely, about showing that one is becoming professional without necessarily ever becoming one."

While the exploration of this new form of professionalism is quite recent, the earlier work of Schön (1983) might have provided the epistemological and theoretical foundations for the understanding of this present-day type of professionalism. In his *The Reflective Practitioner*, Schön analyses how under work situations of "uncertainty, complexity, instability, uniqueness and value conflict" (Schön, 1983:17), stable professional categories

and canonical scripts become difficult to apply in practice. In turn, a more situated and intuitive modality of professional knowledge and practices emerge, which draw upon an “epistemology of practice”, and explain the logical necessity of professional pluralism. This is so to the extent that the order-giving power of professional knowledge loses its epistemological grip, and consequently experts and their practices become somehow *universes of one*.

Noordegraaf (2007) labels this new form of professionalism as *hybrid*, and situates it amidst the constraining, confusing and fragmented realities that characterized professional works. Following Schön (1983), he analyses how many sectors, such as the public ones, are experiencing an increasing degree of ambiguity and uncertainty. As a result, there is a destabilization of institutional powers, a shifting of boundaries (cf. Fournier 2000), and a problematization of professional practice. Substantive professional knowledge, established and clear cognitive categories, and strong identities become less relevant when the definition of “which problems must be tackled, as well as which criteria must be used to judge problem solving, is ambiguous in both technical and ethical respects” (Noordegraaf 2007:769).

The resulting image of professionalism, situated in highly uncertain conditions, is one that portrays practitioners relying on fuzzy categories (cf. Bowker and Star, 1999) and figurative thinking, to construct problems from the materials of problematic situations “which are puzzling, troubling, and uncertain” (Schön, 1983:40). The according professional identity seems to emerge not from the cultural repertoire provided by the

possession of substantive professional knowledge but rather from the work of dealing with trade-offs in novel situations (Noordegraaf, 2007). A paradox seems to arise, however, when one analyses the aforementioned conditions of *hybrid* professional practice. The very uncertainty, novelty, and uniqueness of problems and tasks that explain the emergence of plural forms of professionalism might be creating the very conditions for a common professional stratum to emerge.

In sum, some recent studies have focused on the emergence of hybrid forms of professionalism that occur amidst highly uncertainty task domains and institutional context. Noordegraaf (2007) has labelled, and formalized, this type of expert work as *hybrid*. Yet both the empirical and theoretical investigations on this novel form are still rare. We need to further study the practice of these types of experts in order to more fully explain the nature of professional knowledge and boundaries in hybrid forms of professionalism, and how the interactions across professionals occurs.

2.2.5 Conclusions

In sum, the scholarly debates on classic forms of professionalism addressed in the initial sections have fostered the understanding about the role of the interaction across different competing occupational groups. Although acknowledged by many analysts (e.g. Kronus, 1976), it is in Abbott's theory that interprofessional relationships play a fuller and more preponderant role: professions cannot be completely understood if studied individually; rather, they need to be approached within an interacting system (Abbott, 1993). In this

systemic approach, the “key to professional status hinges on public acceptance of an occupation’s jurisdictional claim” (Manley, 1995:300). Consequently, the jurisdictional problem lies at the very core of interprofessional interaction.

The interoccupational conflict and power, as well as profession interdependency, seem to have fostered a more aggregated level of analysis in the early studies reviewed. For instance, Kronus (1976) advocates the systemic level as the most appropriate level of analysis to study occupational power. Similarly, most of the studies discussed in these initial sections focus on interprofessional interaction from a macrosociological perspective, addressing mainly historical encroachments and political negotiations across professions. Such studies have set the foundations for our understanding of occupational interaction at the level of the professional field, but there is still little research on how such processes take place in organizations (Bechky, 2003a:721). In this sense, the workplace arena – although as important as the social and political ones – has been less fully examined. Abbott’s call (1988) for more studies on work and workplace has been only partially responded (see as exceptions Barley, 1996; Bechky, 2003a, b; Mesler, 1991). This gap seems not to be minor, since it is within the workplace arena that boundary-work is usually performed (Allen, 2000) and encroachment is started (Abbott, 1988). This gap is ever more evident in the case of specific multilevel relationships, manifested in the lack of studies on the concrete effects of interprofessional interaction on intraprofessional relationship¹⁰.

¹⁰ This gap, central for our understanding of interprofessional relationship consequences, has not been purposively studied in the literature reviewed. Halpern’s study (1992) focuses only on the complementary phenomena (i.e. how intraprofessional relationships are used to achieve jurisdictional control over ancillary occupations – interprofessional interaction).

According to the level of analysis predominantly adopted in the early studies, the most frequently preferred methods – comparative historical case methodology, and secondary data analysis – increase the distance between scholars and the details of work as well as its practices (Barley, 1996). By taking a closer look into the workplace arena, it is possible to get a more complete picture of how occupational interaction is enacted in organizations and to “refine our understanding of the processes by which jurisdiction is claimed and maintained in the workplace” (Bechky, 2003a:747/8). More important for the current research, a closer study on knowledge and knowledge practices across professional communities in the workplace will help us empirically explore and analyse the claims that knowledge is the main currency in occupational interaction.

Many of the studies analysed in §2.1 have focused on the occupations interaction in the world of medicine. This emphasis is not new, since medicine has served as a classic case in this sociological stream. Because physicians “successfully claimed professional status, their history, structure, traits, and power serve as the professional paradigm” (Witz 1992, in Manley, 1995:297). As a possible consequence of the prevailing level of analysis, physicians’ history tends to be presented as a somewhat unified story, and even when segmentation is acknowledged, similar analytical treatment is devoted to sub-groups. Only recently have some authors started to call for more complex and detailed theories capable of capturing the lack of monolithic nature in medicine (e.g. Abbott, 1988; Barley, 1986). “After nearly two decades under the ‘professional dominance’ paradigm, sociologists of

medicine finally recognize that medicine's precarious position demanded more complex theories" (Abbott, 1993).

Finally, some of these classical studies have focused on the constraining effects of certain settings – e.g. hospitals – on daily professional practices (Allen, 2000). But little research has been conducted using a comparative approach to study the interaction of very different occupational groups within cross-occupational teams in different settings. Hence, we do not know much about the microsociological aspects that sustain knowledge interaction across communities in these occupational heterogeneous teams and the implication for their members of participating in them. In sum, through this thesis I aim to address this gap by analysing the microsociological practices that sustain knowledge practices at the team level and across occupational communities.

In contrast, the analysis of the more recent studies on the Sociology of the Professions provides a more nuanced, albeit paradoxical, depiction of present-day professionalism. At the same time that the bases and dynamics of classical forms of professionalism have been eroded, and perhaps permanently reshaped, by different organizational, economic, and political changes in Western societies (Crompton, 1990; Greenwood and Lachman, 1996; Reed, 1996), many new forms of professionalism have emerged and claimed a similar status to that of their established counterparts. It is particularly the ubiquity of the bureaucratic logic which has played a catalytic role in this process. Classic forms of professionalism need to adopt external and bureaucratic forms of control, and their professional projects necessitate mapping onto the organizational values and contours. The

same organizational changes seem to have provided non-professional groups with the material and symbolic means necessary for their professional project. As a result, both classic and new forms of professionalism share similar contexts of practice enactments, equally claim professional status, and similarly enact certain mechanisms of social closure and identity formation. As indicated, these findings seem to suggest that while boundaries between classic and new forms of professionalism persist, the same boundaries have become less rigid (Fournier, 2000). Finally, some authors, particularly Noodergraaf (2007) following Schön (1983), have analysed instances where professional practice occurs amidst highly novel, complex, and uncertain context. In these situations, the epistemology of possession and control, which infused classical professional practices, seems to be untenable. In these conditions, more intuitive, plural, and hybrid forms of professionalism seem to emerge.

While some scholars have focused on the process of professionalization of originally non-professional groups (see e.g. Cohen et al., 2005; De Vries et al., 2009; Grey, 1997; Fournier, 1999), research is yet to determine the nature of the interaction that occurs across these new occupational groups and classic ones, with a particular focus on the role of professional knowledge. More specifically, little research has been conducted in relation to the nature of the knowledge boundaries that might affect those very interactions. This gap is even more evident in the case of *hybrid* professional configurations, where little empirical research has been done whatsoever. Finally, as some of the most recent studies seem to suggest, these quests need to take a microsociological comparative approach by

Chapter 2. Literature Reviewed

focusing on actual professional practice, if a more accurate picture of the complex and contesting nature of present day professionalism is to be depicted.

3. Research Methods

This chapter describes the research design and methods used in this DPhil thesis. The thesis draws on multiple case studies and qualitative inductive research methods. The justification for, and the implications of, this choice of research design and methods are discussed below. First, the strengths of qualitative research strategies in general and case studies in particular are discussed in the context of this thesis. In addition, the epistemological rationale for my research and the type of theory that I am expecting to contribute to the literature are spelled out. Second, the outcomes and learning from the exploratory research are described. Third, the criteria for the selection of the case studies for this thesis are outlined. Fourth, after introducing each case and describing its main characteristics, I summarize the levels and unit of analysis. To do the latter I elaborate on the insights of both practice and group process theories to arrive at a common unit of analysis. Finally, I conclude by portraying the type of data sources used in the research and the nature of the analysis conducted.

3.1 Introduction

Qualitative research methodologies have traditionally been favoured when the research being conducted aims to delve into the complexities of processes and practices occurring in complex nets of informal and unstructured linkages in real organizational settings (Marshall & Rossman, 1995). In this vein, qualitative case studies are understood to be particularly suited when the phenomenon needs to be comprehended within its context (de Vaus, 2001)

and the focus is on actual behavioural events (Yin, 1994). As such, both in the areas of knowledge sharing across professional and functional boundaries, qualitative case studies have been seen as particularly appropriate. For example, within the professions literature, both contemporary (e.g. Barley, 1986) and historical (e.g. Abbott, 1988) case studies have been used to understand intricate interactions and practices. Qualitative case studies have been also regarded as particularly relevant when it is important to consider the effects of organizational context on such heterogeneous teams (Dougherty, 1992a).

Following these recommendations, in this thesis a qualitative case study approach is deemed as particularly effective to explore knowledge barriers in teams composed of distinct occupational communities. To substantiate this research aim, I conducted four case studies based on four cross-occupational teams¹¹ located within the English National Health Service. At its heart, my multiple case study research design relies on analytic induction as a way to move from the individual cases to a set of theoretical explanations that can be applied to the broader phenomena under study.

This approach points to the epistemological assumptions I am making in this research and the type of theory I am expecting to develop. Following Miles and Huberman's suggestion (1994:4) about making researchers' preferences clear, I think of myself as a "non-ingenuous realist". My position is influenced by what has been called "transcendental realism" (partially through Bhaskar, 1978, 1989, and mainly through its sociological development in Archer 1982, 1987, and 1995). It is one that views that social phenomena

¹¹ As indicated earlier, for the present thesis I use the labels "team" and "group" interchangeably.

exist not only in our minds but also have an external existence in the world. My position therefore is “realist” to the extent that I recognize not only this external existence but also that regular and reasonable stable relationships do exist and can be found and understood.

It is “non-ingenuous” to the extent that I recognize the limitations and inherent difficulty of such knowledge. It is limited, not only in the sense of bounded rationality (Simon, 1969) but also in the sense of contingent knowledge. That is, our knowledge is contingent not only at the logical level, but also at the epistemological level as we do not know with certitude how people will act in every single case. Furthermore, it is also contingent at the ontological level as people are free and facing the same circumstances could act in different ways (Zanotti, 2001).

Moreover, as Archer (1995:1) clearly points out, our understanding of social life is not easy because of the vexatious nature of social reality. That is, first, social reality is somehow inextricable from the human agents which in turn can act and modify it. Second social phenomena are transformable and do not have preferred states. And third, neither are we, as researchers, immutable as social beings, since we are affected by the social reality in which we conduct the research. Consequently, as clearly expressed by Miles and Huberman (1994:4), “human relationships and societies have peculiarities that make a realist approach to understanding them more complex – but not impossible”.

These assumptions have implications for my intent to develop a middle-range theory (Merton, 1957) from this thesis. Through comparative analysis of the multiple cases studied

I am looking to generate substantive theory considered as middle-range theory, one that falls “between the minor working hypothesis of everyday life and the all-inclusive grand theories” (Glaser & Strauss, 1967:33). At this level, I am relying on multiple cases of groups composed of distinct professional communities to develop a theory on how knowledge sharing occurs within these types of groups and to understand which are the major barriers that affect such sharing.

In understanding the type of theory I am planning to develop, I empathise with Mohr’s (1982:173) warning that if theoretical approaches are not initially identified in the conducting of research then the theories run the risk of becoming muddled. Thus, I do not intend to generate a theory either so broad as to include all type of knowledge boundaries in general cross-occupational / professional interactions nor do I wish to contribute a very narrow idiographic account of the challenges of these types of groups in the English NHS. Rather, my intention is to develop a theory for teams with analogous inter-professional compositions and to understand the factors that could affect the sharing of knowledge as a result. In order to substantiate this, I focus on four cases and, within each of them, I investigate how group practices are understood and enacted. As I will articulate in §3.5 below, group practices act as my observational starting point and as the main unit of analysis from where I explore the nature of knowledge and knowledge boundaries within each team. To strengthen the reliability of the process of theory building in my thesis, I have also relied on different methods of data collection: semi-structured interviews, non-participative observations, and archival data and unobtrusive measures.

3.2 Exploratory work

My exploratory work for this thesis was a qualitative research project¹² which aimed to enhance the understanding of organizational and managerial factors affecting the sharing of knowledge within multidisciplinary teams in the health service sector. This work relied on an exploratory case study of a Clinical Directorate Board¹³ team (CD) within a Hospital Trust in South East England. The information gathered for this exploratory work was through 13 semi-structured interviews with all the CD members and related authorities, observation of all Directorate Board meetings over a period of three months (from April to June 2007), and the analysis of relevant documents.

From this exploratory work, three observations were most striking. First, that many factors affect the sharing of knowledge across professions in the CD. Different professional schemata and practices, historical as well as contemporary inter-professional relationships, and structural and contextual factors were found to profoundly affect the nature and extent of knowledge sharing. As for professional schemata, I found for example a large disparity of understandings of the team's main goals and purposes across the different professional sub-groups. Such a discrepancy was also found in the way the different occupational sub-groups that constituted the team enacted and valued certain team practices (e.g. conflict management and communication). As for structural elements, I found that the

¹² This initial research served as basis for the dissertation submitted in July 2007 to Said Business School and the Committee on Graduate Studies of University of Oxford in partial fulfilment of the requirements for the degree of MSc in Management Research.

¹³ Clinical Directorates have been defined as subunit organizational structures that could help to share knowledge and to facilitate communications between hospital doctors, nurses, and managers, and to improve decision-making processes about clinical service management (Button and Roberts, 1997).

compartmentalized organization of tasks – i.e. tasks assigned only to single occupational community at a time, without overlapping –, and the lack of time for overarching team activities deeply affected the sharing of knowledge. Finally, in the case of contextual factors, I found that the level of financial constraints – that indirectly affects the process of pooling information and searching for new alternatives since new ideas or improvements are self-limited in advance by the difficulty of getting them approved – and uncertainty equally affected the process of sharing knowledge across these occupational communities. All in all, this wealth of elements demonstrated that a more elaborate perspective on knowledge sharing may be fruitful, especially for cross-occupational groups.

Second, I noticed the evidential nature of sharing knowledge meant that even though knowledge sharing behaviours were perceived as desirable actions among the CD members, such actions were not understood as innocuous ones: they inevitably expressed a position that in turn affected their professional relations. Thus, CD members were careful about such exchanges. This point becomes clearer when sharing conflictual knowledge: doctors were much more cautious than managers in expressing differences, trying to avoid public divergences among them. The sense of loyalty towards their professional community and the need to preserve long-lasting bonds with other physicians was decisive in explaining such behaviours¹⁴.

¹⁴ Note that while managers usually move from job to job every two or three years, doctors stay in the same job, thus in the same nearby professional community, for 20 years or more (Dawson et al, 1995).

And third, the role of mundane problems as facilitators of knowledge sharing and as the encounter zone of the managerial and medical communities: while it was recognized that the coexistence of two cultures – i.e. clinical and managerial – in the CD may cause misunderstandings, failures to reach consensus, and conflicts among individuals, it was also understood that the day-to-day problems and challenges had generated a common knowledge and a common language within the CD.

Although this exploratory work was limited by the reliance on only one case, three themes emerged which have shaped my doctoral thesis.

First, knowledge is essentially related to praxis. By initially understanding knowledge as a judgement of the significance of events and items that come from a particular context and/or theory (Polanyi, 1966; Tsoukas & Vladimirou, 2001), the inextricable character of knowledge and praxis becomes explicit. Namely, professional knowledge guides judgements about the enactment of practices. But in turn, through such activities – and mainly through the learning encountered in these experiences – professional knowledge may be modified. In addition to this cognitive dimension, there is also a normative aspect. That is, team members' affiliation to their different professional communities plays a regulatory role by encouraging a repertoire of professionally accepted practices that define the boundaries of interaction. This normative character helps to explain why knowledge-in-practice is difficult to change if it is contested from those outside their respective communities.

I found a clear example of these close relationships between knowledge, professional affiliation and praxis, in the case of communication practices in this CD group. Group members understood that different forms of sharing knowledge as well as the actual content of that knowledge expressed a personal position as a sign to others. But in the very act of expressing their identity, people also expressed their membership, or sense of attachment, to a specific community. The evidence from the interviews also suggests that the way CD members share knowledge expresses not only their identity but also their *difference from each other*. This double mechanism (see Figure 3.1), based on the evidence from the exploratory work, gives strong support to the idea that professional boundaries are still decisive in knowledge-sharing across the Directorate. Such boundaries seem to generate fiefdoms that make it difficult to share knowledge.

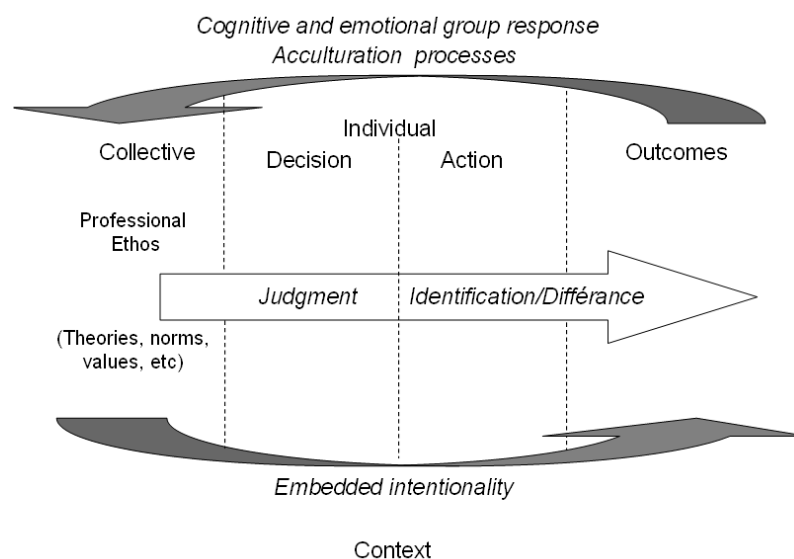


Figure 3.1: Knowledge sharing behaviours, identity and difference (Farchi, 2007:44)

Second, the context impacts knowledge sharing practices. In the fluctuating NHS context, the evidence unearthed in this exploratory study seems to suggest that doctors have fallen back on their own domain (each Clinical Unit) to protect their medical autonomy. This response is explained by Tsoukas and Vladimirou's assertion (2001) that knowledge is based on an appreciation of context or/and theory. When the organizational context becomes more uncertain, the frame of reference more widely used by doctors is their professional context and theory: the medical.

Third, beyond the difference in epistemic cultures, common problems and a stated agenda allow collaboration across these distinct professional communities. Yet, contrary to initial predictions based on the idiosyncratic structural features and barriers identified in the case studied, the CD's performance (both financial and operational) is one of the highest of its Division and very strong across the Hospital. This finding may suggest the existence of more subtle relations between ways of sharing knowledge, barriers and specific members' strategies to overcome them. The informants' narratives and some observations of interaction across lead clinicians and managers give support to the idea that while the medical knowledge realm is mostly opaque, the managerial one is mostly transparent (see Figure 3.2). This generates cognitive and interpretative asymmetries which in turn increase the power of lead clinicians. The management knowledge seems to be accessible to lead clinicians' understanding, except in the specific area of administrative and financial expertise. Managers, on the other hand, find it much more difficult to penetrate the medical realm.

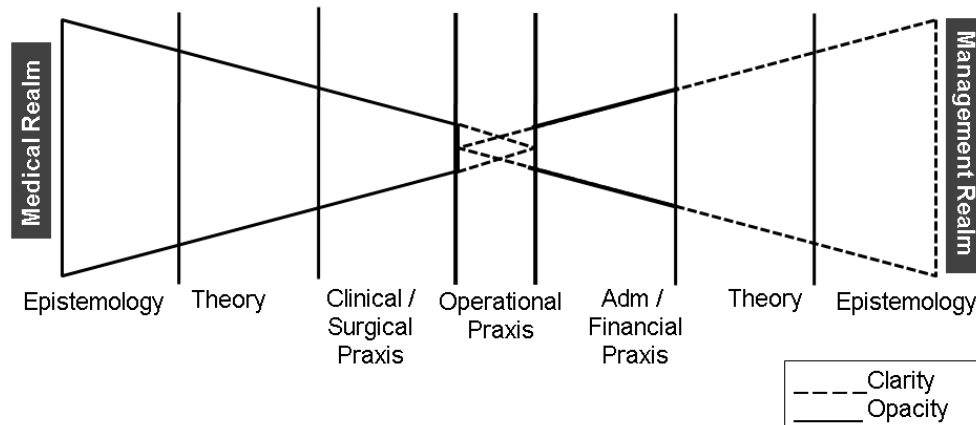


Figure 3.2: Knowledge domains (Farchi, 2007:51)¹⁵

However, the CD does seem to have an area of common knowledge in which lead clinicians and managers do share similar values and a language with which to communicate – and that is the realm of concrete operational issues (e.g. management of CD’s headcount, number of beds, utilization of theatres, etc.). Managers’ preferred focus on operative problems could be seen as a pivotal issue for sharing a common knowledge realm, with high impact at the problem solving level, between doctors and managers. In this exploratory work, what seemed to be significant is not only how the groups exercised the expertise that resides in their respective professional sets of ideas, but also how they shared a common cognitive area within the operational and day-to-day praxis. These findings could explain how specific areas of convergence, at least at the operational level, enable the CD to run more smoothly improving communication across the internal boundaries.

¹⁵ In this cross-occupational team there was only one nurse. As a consequence, my observations over this occupational group for this exploratory work are rather limited. This is the main reason I solely describe the medical and the management realm. In any way I am proposing that the medical and the nursing collectives belong to the same epistemic community.

In sum, these observations stimulated my interest in undertaking a broad and more extensive study on knowledge sharing in lasting teams composed of distinct occupational / professional communities. It is this interest that shapes the research questions and methodology used in this thesis. Even though the focus of my research interest is on knowledge sharing, the findings of this exploratory work seem to suggest that it cannot be confined only to team communication practices. As has been described, the different professional affiliations of team members define and circumscribe the repertoire of professionally accepted practices that delineate the boundaries of inter-professional interaction. Thus, although the exploration of knowledge-sharing related practices is necessary to understand the phenomenon, it seems not to be sufficient. Consequentially, this finding has prompted me to study more general group practices to understand their impact (direct and/or indirect) on group knowledge sharing. Furthermore, these findings have led me to understand that team practices in general, and knowledge sharing ones in particular, cannot be fully understood detached from their specific contexts of occurrence and the general task orientation. That is, the meaning and characteristics of such practices cannot be understood without considering the organizational context in which they occur.

3.3 Case study selection

Following the insights of this exploratory work and guided by my desire to generate mid level theory, I consider the study of a range of “similar and contrasting” cases as an appropriate way to build a theory on factors affecting knowledge sharing in cross-occupational groups. In doing this, I am following some previous studies in the different

literatures reviewed (e.g. Barley, 1986), in which comparison across different cases and/or settings is pursued in order to strengthen the precision and stability of the findings¹⁶ (Eisenhardt, 1989). To methodologically substantiate this aim, I describe in this section my use of a multiple-case sampling strategy based both on certain local and theoretical concepts¹⁷. The intent of this sampling strategy is to ensure ‘fit’ with my theoretical endeavour and exposure to different contexts and conditions to observe variations and to increase my understanding of the phenomenon under study (Miles and Huberman, 1994:28).

To this end, the type of sampling strategy pursued is that of criterion sampling (Kuzel 1992, in Miles and Huberman 1994). That is, cases that meet some specific criteria may be chosen –which is useful for quality assurance and for setting the boundaries of my Dphil study (Miles and Huberman, 1994). Given my interest in the nature of barriers affecting knowledge sharing in cross-occupational groups, the comparison of similarities and differences across a variety of cases gives a better foundation for identifying the main elements of my studied phenomenon. In order to be selected, all the cases had to fulfil two initial criteria: a) to be lasting groups; b) to be composed of at least two different professional communities. Finally, in order to explore a certain degree of variation, I chose two lasting cross-occupational groups where their main task is exploration-oriented and two lasting cross-occupational groups whose main task is exploitation-oriented (March, 1991).

¹⁶ Note that the “multiple comparison groups” used in grounded theory plays similar roles.

¹⁷ While my sampling was initially guided by certain “local concepts” found in the exploratory work, as recommended in the grounded theory, I did not follow the logic of ongoing inclusion prescribed by it. Instead, and to ensure the research flexibility, I relied on semi-structured interviews, which maintain certain areas of inquiry constant for sake of comparison, but also give latitude to delve in new areas and problems, keeping the theoretical sensitivity grounded into the data.

By requiring these characteristics my aim is to define an appropriate sample from which theory can be developed (Eisenhardt, 1989).

This first criterion of lasting teams addresses the proposition that it cannot be expected that there will be the same type and array of cognitive, normative and teleoaffective elements (Schatzki, 2001) in lasting groups as opposed to temporary ones. This first condition is grounded in the exploratory work data (see Farchi, 2007), and is in turn supported by several literatures. The potentially inconsistent identities and preferences, derived from team members' affiliation to distinct professional communities, are much more difficult to bracket in long rather than in short term interactions. In addition, the novelty of purposively studying these types of groups means that I am explicitly assuming that the length of temporal frame of interaction plays a crucial role in human exchanges. This fact is acknowledged by several scholars (e.g. Coleman, 1990) and it is clearly captured by Gibbons' expression: the "shadow of tomorrow can influence today's behavior" (2005).

By contrast, my second criterion, of choosing groups composed of very different communities, is to enable me to focus on possible tensions in groups where profound epistemic differences coexist. These differences, as demonstrated in the exploratory study, involve not only professional values and languages, but also the understanding of rationality and ethos referred to in day-to-day work. In order to operationalize this criterion, I have selected teams with at least two clear distinctive professional affiliations: clinical (mostly physicians and nurses) and managerial (managers with diverse origins and few with any clinical education).

While the first two criteria are common for the all four cases studied, the last one introduces a difference in order to bring some potential source of variation into the study. That is, two groups are orientated to exploration tasks while the other two have an exploitation orientation in their tasks (March, 1991). The main goal of this third criterion is not to impose a priori a polar type sampling criterion. Rather, it is to explore something that has been reiteratively suggested by different scholars (e.g. Schön, 1983). For example, Abbott (1988) has highlighted the constitutive nature of work and task both for the creation of professions and for inter-professional interaction, while at the same time considering professional knowledge as the main constituent of professional work / interaction. This has also been suggested implicitly in the exploratory work data: that the type of task enacted by the group could affect the interaction across the different professional sub-groups (Farchi, 2007).

While different sampling criteria could be drawn from the concept “type of tasks” (e.g. Campbell, 1988; Stewart & Barrick, 2000), March’s (1991) distinction between exploration and exploitation¹⁸ seems to be particularly relevant for the current research, because it establishes a direct link between practices and knowledge. Although both exploratory and exploitative orientations are essential for organisational and team survival and performance, they offer distinct contributions. Typically, exploratory-oriented team tasks seek to develop entirely novel products, services or processes, while exploitative tasks are primarily

¹⁸ The concept is theoretically meaningful as it is deeply rooted in a longstanding and highly influential line of scholarly thought. The terminology of exploration and exploitation has been coined by March’s seminal contribution to the field of organisational learning (March, 1991)

concerned with improving already existing services, processes or products. March (1991) describes these fundamentally different purposes as the contrast between the exploration of new possibilities and the exploitation of old certainties. Following this conceptualization of exploration and exploitation as two endpoints of a continuum, and keeping in mind Gupta *et al.* (2006) suggestion that the appropriate theorization of these two constructs depends on the level of analysis¹⁹, this research focuses on studying two highly exploratory-oriented teams and two exploitative-oriented teams. In doing so, I am exploring if the contrasting purposes of exploratory and exploitative group task orientation could have a particular impact on the enactment of team practices, and in turn, on knowledge sharing.

In sum, the selection of the four cases that fit my sampling criteria was guided by the preliminary findings of the exploratory work and the theoretical concepts and suggestions found in the literature reviewed. The four groups selected were drawn from the English NHS. As a general introduction of the NHS, its organization and purposes is provided in §1, and specific introductions are presented in §§ 4.1 and 5.1, the remaining part of this section will primarily focus on the reasons that support the choice of this public health care service setting as particularly appropriate for the purposes of my research.

First, as it has been suggested recently by Waring and Currie (2009:760), the experiences of the medical profession in England illustrates many of the reorganizations of expert work in

¹⁹ For a different theorization of these two concepts see Katila and Ahuja (2002) whom understand them as two orthogonal dimensions. Such understanding seems to be better suited for firm level analysis, as it is not unlikely for firms to simultaneously engage in exploratory and exploitative activities. Such ambidexterity (Birkinshaw & Gibson, 2004) seems to be more difficult at the individual and team level (Oliver *et al.*, 2010).

current society. The profession has experienced a great deal of pressure to ensure the efficiency, effectiveness and accountability of healthcare systems (Light, 1995). Second, and perhaps even more important for my research is that this reorganization has occurred through interaction with managerial communities and groups, and their related ethos (i.e. through the extension of managerial roles and the adoption of market principles (Harrison, 2004). Hence, while originally and predominantly driven by a single profession (i.e. medicine), now the NHS organizations and their subunits are increasingly multidisciplinary. Third, this latter tendency was particularly accelerated with the emergence of the New Public Management (NPM) (McLaughlin, Osborne, & Ferlie, 2002). The NPM has been associated with the fostering of a range of management doctrines and techniques, most of which have their origin in the private sector (Martin, 2002:132). The NHS has been particularly affected by these organizational reforms (Dawson & Dargie, 2002) that, among many other aims, have promoted the professionalization and empowerment of management amid clinical practices and traditional jurisdictions. Four, pressures for both efficiency in daily management and speed in innovation are clear, yet distinct demands. In that sense, health care constitutes a highly knowledge intensive setting, where effective enactment of exploratory-oriented and exploitative-oriented tasks are widely assumed to be of great importance. Finally, the public nature of these groups reassures data quality and triangulation with unobtrusive methods, as these teams have to regularly provide information to different stakeholders (and hence, located in the public domain).

In summary, by specifically choosing the cases I have, my goal is to ensure solid empirical ground (Eisenhardt, 1989) that will enable a theory of knowledge-sharing across groups composed of distinct professional communities to be developed. To this end, I have tried to minimize differences in: setting (all groups belong to NHS organizations), types of professions involved (clinical and non-clinical members), and tenure of teams (lasting teams). In addition, by focusing on differences such as the tasks teams pursue (exploitation and exploration) and their inner contexts (different types of NHS organizations), the aim is to maximise the similarities and variations observed and to better understand the potential causes of the phenomenon under study (cf. Glasser and Strauss, 1967). I have done it, keeping in mind the richness of social life and recognizing, with Miles and Huberman (1994:29) that “each setting has a few properties it shares with many others, some properties it shares with some others, and some properties with no others.” Moreover, as it has been suggested by Marshall and Rossman (1995:69) sampling strategies need to ensure the capture of a rich mix of practices, people, interactions, and structures of interest to enable theory to be developed. Finally, underlying and implicit in this discussion is the issue of *generalizability*. As it has been described above, the generalization from one case to another is based on their matching with the underlying theory rather than to a larger universe. As Miles and Huberman (1994:29) make clear: “The choice of cases usually is made on *conceptual* grounds, not on representative grounds”. Similarly, Yin (1989) and de Vaus (2001:239) sustain that the *external validity* of case studies is enhanced by the *strategic* selection of cases rather than by the statistical selection of cases.

3.4 Case studies overview

The cases selected for this study are summarized in Table 3.1. The two exploitative-oriented cross-occupational teams, named in the current research as *AcuGroup* and *MedGroup*, are Clinical Directorate Boards that are part of one of the largest NHS Teaching Trusts in the country. This Trust has several hospitals that serve a number of communities in South England. The two exploratory-oriented cross-occupational teams are named for research purposes *CommGroup* and *SaferGroup*. These groups are part of a NHS quango²⁰. This national organisation was created in the early 2000' by the English Department of Health (DoH) with the goal of supporting the NHS to transform “healthcare for patients and the public by rapidly developing and spreading new ways of working, new technology and world class leadership” (Internal Document, 2009).

The access to both *AcuGroup* and *MedGroup* was negotiated with the Divisional Director and Clinical Chair in February 2009. I initially approached them in August 2008 but it was not until March 2009 that I obtained the initial approval, the study design was reviewed and it received ethical clearance by the Committee of Ethic of the Trust (resulting in a 7 months delay with the original DPhil research plan). Furthermore, an honorary contract was signed with the Trust, as a final condition to start the current research. Finally, the submission of a managerial report was agreed with the double purpose of increasing members' understanding of the CD knowledge-sharing features and offering them a set of

²⁰ This new organisation aims to support the NHS with high-impact solutions, innovative ideas, new practices and technologies that can make a difference to the delivery of patient care (Internal document, 2005)

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recommendations to promote such behaviours. In turn, the access to both *CommGroup* and *SaferCare* was negotiated with each respective team leader after several meetings with the Head of the Communication Department at the quango. The initial contact was done in October 2008, but it was not until January 2009 that the study design was reviewed and obtained the approval. No ethical clearance or contract were required. Similarly to exploitative teams, the submission of a managerial report was agreed after the completion of the field work.

	<i>AcuGroup</i>	<i>MedGroup</i>	<i>CommGroup</i>	<i>SaferGroup</i>
Team begun	2000	2000	2008	2007
Team size	14	16	13	8
Average membership (months)	24.57	36.50	12.41	14.87
Clinical professional communities represented	Physicians Nurses	Physicians Nurses	Physicians Nurse	Physicians Nurses Pharmacists
Managerial / Non-clinical communities represented	Managers Finance	Managers Finance	Managers Politics Historian HR	Engineering Social workers
Main task	To deliver the organisational, strategic and clinical objectives of the Division and Trust	To deliver the organisational, strategic and clinical objectives of the Division and Trust	To develop tools and programmes to help primary care trusts improve and achieve the world class commissioning competencies	To lead, develop and deliver national initiatives improve systems and processes to support safer healthcare
Coverage	County and bordering counties	Mostly county, but for some services national coverage	National	National

Table 3.1: Description of groups for case studies

In the following section an explanation of why these teams can be considered as either exploitation-oriented or exploration-oriented will be advanced. Moreover, a brief

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description of each group, its structure and main goals, as well as some of its main organizational characteristics will be provided.

Exploitation-oriented cross-occupational teams: Following March (1991), exploitation-oriented teams can be characterized as groups that seek to manage and improve an already existing service, product or process, and/or to meet the needs of an existing group of users. Accordingly, this type of team usually builds upon existing knowledge to perform its tasks. To the extent that both *AcuGroup* and *MedGroup*'s primary tasks is to ensure the delivery of clinical services of their constitutive Clinical Units (both in terms of cost and quality), these teams can be considered exploitation-oriented groups. Table 3.2 provides an overview of the strength of the evidence of this exploitation orientation in each case.

<i>Characterization of exploitation-oriented tasks (based on March, 1991)</i>	<i>CommGroup</i>	<i>SaferGroup</i>	<i>MedGroup</i>	<i>AcuGroup</i>	<i>Example from strongest cases</i>
Refinement	+	+	+	+	AcuGroup: Improving integrated care pathways MedGroup: Improving patient information management activities (e.g Dermatology)
Execution	N/A	+	+	+	AcuGroup: to deliver local compliance with Standards for Better Health MedGroup: <i>idem</i>
Implementation	+	+	+	+	AcuGroup: Implementation of Hospital policies in A&E, Emergency, and Geratology departments. MedGroup: Implementation of Hospital policies in each constitutive Clinical Unit.
Production / Delivery	+	+	+	+	AcuGroup: Delivery of effective arrangements for clinical governance in line with the Trust priorities. MedGroup: <i>idem</i>
Efficiency	+	+	+	+	AcuGroup: To manage and monitor Clinical Units budgets so as to deliver financial balance MedGroup: <i>idem</i>

Evidence rated: Strongest (+++) Moderate (++) Partial (+) N/A

Table 3.2: Exploitation-oriented characteristics in each case

As for the case of *MedGroup*, this team is part of Clinical Directorate that was created in 2000 as part of a large reorganization of the Trust Hospital services. *MedGroup* is the Clinical Directorate Board²¹ and has final responsibility – clinically and financially – for the management and provision of a large variety of very specialized clinical services. This accountability is mainly at the Divisional and Trust levels. The *MedGroup* is comprised of seven different and unrelated medical departments – e.g. Diabetes, Immunology, Endocrinology, Infectious Disease, among others – with almost no overlaps in terms of patient communities, facilities, technology, etc. In addition, these medical departments provide clinical services in three different sites across the county and serve local, regional, and in some cases, national patient communities.

In turn, *AcuGroup* is the CD Board of one of the largest clinical groups of departments in the Trust Hospital. It was also set up in 2000 and is composed of four large and highly interrelated clinical units. There is a clear patient pathway between these four clinical units and they also share some facilities. Moreover, the staff of each liaises closely with the ambulance service and other clinical teams throughout the hospitals in dealing with a wide range of conditions. These services are delivered in three different sites including treatments to both outpatients and inpatients mainly from the county, and to a lesser extent, from bordering counties. Like the previous group, this CD Board is accountable for the clinical and financial results of its clinical departments at the Divisional and Trust levels.

²¹ As it was introduced in point 3.2, Clinical Directorate Boards serve as management units and they are formed around either a medical specialist or a support service with the idea of managing its own budget — typically between £1.5 million and £4.8 million —, the recruitment of professional staff, and the monitoring of service quality, with the overall goal of seeking contract to supply hospital services. (Llewellyn, 2001).

In terms of group composition, both in *MedGroup* and *AcuGroup* each medical department appoints one lead clinician and one manager (or nurse) to be part of the CD Board group. Besides these appointed members, each CD is composed of and led by a Clinical Director, who is supported by a CD manager, a finance officer, and a nurse manager (Dawson, Mole, Winstanley, & Sherval, 1995; Thorne, 1997). As in most of the cases in this Hospital NHS Trust, the Clinical Director and the CD Manager are regular members of the next higher level governance group (the Divisional Board). As it is also a common practice in most UK hospitals (Fitzgerald, 1994:33), the Clinical Director carries out his responsibilities on a part-time basis while continuing his practice. Something similar occurs with each lead clinician from the clinical departments. The position of both, i.e. Clinical Director and clinical lead for each department, is rotated among senior clinicians after a collegiate agreement among medical peers. In the case of department managers, they are expected to actively participate in the group but this is only part of their informal job description – it is an assumption and there is no formal documentation requiring this. Finally, the CD manager is responsible for supporting the Clinical Director as s/he executes managerial issues related with the group or the departments.

Exploration-oriented cross-occupational teams: Following March (1991), exploration-oriented teams can be characterized as groups that are usually in charged of developing novel product or services. In general, these teams' tasks can be associated with more radical innovations, since they require new knowledge or departures from existing skills. To the extent that both *CommGroup* and *Safer Group's* primary task is to develop novel tools and

programmes (including ideation, testing, developing, but only in some cases delivering) these teams can be considered exploration-oriented groups. Table 3.3 provides an overview of the strength of the evidence of this exploration orientation in each case.

As for the case of *CommGroup*, this team was formally launched in April 2008 with the ultimate aim of supporting Primary Care Trusts²² (PCTs) to achieve the World Class Commissioning²³ competencies promoted by the English Department of Health (DoH). This new reform followed the publication of the “Commissioning a patient-led NHS” in 2005 which largely defined “the shift to a focus on commissioning through structure and process – moving the emphasis from spending on services to investing in health and well-being outcomes” (DH/Commissioning2007:1). In order to substantiate this, the *CommGroup* has launched a number of different programmes and tools since its inception. Some examples of these new initiatives include: 'PCT Board Development' (a tool that helps PCT Boards consider how they operate as a corporate entity and enhance Board effectiveness); 'Strategy Development and Implementation' (a tool that aims to help top PCT teams think and develop their own strategy); and 'Improving patients pathway' (a series of tools and workshops that help commissioners promote improvements in care pathway).

²² Primary Care Trusts are organizations within the English National Health Service that are in charge of providing primary and community services, and also commissioning secondary care from different providers. These local organizations are now at the centre of the NHS and control 80% of the NHS budget.

²³ World class commissioning programme aim is to deliver a more strategic and long-term approach to commissioning services, with a clear focus on delivering improved health outcomes. There are four key elements in the programme: a vision for world class commissioning, a set of world class commissioning competencies, an assurance system and a support and development framework (DoH, 2010).

<i>Characterization of exploration-oriented tasks (based on March, 1991)</i>	CommGroup	SaferGroup	MedGroup	AcuGroup	<i>Example from strongest-evidence cases</i>
Innovation	+ + +	+ +	+	N/A	CommGroup: Ideation of tools and workshop to enhance commissioning skills SaferGroup: Ideation and delivering of tools and workshop to enhance safer care
Search	+ + +	+ +	+	N/A	CommGroup: Mainly theoretical and conceptual SaferGroup: Evidence based approach
Variation	+ + +	+ +	+	+	CommGroup: Multiple approaches, very diverse projects SaferGroup: Various approaches, more similarities across projects
Risk taking	+ +	+ +	+	+	CommGroup: Latitude for risk taking in ideation phases
Experimentation	+ + +	+ +	N/A	N/A	CommGroup: Many projects in the ideation phase, active testing SaferGroup: Many projects in delivery phase, less experimentation (only with novel projects)
Flexibility	+ + +	+ +	+	+	CommGroup: High flexibility in approaching projects SaferGroup: Medium flexibility in approaching projects

Evidence rated: Strongest (+++) Moderate (++) Partial (+) N/A

Table 3.3: Exploration-oriented characteristics in each case

As for the case of *SaferGroup*, this team emerged in July 2007 as a direct response by the quango to the DoH report “Safety First” published in December 2006 (Carruthers & Philip, 2006). This report, commissioned by the NHS Chief Medical Officer, highlighted the fact that not enough “has been made of opportunities for achieving real ‘on the ground’ improvements across the NHS” in terms of safe care (Carruthers and Philip, 2006:2). As the *SaferGroup* was set up specifically to respond to the challenges outlined in the report, it has a clear frame of reference for defining its team purpose and its main innovations and

activities. In that sense, the team has launched a series of different tools to provide education and training to build capacities and capabilities across NHS, to develop senior NHS leaders to build organizational competences, and to help practitioners in primary care develop an approach to safety improvement in areas such as hospital-acquired infections, reduction of medical errors, detecting patient safety incidents, etc.

In both teams, the number of members within each group closely follows the number of projects and tools they offer, since it is a common practice that each team senior member formally leads one project at a time (although they could informally collaborate with other projects). Each team is led by one Head of the Programme, who is usually responsible for the initial design and inception of each team. In both cases, each Head of the Programme is accountable for the performance of the whole team, its strategic direction, and the delivery of the different tools and workshops. They are also in charge of external relationships with the main authorities from the DoH, SHAs and PCTs. In terms of the status of employees, most of the senior associates have a permanent contract with the quango, although there are a few working on secondment. Secondment contracts are more common among junior members. Finally, following a common practice in the quango, group members work most of the time from their homes in different parts of the country. They only have to attend the quango premises twice a week.

3.5 Data sources

3.5.1 Unit and level of analysis

A key consideration of this thesis is how the concept of knowledge can be operationalized. As was discussed earlier in the literature review, this concept has been theorized and operationalized in rather diverse and, sometimes contested ways in different traditions. However, such a disparity is only the tip of more profound epistemological and theoretical differences between theoretical streams. Rather than objectifying knowledge – with the inherent risk of conflating it with information (Boisot & Canals, 2004) or losing certain vital aspects such as its tacit dimension (Polanyi, 1966) – I follow Bourdieu (1977), Lave (1988) and, more recently, Carlile (2002) in understanding knowledge as *localized, embedded* and *invested* in practices²⁴. This understanding it is not conceptually far from Abbott's (1988) consideration of the role of knowledge in professional praxis, from Wenger's (1998) performative understanding of knowledge, or from Polanyi's (1958) concept of both focal and subsidiary knowledge roles in skilful performances.

The mutually constitutive relationship between knowledge and practice – i.e. knowledge guides, informs and enables performing practices, and in turn practices can validate, contradict, augment or change previous knowledge over time – makes practices a good starting point to explore knowledge across professional and / or functional boundaries

²⁴ Several scholars have described the role played by knowledge in the enactment of practices. Such professional / occupational performance has been linked with professional cognitive orientation (Lawrence and Lorsch, 1967), occupational cultures (Van Maanen and Barley, 1984), professional knowledge (Abbott, 1988), and departmental thought worlds (Dougherty, 1992).

(Carlile, 2002). Thus, group practices are both my observational starting point and my unit of analysis.

Moreover, within the cases selected for this study, I investigated practices primarily at a group level, although I supplemented the analysis with insights from the individual level. At the team level, I explored a range of different shared practices across the four groups. To this end, I drew on Knorr Cetina's (2001:175) definition of practices as "recurrent processes governed by specifiable schemata or preferences and prescriptions"²⁵ (cf. Orlikowski, 2002; see also Schatzki, 2001). But what recurrent team processes should I initially investigate? As a starting point, I was guided by Marks and colleagues (2001) taxonomy of group processes (see annexe 1 for a detail of the initial group processes suggested)²⁶. Thus, I included in the interviews open questions about recurrent processes, such as coordination, communication, monitoring, and conflict resolution, among many others. These practices were explored not only through the narratives of the informants but also, where possible, through the observation of such practices in action. The use of these different sources allowed me to cover both formal and informal team practices.

²⁵ What is interesting for the current research in Knorr Cetina's (2001) definition, for exploratory and analytical reasons, is the distinction among the three component of practices: i.e. a set of regular actions, the schemata that guide them, and the normative elements that constitute each practice (see also, Schatzki 2001).

²⁶ It is considered in the present thesis that the definition given by Knorr Cetina (2001) and others (e.g Schantzki 2001, Barnes, 2001) it is not forced when articulating it with the tradition represented by Marks and colleagues (2001). The equivalence is worth bearing in mind in considering group processes as potential elements of practices. The very definition of Marks and colleagues (2001:357) on team processes - i.e. "we define team process as members' interdependent acts that convert inputs to outcomes through cognitive, verbal, and behavioral activities directed toward organizing taskwork to achieve collective goals" - or even McGrath's (1984a:11) - i.e. team processes as "patterned relations" among team members - is partly related with Knorr Cetina's understanding. They are not far either from Schantzki (2001:53) definition of practice as "a set of doings and sayings organized by a pool of understandings, a set of rules, and a teleoaffective structure".

Supplementing this group level analysis, I explored potential differences in the understanding, evaluation, and/ or enactment of team practices by the members themselves. Among the different sources that could allow for individual diversity, I purposively explored the impact and role of the professional / functional schemata from which, as it has been suggested, may derive not only the performance of the practice, but also the meaning and value attributed to them. I analysed these differences and the implication for knowledge sharing either when they were linked / cited explicitly by the interviewees or by inference as being connected with knowledge sharing. In the latter cases, I conducted a posteriori focus groups (one per group) to enhance the reliability and validity of my findings. In those sessions, I shared my overall findings and asked for feedback on the points where the links seemed more indirect. In doing so, I explicitly recognize that “member validation constitutes a natural part of the dialogue between researcher and informant, and development of an inter-subjective understanding of phenomenon under study” (Bygstad & Munkvold, 2007:2).

Finally in the remaining part of this section, the type of data sources used for this thesis will be portrayed. Team member interviews and team meeting observations are the primary data sources of my thesis, complemented by the gathering of archival data. Following Denzin’s (1978) distinction, having different types of data sources (person, places, etc.), methods of gathering data (observation, interview, etc.), and type of data (recordings, qualitative text, quantitative, etc.) has strengthen the examination process and its reliability.

3.5.2 Informants

Fifty-five semi-structured interviews constituted one of the primary data sources for this study. All the members and leaders from the four groups were interviewed. In line with many scholars from different traditions (such as Bales, 1951, Giddens, 1984, among others), I deem the informants knowledgeable and capable of giving articulated insights about current and past group practices. Following Miles and Huberman (1994), I took as my within-case sampling criterion the definition of membership given by each team. I developed the list of interviewees by asking my contact within each group, who they considered as members of the team. In all the cases, except for two people in *MedGroup* and *AcuGroup* groups, the lists coincided with those listed as regularly attending group meetings of all the teams.

While I interviewed all members of the four groups, I paid particular attention to the perspectives of each of the group leaders. I contrasted their account vis-à-vis the narratives of the remaining members to identify possible differences. The leader role, as I will discuss in the following chapters, has made distinct and specific contributions into the sharing of knowledge in the four cases studied. It suffices to say here that the leaders can affect the boundaries of team practices and act as active agents in the process of sharing knowledge. Finally, the fact that I had the opportunity to interview all the members of each team strengthened my understanding of knowledge-in-practice both at the team and individual levels.

In the case of *AcuGroup* and *MedGroup*, team members are in general responsible either for clinical or managerial tasks, and their main accountability is based on such tasks. But in their role as members of these two groups, they are responsible for representing the voice of their professional department (i.e. medical, nurse, or managerial) in the meetings and/or informal get-together. Since most of the members carry their responsibility with the group on a part-time basis, there is a double-line of accountability: they are primarily accountable to each professional community (e.g. physician with their medical peers) and secondarily and more informally they are accountable to the head of the CD group. As for affiliation and self-identification with a professional group, these two groups show clear patterns and strong bonds with each original professional community. This was particularly the case for doctors and nurses. Managers, although clearly associated with the “management group”, tend to come from a variety of different backgrounds and careers.

In both *CommGroup* and *SaferGroup* most of the team members are formally responsible for individual projects; although informally and occasionally they tend to collaborate in others' projects. However, it is the head of each group who is accountable for the overall group performance. In group meetings and gatherings, each member tends to represent and speak about their individual project. Finally, in both groups, there is a large variety of professional affiliations. In most of the cases however, the initial affiliation and self-identification with a given professional community has been blurred by the constant shift of their professional careers.

The interview protocol used in this research was guided by my research question and based on the insights from the exploratory work. It was administered through a semi-structured questionnaire, with a special focus given to elaborating the specific characteristics of each case study as a starting point for theory-elaboration. The semi-structured interview format also allowed me to keep certain areas of enquiries (especially those related to practices) constant for sake of comparability, while at the same time exploring concrete examples and emergent themes as appropriate (Rubin & Rubin, 1995:16) (see Annexe 2). Each interview lasted on average 43 minutes and in every case, after briefly introducing the purpose of the meeting, I asked for authorization to record it. All the interviewees gave their consent, so all the interviews were fully recorded. Then, all recorded interviews were fully transcribed leading to a total of 5,179 paragraphs of interview transcripts available for analysis.

3.5.3 Meetings

The observation of social interaction has been described as “the common starting ground for all the social sciences” (Bales 1951:31). For this thesis, I conducted non-participative observations of group meetings for periods ranging from four (*SaferGroup*) to eight months (*CommGroup*). The type of meetings observed included formal monthly meetings, weekly meetings, conference calls, ad-hoc meetings, workshop meetings, and get-togethers in smaller sub-groups. I observed 40 meetings in total (101 hours approximate) and as result I obtained 1909 pages available in form of notes, minutes, and meeting documents.

For each case, I observed initial meetings without any prefix system of coding²⁷. The rationale for this was a desire to keep first observations and insights close to the data while I familiarized myself with each groups' meeting practices, and salient characteristics. After a number of meetings, I used an adapted and simplified version of Bales' (1951) classification system as a general framework for observation of dynamics of interactions across group members in their meetings. Similar to Bales, I considered frequency of interaction and type of communication; but different from him²⁸, I coded topical content as well. My reason for using Bales (1951) classification system was threefold: 1) Bales' method is particularly well suited to study communication practices in meetings, 2) Bales' level of analysis matches mine, and 3) his system provides a systematic method that is inclusive and continuous for studying team meeting practices through interactions (see Annexe 3 for an example).

In sum, the overall purpose of this two-stage method of observation was to initially study the meetings "with broad areas of interest but without predetermined categories or strict observational checklists" (Marshall and Rossman, 1995:107), and gradually identify recurrent practices. Once these recurring patterns started to emerge, and a certain point of saturation was reached, I relied on an adapted version of Bales (1951) scheme to formalize the observations and link more clearly the type of participations with members, and topics.

²⁷ In any sense I am suggesting that these observations were value-free or theory-laden free. In every observation, the observer relies on previous concepts and experiences when selecting and interpreting the observed stimuli. That said, by initially allowing more flexible observation, novel and / or unexpected practices not initially included in fix systems of observation can be discovered.

²⁸ Also, different to Bale I did not a) score the smallest discriminable segment of verbal or nonverbal behaviour; and 2) include facial / gesture / etc. expressions; and I did 3) use the context and previous knowledge on the group / individual to contextualize the observations.

3.5.4 Unobtrusive methods

Finally, I supplemented the interviewing of informants and non-participative observation of meetings by gathering archival data. I collected both proprietary and public documents. For the former, I had access to minutes of meetings, yearly business plans, budgets, supporting documents, clinical and financial reports, and auditing reports. In the case of *SaferGroup* and *CommGroup*, I had access both to hard and digital copies of these documents, while in the case of *AcuGroup* and *MedGroup* – for NHS confidentiality policies – I was only provided with the hard copies of the original files. In the case of publicly available data, I analysed formal policies, public reports, web pages, and external communications related to the four cases. Approximately 1,693 pages of archival material were reviewed for the thesis.

Through the revision of these documents, I could complement the other research methods used (Webb & Weick, 1979). More specifically I was able to gain further understanding about group situations in the past through the retrospective analysis of minutes and agenda that predated my fieldwork. I was also able to gain insights regarding the external context of each team (especially in relation to NHS policies that affected the four groups). As I will describe in the next section, topical analysis was the preferred method to examine archival data.

3.6 Data analysis

Following other studies on knowledge sharing across professional / occupational boundaries (e.g. Orlikowski, 2002) I primarily based my analysis on the iterative qualitative methods proposed by Miles and Huberman (1994), although I did take some recommendations from Glaser and Strauss (1967) on comparative analysis, and Rubin and Rubin (1995) on interview analysis. Following multiple stages of inductive examination of group practices (see Table 3.4 for a summary), I found five classes of barriers affecting cross-occupational teams' knowledge sharing processes: *cognitive*, *social-epistemic*, *pragmatic*, *structural*, and *physical*. It is the purpose of this section to describe the data analysis stages carried out in this thesis and briefly foreshadow the five knowledge barriers that emerged (these barriers will be fully analysed in the subsequent chapters).

First, I started by examining the data and looking for themes and topics associated with the research question and its operationalization in the initial questionnaire. To begin the analysis, I initially developed a provisional list of codes (Miles and Huberman, 1994) composed of concepts and themes drawn from the research questions, the exploratory work, and from the literatures reviewed. I finally completed it with a set of recurrent concepts and themes grounded in the data of the four cases²⁹. A coding protocol, in the form of a list of structured codes (see Annexe 4) was developed in order to analyse the data. In total I coded 3,546 passages that matched with my coding list referring both to team practices,

²⁹ In this point I departed from Glaser and Strauss's (1967) more inductive approach, for which the code should be solely based on the data.

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knowledge sharing and barriers, and related themes. To this end, I used NVIVO qualitative analysis software.

Stages	Tasks	Outputs
1. Developing a detailed description of each practice	1. Coding of interviews, observations, and archival data	36 descriptions of group practices
	2. Analysing group practices characteristics and constitutive elements	Four interim case summaries
	3. Developing 36 analytical descriptions of practices (9 practices x 4 groups)	Feedback sessions (one per group)
	4. Preliminary integrating practices	
2. Contextualizing practices	1. Addressing group feedback	Four case studies
	2. Integrating all the analysis of practices within each case context	
	3. Identifying common patterns within each case	
3. Identifying main inhibitors to knowledge sharing	1. Clustering of knowledge sharing problems and attributed causes	First order codes
	2. Deriving other potential causes from the data	
4. Integrating first-order codes and creating second-order categories of inhibitors	1. Integrating first-order codes into second-order categories of knowledge barriers	Second-order categories
	2. Identifying critical / representative practices per category	
5. Aggregating theoretical dimensions (classes of knowledge barriers)	1. Assembling of second-order categories into aggregated dimensions	Identification of five classes of knowledge barriers: <i>cognitive, social-epistemic, pragmatic, structural, and physical</i>
	2. Labeling of the five dimensions based on emergent concepts or on existing ones found in the literature review	
6. Cross-case comparison	1. Cross case –oriented analysis	Configuration of barriers across cases; identification of professional logics and emergent epistemic characteristics
	2. Variable oriented cross-case analysis	

Table 3.4: Stages of analysis (adapted from Jarzabkowski, 2008)

Then I moved into developing detailed descriptions of each practice enactment characteristics for each group. I did it by initially integrating the different informants’

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accounts, and examining these preliminary descriptions through triangulation with observational notes and archival data when available. Table 3.5 indicates the sources used to elaborate each practice description. Based on these sources I also prepared an interim case report that was used in the focus group sessions with each group. These sessions represented a significant step in the research to the extent that the report was fed back and discussed with the team members. In all these sessions, I initially presented a review of my findings followed by an open discussion where team members had the opportunity to correct and/or deepen my accounts, which also served to test the quality of the data supporting them (Miles and Huberman, 1994). With the feedback received, I defined the agenda for the follow-up interviews and observations of the remaining meetings. I conducted 10 follow-up interviews designed to explore some emergent topics that were not fully covered in the initial semi-structured interviews.

Practice Group	<i>AcuGroup</i>	<i>MedGroup</i>	<i>CommGroup</i>	<i>SaferGroup</i>
Purpose definition	i	i	i, o	i
Priority setting	i, o, a	i, o, a	i	i
Task allocation	i, a	i, a	i, o, a	i
Team Progress monitoring	i, o, a	i, o, a	i, a	i, a
Environmental monitoring	i, o, a	i, o, a	i, o, a	i, a
Information using	i, o, a	i, o, a	i, o, a	i, o, a
Decision making	i, a	i, a	i, o, a	i
Communication	i, o, a	i, o, a	i, o, a	i, o, a
Conflict management	i	i	i	i

a) All data were derived from semi-structured interviews (indicated with an “i”), “o” indicates “supplemented with observations”, and “a” indicates “supplemented with archival data”

Table 3.5: Data sources used for each practice description

Second, I started the within-case practice analysis by exploring the interviews for coincidences and divergences in the understanding and assessment of the different team practices for each group. At the individual level I analysed both topical repertoires but also

functional ones. For the former, I focused on the main concepts and themes that defined and qualified each groups practice from the point of view of each informant. Since my interest pertains to commonalities as well as differences among informants, I listed the different properties attributed to each practice that allowed future integration and differentiation. For the latter analysis, that is, the functional one, I relied upon the method espoused by Greimas (in Greimas and Courtes, 1982) called actant theory. Through the latter method, I tried to analyse how – and under what circumstances – practices as sequences of actions guided by specifiable schemata take place. I found this method useful for unveiling the different forms of enactments in the distinct professional communities that constitute each group.

Third, and concurrently with the previous stages, I identified the main inhibitors for sharing knowledge within practices in the form of first-order codes. I drew on common statements and observations to form provisional categories (Pratt et al., 2006) associated with barriers for knowledge sharing. This clustering of knowledge sharing problems across professional boundaries included not only stated and suggested causes from the interviewees' narratives but also potential conditions affecting the sharing of knowledge derived from the analysis of the data gathered in my observations and in the archival data.

Fourth, on the basis of this analysis I integrated these first-order knowledge inhibitors into higher level abstract concepts (see Table 3.6 below, first and second columns). These second-order concepts, as described by many exemplary studies that have used inductive categorical analysis (e.g. Anand et al., 2007; Gioia and Thomas, 1996; Jarzabkowski, 2008;

Pratt et al., 2006), described more general themes and categories that encompass the identified inhibitors for sharing knowledge across professionals both in exploitative and explorative teams. These more abstract concepts were labelled using general categories that could subsume the initial and inductively emergent first-order codes.

Fifth, the second-order categories were assembled into five general classes of knowledge barriers (column 3 of Table 3.6). These aggregate conceptual classes of knowledge barriers are named for the purpose of this thesis: *cognitive*, *social-epistemic*, *pragmatic*, *structural*, and *physical* barriers. These five types of barriers provide the organizing analytical framework for the subsequent two chapters. Consequently, as chapter 4 and 5 present a detailed analysis of these, I shall briefly introduce each class here.

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	First order codes	Second Order Categories	Aggregate theoretical dimensions
*Exploitative	*Statements about and observation of wealth/overload of information, and overload of externally driven and competing demands in Clinical Directorates and clinical practice (informational ambiguity). *Statements and observations about the existence of multiple external stakeholders with competing demands, and about the overall ambiguous and contradictory current situation of the hospital (organizational ambiguity)	Ambiguity	Cognitive Barriers
+Explorative	+ Statements and observations about limited knowledge and information about the task; and vagueness of group practices. + Statements about imprecise and changing boundaries of interactions between members, between the groups and the quango authorities, and the external stakeholders	Uncertainty	
*Exploitative	*Statements about, and observations of, the coexistence at the group level of multiple different understandings, and value and legitimacy attributions rooted in professional identities. *Statements about stereotypes and taken-for-granted ideas over other people and communities based on occupational affiliation.	Collectively rooted differences	Social-epistemic Barriers
+Explorative	+Statements and observations of the coexistence at the group level of multiple different understandings and value attributions rooted in personal trajectories and characteristics. +Statements about the confusion experienced due to the lack of visible professional “demarcation”, and about the “peculiar” nature of professional practice in the quango. + Statements about group members having difficulty tracing back other members’ understandings / values	<i>Sui-generis</i> & individually rooted differences	
*Exploitative	* Statements and observations about consequences of information, actions, and decisions for each professional and her/his clinical unit or professional group. Archival data on the multiple practices on governance and monitoring Clinical Directorates and Unit activities	High and collective consequentiality	Pragmatic Barriers
+Explorative	+Statement and observations about relatively lower (or even no) scrutiny from the quango. Comments of self-control and lack of external control and monitoring practices.	Low and individual consequentiality	
*Exploitative	*Statement about asymmetry of access to certain information depending on professional affiliation. Statements about the existence of hidden veto power structures (professional networks) and parallel (“bypassing”) channels of communication based on professional networks	Horizontal asymmetries	Structural Barriers
+Explorative	+ Comments about and observations on highly centralized communication and decision making around team leader figures. Observations on the asymmetry of access to information and other symbolic resources between team members and the team leader.	Vertical asymmetries	
+Explorative	+Observations of physical layout and distributions, statements about dispersed placement, lack of propinquity between members and home working practices	Lower likelihood of interaction	Physical Barriers

Table 3.6: Overview of the progression of categorical analysis

Cognitive barriers were found to be related to different types of indeterminacies (i.e. ambiguity and/or uncertainty) groups members face. These different types of indeterminacies are not an immediate consequence of the epistemic diversity natural to cross-occupational teams. Instead, they are closely related to the characteristics of the organization, information, and task. Such a high degree of ambiguity in exploitative groups, or uncertainty in the case of explorative groups, affects understanding and knowledge integration across members. *Social-epistemic* barriers exacerbate the knowledge challenges posed by cognitive barriers by fostering divergent interpretations among group members, which are based on different epistemic (what is known and believed) and doxastic (what is taken for granted) states. *Social-epistemic* barriers primarily challenge integration of knowledge across exploitative group members. In contrast, in explorative teams, diffused professional identity seems to challenge recognition, as group members struggle to identify the knowledge and backgrounds of others.

In turn, *pragmatic* barriers are most immediately related to the perceived consequentiality of information and knowledge embedded in group practices. The high degree of consequence-awareness challenges knowledge integration in exploitative groups. Instead, in the case of explorative groups, relatively lower scrutiny from the quango and the NHS generates few incentives for team members to share their knowledge and project-specific information between each other. *Structural barriers* emerge as a consequence of the structural conditions of embeddedness of each group. The structural conditions seem to affect the most elemental phase of knowledge sharing by establishing the initial conditions

(and rights) of *access* for team members. Finally, *physical* barriers were found as conditioning knowledge-sharing in explorative teams only, by reducing the likelihood of interaction across team members.

Finally, I completed the analysis of the four cases by conducting the cross-case comparison. In this phase, I focused on delimiting the theory by systematically examining similarities and differences across the explorative and exploitative cases. In considering Miles and Huberman's recommendation (1994), I followed mixed analytical strategies. Initially, case-oriented analyses were conducted in order to preserve cases configuration. Consequently, different case-ordered matrices were used as a starting point to enhance the development of more sophisticated descriptions on the conditions that affect knowledge sharing across boundaries in the studied cross-occupational groups. Secondly, I complemented this analysis with a more concept-oriented one by searching and analysing patterns (Gibbs, 2002) and the presence or absence of certain attributes across barriers and practices in order to enrich the understanding of the underlying phenomena.

4. Exploitative case studies: delivering health services in Acute Trust Hospitals

In the following two chapters (i.e. §§ 4 and 5) a detailed analysis of the four case studies is presented. I start by reviewing the main characteristics of the institutional and organizational contexts where the exploitative and explorative cases are embedded. I then outline the main features of each group. Finally, I present an in-depth examination of team practices to illustrate the knowledge conundrums that cross-occupational group members face. Complete and detailed accounts are provided to help convey the complexity and richness of the phenomenon under study, preserving the identity of each case. Through this inductive analysis of the enactment of team practices four common classes of knowledge barriers are identified and analysed: cognitive, social-epistemic, pragmatic, and structural barriers.

4.1 Institutional overview

Created in 1948 with the goal of ensuring equal access to health care provision (Ferlie et al., 1996; Klein, 1995), the English NHS has experienced deep changes since the introduction of the 1989 White Paper, *Working for Patients*. In particular, the White Paper established two major reforms that created the notion of an internal or quasi market. First, it separated the roles of purchaser and provider: while health authorities are responsible only for buying health care from providers (Ferlie et al., 1996), these providers — such as hospitals and community services — “were transformed into autonomous trusts, whose

budgets would depend on their competitive efficiency in getting contract from purchaser” (Klein, 1995:184). Second, general practitioners could become fund holders, having a budget from which to purchase the services required by their patients. These reforms tended “to mimic those characteristics of the market that promote greater efficiency within the framework of a public service” (Klein, 1995:184).

Under the latest reforms, currently the three most relevant institutions for secondary care³⁰ are the Strategic Health Authorities (SHA), the Primary Care Trust (PCT), and the Acute Trust³¹. The SHA’s role is to act on behalf of the Secretary of State managing the local NHS and ensuring that local health services are satisfactorily provided in terms of both quality and cost-effectiveness. In turn, PCTs are not only responsible for the provision of primary and community services but also for the commissioning of secondary care. Collectively, PCTs control 80% of the NHS budget. Under the guidance and general budget provided by their corresponding SHAs, PCTs have flexibility to manage their own budgets and set their own priorities. Finally, Acute Trusts – also known as Hospital Trusts – are the providers of secondary health services, and they are commissioned by PCTs to provide these services (NHS, 2010).

³⁰ The delivery of clinical services in the NHS is primarily organized in three stages. **Primary care:** is usually the first stage of treatment for most people and is delivered by a wide range of independent contractors, including GPs, dentists, pharmacists and optometrists, together with district nurses and health visitors. **Secondary care:** is usually the second stage of treatment and is usually provided by a hospital, following referral from a primary or community health professional such as a GP. Finally **tertiary care:** is the third and highly specialised stage of treatment, usually provided in a specialist hospital centre.

³¹ While I was writing this Chapter, the Health Secretary Andrew Lansley presented a NHS White Paper (12 July 2010) proposing one of the largest restructuration in the NHS ever. Such move will lead to the abolition of all 10 SHAs and the 152 PCTs. Subsequently, consortiums of GPs will take charge of much of the budget currently in controlled of SHAs and PCTs.

These paradigmatic changes, a movement toward a “profit and loss philosophy” (Button & Roberts, 1997:142), and the emphasis on health outcomes (Klein, 1995), all served to drive practices and ideas from the private sector closer to the NHS, in a context of incremental financial pressure and a rapid pace of change and uncertainty about the future (Klein, 1995). While historically the NHS has been dominated by clinicians, and some commentators argue that even today hospital doctors remain pre-eminent (Ackroyd, 1996; Ferlie et al., 1996), these changes have also inaugurated an era of management prominence. The publication of *Working for Patients* meant the introduction of business managers in the core of the NHS governance (Button & Roberts, 1997).

In this context, “clinical directorates and clinical budgets were instituted in order to extend sets of ideas from management to the clinical realm” (Llewellyn, 2001:597). Though never preceded by a formal government policy (Kitchener, 2000), clinical directorates (CDs) were rapidly accepted as a rational form of governance within the NHS. Inspired by the Johns Hopkins Hospitals at Baltimore (US), CDs are groups of healthcare professionals within a speciality, or group of specialties, that provide patient care. They serve as management units, usually accountable to the Board of the Hospital and Division of which they are part, formed around either a medical specialist or a support service. Some of their main responsibilities are to manage their own budget, to recruit professional staff, and to monitor service quality, with the overall goal of seeking contract to supply hospital services (Llewellyn, 2001).

Generally perceived as a cost management centre (Kitchener, 2000), each CD is led by a Board that is composed of a clinical director and supported by a business manager and a nurse manager or matron (Dawson et al., 1995; Thorne, 1997). It can also be integrated with representatives from the different medical specialities (i.e. clinical units) that comprise the CD. As Fitzgerald (1994:33) points out, in most UK hospitals the clinical directors carry out their responsibilities on a part-time basis while clinicians usually continue their practice. Under these conditions, the delivery of health services requires cooperation between clinicians and managers; though it is not infrequent to find insufficient levels of collaboration and trust across CD Board members (Braithwaite & Westbrook, 2004:144).

It has been said that CDs represent ‘management from the inside’, with doctors, rather than managers, being the persons who are primarily responsible for the managerial decision-making process. “The assumption is that clinicians will be more likely to respond positively to management agendas set by medical (rather than non-medical) managers.” (Llewellyn, 2001:596). And in this sense CDs are different from traditional ways of structuring and managing health services, “which emphasized functional groupings such as medicine, nursing and administration” (Braithwaite & Westbrook, 2004:142).

Members of this ‘interstitial communities’ (Brown & Duguid, 2001), such as medical managerial hybrids (Fitzgerald & Ferlie, 2000), may also facilitate sharing beyond the classical professional boundaries (Ferlie, Fitzgerald, McGivern, Dopson, & Bennett, 2011). By sharing language, identities and goals, directorate members are able to span boundaries and play a key role in knowledge-sharing. Moreover, as Llewellyn (2001) has mentioned,

the clinicians within the CD play a crucial function, since they can speak both clinical and managerial languages and can act as “two-way windows”.

Nevertheless, researchers have found different barriers for collaboration and knowledge sharing within CDs and their Boards. First, as Kitchener (2000) points out, two main ethoi coexist within each CD. On one hand, managers represent an administrative ethos defined by values such as hierarchy, control and procedures. On the other hand, the medical domain embodies “an ethos of autonomy, self-discipline and adherence to professional standards” (2000:133). These differences, which in turn endure the division between the administrative hierarchy and the collegial professionals (Dawson et al., 1995; Kitchener, 2000), are not only cultural but also epistemological and axiological in nature. Following March and Olsen (1976), Llewellyn (2001:595) asserts that “these communities have developed different logics; clinicians have been guided by a logic of appropriateness and managers have operated according to a logic of consequences”.³²

Consequently, professional boundaries – such as those between hospital doctors and managers – have been understood as determinants in the process of knowledge-sharing within CDs (Llewellyn, 2001). These different professions “would exhibit greater commonalities in meanings and knowledge patterns and would be more likely to establish

³² March and Olsen propose that there are two main logics of human action. *Logic of consequences* views actors as choosing rationally among alternatives based on their calculations of expected consequences, whereas *logic of appropriateness* “is a perspective that sees human action as driven by rules of appropriate or exemplary behavior, organized into institutions” (2006:689).

communities of practice conducive to learning, but would be less likely to collaborate across them.” (Currie & Suhomlinova, 2006:5).

Such duality between clinical and managerial knowledge realms is epitomized in the CD’s agenda, wherein the clinical directorate’s knowledge is being formed through the integration of medical and managerial knowledge (Llewellyn, 2001). These two sources are embedded in completely different sets of epistemological and cultural meanings. Medical knowledge is perceived as fundamentally tacit, experiential, judgemental and professional (Dopson, 2005) in comparison to managerial knowledge. This understanding of medical knowledge has traditionally explained the balance and locus of power within the NHS: with such a type of knowledge it is inevitable that power should lie at the periphery and that the medical profession has experienced a great level of autonomy (Klein, 1995:72). It also explains why since the early 1980s the NHS management has attempted to make professional knowledge more explicit and measurable.

Moreover, it is interesting to note that while clinical directors have access to the sets of ideas belonging to management, business managers within CDs have limited access to, or control over, sets of ideas from clinical practice (Llewellyn, 2001:596). This affiliation of the different actors with a different type of knowledge and the asymmetries in the interpretation of each set of ideas increase the power-base of the clinical directors (Thorne, 1997): in their role, clinical directors can not only interpret but also make decisions about the whole organization, whilst managers cannot usually comment on clinical matters or professional conduct (Llewellyn, 2001:596).

Finally, from a clinical and financial perspective, most of the CD activities are greatly regulated and scrutinized both by many internal departments within each Trust (e.g. auditing department, performance team, clinical governance department, etc.) but also by external agencies and professional bodies from the broader NHS system (e.g. Royal Colleges, NICE, PCT, SHA, Care Quality Commission, Dr. Foster, etc.). Hence, medical, nursing, and, to a much lesser extent, managerial practices, are ruled by national guidelines and protocols, with a big emphasis on standardization of such practices. Usually common diagnosis and procedures are grouped, and serve as the minimum unit of assessment and monitoring. However, the range of indicators varies a lot and goes from generic ones, such as the number of time that staff wash their hand in a given ward or number of bed open overnight, to disease specific ones such as cancer waiting times or 48 Hour Genitourinary Medicine Access Monthly Monitoring (GUMAMM), among many others.³³

4.1.1 Institutional setting

The two exploitative cross-occupational teams examined in this study — *AcuGroup* and *MedGroup* — belong to one of the largest NHS teaching trusts in the UK. This Trust, which is made up of several hospitals, provides a wide range of general and specialist clinical services through 14 CDs and it is a base for medical education, training and

³³ The array of healthcare statistics, guidance and performance indicators is extremely vast and complex. A few examples of the indicators and guidance that apply to one of the CDs studied are: 18 Weeks Referral to Treatment (RTT), A&E attendances, total time spent in A&E and emergency admissions through A&E, beds open overnight, day only beds, critical care beds, cancelled operations, total number of operating theatres, inpatient and outpatient waiting lists and waiting times of hospital patients, monthly and quarterly diagnostic waiting times (including imaging and radio-diagnostics), same-sex accommodation, etc.

research. For the sake of confidentiality and to ensure the anonymity of those interviewed the name of the Trust is withheld. This group of hospitals, like many others (Button & Roberts, 1997), has always functioned under continuous change and reorganization. At the moment of the study, two major challenges affected the Trust. The first challenge pertained to the Trust' operational and financial results. Despite the strong performance in terms of service quality, the Trust experienced difficulties in its resource management. This situation is particularly evidenced by the complex financial situation wherein funding did not match the levels of demand. In the past, the Trust's response to the financial constraints and high-cost structure had been to expand capacity in several of its clinical services in order to maximize incomes from PCTs. Nonetheless, from the beginning of 2009, it was evident that such a strategy was no longer possible. Previous expansions put pressure on PCT affordability and compromised Trust income streams. As a result, for the 2009/2010 period, the Trust launched a Cost Improvement Programme intending to obtain a cost reduction of £44.5m to bring expenditure into line with funding (Trust Business Plan 2009/10)^{34 35}.

³⁴ This sudden change of strategy, from income maximization to expenditure reduction, has not been exempt from tension, as sunk cost and lack of liquidity of many investments made in the past have made it difficult to achieve this cost-reduction target. Even in the case of human resources, the appointment of a new professional cannot be easily undone.

³⁵ In an internal document, the acting Chief Executive gave the following reasons for such cost reduction: "1) The affordability constraints PCT must live within meant we had to plan to carry out seven percent less work this year, compared to the level undertaken last year. This does not mean that patients will not receive treatment, but that the PCT wants more patients to be treated in the community and managed by their GP. Of concern is the fact that we have not seen a reduction in total numbers of patients being referred, or attending our hospitals. This adds to the financial challenge both the [Trust] and the PCT are facing. 2) The Treasury requires all NHS trusts to provide services at three percent less cost than last year (£19m) by improving efficiency and productivity. 3) Our investment in the additional costs of the new Cancer Centre in its first year of operation (£13m). The need for this investment is expected to reduce each year as the full capacity of the Centre comes into use over time. 4) A substantial increase in the level of premiums chargeable to NHS trusts under the Clinical Negligence Scheme for Trusts, the NHS self-insurance scheme (£5m). 5) Other smaller annual cost increases and some reductions in income."

The second challenge was the lack of engagement and leadership at the top level. This was epitomized by the resignation of both the Chief Executive Officer and the Chief Operating Officer within a year. The institution was in a virtually leaderless situation by the end of 2009. New appointments for such roles were made, but were only effective by the end of the first term 2010. This uncertainty exacerbated the operational and financial challenges, compromising the “delivery of performance targets with consequent impact on a) rating for quality (November 2009) and b) registration with CQC³⁶ from 1st April 2010” (Trust Business Plan 2009/10).

4.2 Case 1, *AcuGroup*

4.2.1 Introduction

The first of my two exploitative case studies is *AcuGroup*. This is the CD Board of one of the largest clinical group of departments in the Trust. It was originally set up in 2000 and is composed of four large and highly interrelated clinical units (CUs): A&E and Emergency Departments, Acute Medicine and Geratology. There is a clear patient pathway between these four CUs and they also share some facilities. Moreover, the staff³⁷ of each CU liaises closely with the ambulance service and other clinical teams throughout the hospitals in dealing with a wide range of conditions. These services are delivered in three different sites and they include treatments to both outpatients and inpatients mainly from the county, and,

³⁶ CQC (Care Quality Commission) regulates all health and adult social care services in England, including those provided by the NHS, local authorities, private companies or voluntary organizations (NHS web, 2010).

³⁷ The total number Whole Time Equivalent (WTE) staff members in the CD at April 2010 was 843.57. The distribution of staff (which encompasses doctors, nurses, managers, and others) is as followed: A&E (198.01 WTE), Acute General Medicine (327.71 WTE), General Medicine (183.46 WTE), Geratology (130.54 WTE). Finally, unique to *AcuGroup*, there are 3.85 WTE staff members.

to a lesser extent, from bordering counties. As described in a recent internal document, the CD Board is the most senior management team within the Directorate and its main responsibility is for delivering organisational, strategic and operational objectives of the Division and Trust (Trust Internal Document, 2009). Accordingly, *AcuGroup* initial main task is to make decisions and share information in relation to the operational management and clinical and quality assurance of CUs; to be responsible for ensuring that integrated care pathways are in place, and to manage and monitor CUs' budgets so as to deliver financial balance.

At the moment of the study three general group situations were most salient. First, from an operational point of view, the financial constraints of the Trust made some of the services operate at full occupancy; which presented problems in terms of delivering clinical services. As beds had to be closed, staff appointments had to be stopped. Staffing has also been an issue for shortage and variable quality of locums (CD Board Minute, 16 March 2009). Under such operational pressures, the CD had seen its ability to meet some national targets reduced. This situation has been even worsened by the existence of targets that, under the current situation of financial constraints, can be understood as conflicting. For example, this is the case with mixed sex accommodation. As a result of a national policy, the Trust was pursuing the total elimination of mixed sex accommodation by end of 2009. This objective seriously compromised the ability of some CUs (especially that of the Emergency Department) to meet simultaneously other national targets such as the "four hour wait" (maximum waiting time of four hour in A&E).

Second, team members perceived that such operational restrictions were inevitably having a knock-on effect on the quality of clinical services. Although at the moment of the study the CD and its clinical units were still achieving their clinical targets, there was also a shared perception across the team that they were deteriorating. Though some early external indicators were dismissed by the group for lack of accuracy – for instance, the rate of deaths in some CUs were incorrectly depicted as abnormally high vis-à-vis the national standards (Dr. Foster, 2010; HSMR Jan 09) – an awareness from the CD Board of the deterioration of clinical provisions was still in place.

Third, from a financial perspective, with a total expenditure of £65.17 millions in 2009, the CD was expected to produce savings for £5 millions. In order to generate them, *AcuGroup* had to reduce its staffing on inpatient wards, the nurses skill mix, and the non-pay expenditure. Moreover, the CD had to provide “efficiencies” by reducing the length of stay of patients and by stopping all the new recruitments of medical staffing. As a corollary, team members described the overall CD situation as “challenging” as activity increased yet incomes were capped.

In terms of group composition (see Figure 4.1 for the team chart), the *AcuGroup* is chaired by a Clinical Director, who is supported by a Directorate Manager and a finance officer in the execution of managerial issues related with the group or the CUs. Because of the large quantity of clinical services delivered, each Clinical Unit appoints one Clinical Lead as well as one or more Matrons. Also, there is an Operational Support Manager and a Clinical Governance representative. Most of the clinical members (physician and nurses) at the

AcuGroup occupy their positions on a part-time basis, devoting most of their time to clinical practice, whereas managers and administrative assistants (PAs) occupy their position on full-time basis. As in most of the cases in this NHS Trust, the Clinical Director and the Directorate Manager are regular members of the next governance level (i.e. Divisional Board).

The position of both Clinical Director and clinical leads in the CD Board is rotated among clinicians after a collegiate agreement among medical peers. As CD Board responsibilities are not normally part of consultants' job description, Clinical Director and Clinical Leads usually sign a contract for a specified period of time in which the number of clinical sessions they will devote to their role as CD Boards members is stated. In the case of CD managers and Matrons, their participation in the CD Board is expected, and a part of their job description.

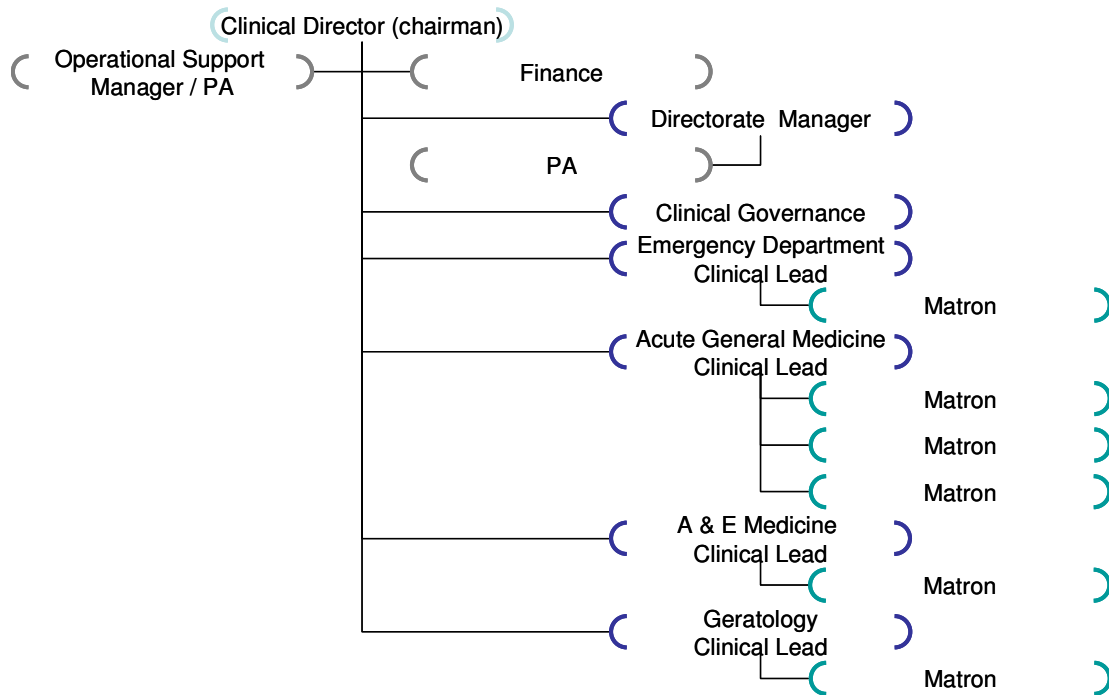


Figure 4.1: *AcuGroup* organizational chart

Table 4.1 summarizes *AcuGroup* membership characteristics. At the moment of the study, there were 14 active members³⁸. The average tenure for the group at July 2009 was 24.57 months (SD = 21.14months) and the average work experience in years until the same period was 15.83 years (SD = 8.21years). In the case of *AcuGroup* average tenure, the mean was highly influenced by the presence of two members (both doctors) who have been part of the CD Board (with different roles and responsibilities) almost from its inception.

As for the motives to join the CD Board, it is interesting to note the degree of similarities within each occupational group. For most of the nurses, with one exception (N3), their membership into the CD Board is understood to be attached to their job description as

³⁸ Note: two matrons (Emergency Department and A&E Department) did not actively participate in the CD Board due to overlapping clinical commitments.

matrons. Naturally, when they are promoted to that position in each CU, they assume also this membership as a kind of ambassadorial role: they represent the CU nursing group at the CD Board level. In contrast, CD Manager and Finance representative perceived their roles as part of their career decision and also as a career opportunity (something similar occurs with one of the PAs). Similarly, they perceived their role and the role of the team as favourable.

Chapter 4. Exploitative Case Studies

Current Occupational community/ Informants	Total work experience (in years)	Tenure in the team (in months, until Jul 09)	Motives to join the team	Initial attitude towards the team (fav., neutral, unfav.)	Any previous cross-occupational experience
Administrative:					
A1	19	24	Comes with the post	Neutral	YES (HR, work experience)
A2	07	21	“Interesting position”	Favourable	NO
Clin. Governance:					
C1	DK-2	15	Comes with the post	Neutral	YES (nursing, educational and work experience)
Medical:					
D1	34	72	“Nobody else wanted”	Unfavourable	YES (managerial, educational and work experience)
D2	20	21	“Interested in management”	Favourable	YES (managerial, educational experience)
D3	16	24	“It was my turn to take it”	Neutral	NO
D4	20	27	“I was asked for the former lead”	Unfavourable	NO
D5	25	72	“I was asked”	Unfavourable	NO
Finance:					
F1	06	17	Career opportunity	Favourable	NO
Managerial:					
M1	11	05	Career opportunity	Favourable	YES (work experience)
Nursing:					
N1	09	15	Comes with the new post as Matron	Neutral	NO
N2	11	07	Comes with the new post as Matron	Neutral	NO
N3	DK-2	08	Try to make a difference	Favourable	NO
N4	12	16	Comes with the new post as Matron	Neutral	NO

Dk: Don't know; Dk-1: question not asked; DK-2: asked but not answered (strayed from question, didn't know the answer) Dk-3: ambiguous answer

Table 4.1: *AcuGroup* membership characteristics

Finally, in the case of doctors, with only one exception (D2), the perception is that membership in CD Board is a managerial duty that it is received / imposed from their CU medical colleagues and the fulfilment of this role is on a rotational basis. This managerial

role is considered by many doctors as a potential detour from their clinical career, so they are usually very careful in the amount of time they spend in these managerial roles³⁹. Not surprisingly, the initial attitude towards the Board and its role is predominantly unfavourable. Most strikingly, and in contrast to managers and nurses that arrive naturally to this position as their careers progress, medical candidates to Clinical lead positions only come to this role after an informal process of gaining support both from their peers doctors from their respective CUs and also from doctors seated at the Trust and Divisional Boards:

... you could put yourself forward, some people do but it doesn't work very well. (...)What's happened to me – I've been asked twice in ten years – is [that] I was asked by management. But they probably asked some of my colleagues if I was okay and then I talked to my colleagues to check that I had support. Not all the colleagues, I talked to enough colleagues to feel that I would get enough support to make it credible... [A]nd I think if there is a vote of no confidence in me from my juniors or [a] sense that I would have [to] stand down [then I would do so]. I think my colleagues could veto me but management would say no to some people if they were not corporate in their thinking. (D5)

Within *AcuGroup*, professional background and current identity are inextricably interwoven in two of the occupational communities. In the case of doctors and nurses, awareness of team role leads to awareness of affiliation, and in turn awareness of general background. *AcuGroup* members when referring to the professional trajectories of doctors and nurses do not seem to have doubts: people and trajectories can be easily deduced, since most of them partly respond to ideal types of nurses and doctors in their clinical speciality. The saliency of professional identity, and its associated background, is then reinforced by the long tenure of people in the organization and by the clarity of pre-defined roles at the *AcuGroup* level (e.g. Clinical leads are always doctors that represent CU). In this vein, several team members stressed that beyond the “narrow clinical background of doctors and

³⁹ Doctors are meant to spend the equivalent to four hours a week. Yet some doctors' narratives suggest that when possible they tried to reduce the number of hours a week spent in managerial issues.

nurses” (D2), it is not clear whether other different skills, experience, interests and characteristics are held by those members. Different is the case of managers and other members, such as Clinical Governance representative. While the current role in the team usually points out a current professional identification (e.g. a CD Manager is undoubtedly part of the managerial NHS cadre), knowledge beyond this point can not be logically deducted. In the specific case of managers, people can come to such a role from a variety of professional and experiential background: NHS nurses embracing the managerial career, accountants working in the NHS, trained managers coming either from the NHS ranks or from the private sector, other professional communities joining such managerial positions, etc. Finally cross-occupational experience is rather limited and held only for five members of the team.

4.2.2 Knowledge barriers in *AcuGroup* practices

While different barriers inhibit knowledge sharing in *AcuGroup*, their nature, characteristics, and resolutions – if any – vary a great degree. It is the purpose of the current section to analyse the different constitutive aspects of these barriers, and to understand the implications of their location and embeddedness in the recurrent group processes and practices (cf. Bourdieu, 1977) that served as the observational starting point for this thesis. The following analysis mainly draws on team members narratives, complemented, when possible, by direct observation of the enactment of such practices. The materiality of such practices, its embodiment and externalization, together with the symbolic and material artefact used by the team and its members, have been analysed as well. The latter scrutiny

has been supported by a wealth of documents and archival information (both proprietary and public one) used by the *AcuGroup*. Accordingly, the remaining part of this section – and based on the inductive examination of group practices – will analyse four emergent classes of knowledge barriers: cognitive, social-epistemic, pragmatic, and structural ones.

4.2.2.1 Cognitive barriers

By cognitive barriers, I refer here to boundaries that inhibit the sharing of knowledge in cross-occupational groups, that are most immediately related to the processes of cognition but which are initially unspecific as to any particular profession that constitutes them. Under such a definition, cognitive boundaries that affect intra- and extra-group knowledge sharing in the *AcuGroup* are substantially ingrained in both organizational and informational ambiguity. Not surprisingly, *AcuGroup* members are exposed to very equivocal situations where multiple interpretations and meanings are equally derived, with no single understanding dominating the others. Asserting the natural ambivalence of social reality is not sufficient to understand the conditions under what *AcuGroup* members have to enact knowledge exchanges and, more generally, group practices. From the interviewees' narratives and my observations of practices in action, three elements become more salient regarding cognitive barriers.

First, as the financial, operational, and institutional situation becomes more complex and uncertain, the Hospital as an organizational frame of reference⁴⁰ becomes weaker and loses legitimacy. Second, this ambiguity is worsened by the large number of different NHS external agencies that have a stake on *AcuGroup* activities, each one providing differing and not always compatible information and frameworks for action. Third, this ambivalence within the *AcuGroup* is further exacerbated by the presence of multiple epistemic frameworks rooted in the different professional schemata. While I will focus on this final element in the next section, suffice to say here that these different epistemic components allow multiple representations to coexist within *AcuGroup*.

In terms of Carlile's classification (2002), what really affects knowledge-sharing at this cognitive level is not syntactical barriers, but semantic ones. In the context of rapid change and uncertainty about the future, *AcuGroup* members simultaneously face increasing and accumulative demands of multiple external sources, and erosion of the Trust as institutionalized – and hence stable – reference-point. This situation is further exacerbated by the coexistence of multiple professional epistemologies that offer not only different explanatory frameworks but also perform regulatory roles for the *AcuGroup* in general and its members in particular.

Though such cognitive boundaries were found to a varying extent in most of the studied *AcuGroup* practices, their negative impact was deemed stronger and especially salient in

⁴⁰ Applied to the present case, the notion of organizational frame of reference would suggest that organizations in ambiguous contexts might provide some formal and informal indications of privileged understandings. The interviewees' narratives suggest that the NHS Trust has failed to do so.

two concrete practices: *Purpose Definition* and *Priority Setting*. In the concluding part of the current section, these practices and the impact of cognitive barriers will be analysed.

Ambiguity in group purpose definition: Multiple simultaneous, and not always compatible, interpretations about the main group purpose coexist among *AcuGroup* members. Although historically CDs and their Boards were set by the Trust in 2000, the Hospital has systematically failed to provide any term of reference (either formal or informal) that could have guided the practice of purpose negotiation and agreement across the group members. Moreover, from the practice perspective, it seems that there has not been discussion or questioning of the CD Board existence and/or purpose held at the group level. When I asked whether any negotiation on team purpose has been held either in the past, or currently in the present, the response was unanimous: there has not been such a negotiation. The purpose of the group is inherited, and as such, accepted:

And I don't quite, I don't really understand when that was set up actually or exactly how it was set up. (D4)

I don't think that purpose has ever been, I don't think it's ever been stated. Or if it has, I haven't seen it. I think it is very substantially implicit in our work. So is there a codified, structured, purpose? It may well exist, but I haven't seen it. (D2)⁴¹

These meetings have always taken place. (A2)

⁴¹ In the course of my data collection I did have access to a draft version of a CD Board statement of purpose being circulated at the Divisional level. *AcuGroup* members seemed not to be aware of such blueprint. Interestingly, such stated purpose has certain resemblance with the CD Manager's understanding of the purpose of the team. The enunciation of that draft version said as follow: "*The Directorate Board is the most senior management team within the directorate and its prime purpose is responsibility for delivering organisational, strategic and operational objectives of the Division and Trust. Directorate Boards have decision making authority within a delegated framework on behalf of the Division; they have responsibility for leading and managing developments within the Directorate. All Directorate Board Members are required to represent their services and form links within and outside of the Directorate to support the effective delivery of services.*" (Trust, draft documented posted in the CD intranet in 26 Jun 2009)"

Under such conditions – (1) unattributed and diffuse provenance, (2) lack of guidance from the Trust, and (3) the passiveness of *AcuGroup* members in discussing the main purpose of the group – different individual and idiosyncratic understandings of the main group purpose have emerged. The analysis of group members’ understanding shows that the main purpose of the CD Board initially revolves around three loose topical areas: to be a channel of communication across CUs, to be a decision making forum, and to be a safeguarding stance of CUs clinical outcomes. These areas of understanding are far from exclusive, as other views also exist within the group (e.g. to be a place for “paperwork”, or for setting standards). But what makes the general purpose agreement even looser is the fact that team members tend to differ even in the concrete attributions and perceived efficacy of the team and team purpose for the topical categories aforementioned:

[The purpose of the group is] to ensure the best clinical outcomes, safety, patient experience,...within financial and other operational constraints, and to position the directorate for future change within the organisation and outside it. So it’s both reflecting the current situation, financial and otherwise, and need to perform and any future proofing that’s necessary. (D2)

In practice, it’s there to communicate information down to the lower people. And it’s got a paper exercise of getting what we call sign off, that there is a formal agreement done by the people lower down on decisions, but in practice very little proper decision making is going on in the Board. Not enough time, wrong people. All the major decisions and thought is happening outside the Board in small meetings. Corridor meetings, small meetings, it’s all arranged and then it comes to the Board for ratification. (D5, Chair)

As a result of this ambivalence, knowledge-sharing is affected in several direct and indirect ways in *AcuGroup*. For meaningful communication and knowledge-sharing to occur at least some sharing of interpretation and understanding is needed (Cannon-Bowers, Salas, & Converse, 1993). Given the lack of a minimal shared system of meanings, *AcuGroup*

members struggle as a group to anticipate the value of both the team as a collective and the exchanges of knowledge that can occur within it. Moreover, this lack of agreement deprives the group from having a common and general frame of reference (i.e. the ultimate purpose of the team) on which to anchor the equivocality of the knowledge located and embedded in each practice.

Ambiguity in priority setting: While in the previous practice ambiguity can be succinctly attributed to the lack of a general frame of reference, in the current practice –i.e. Priority Setting – ambiguity can be attributed to the existence of multiple and diverse frameworks of actions and interpretations. As it is almost unanimously perceived, with the exception of the two administrative members (A1 and A2), the CD Board does not set its own priorities. Instead, team members ascribe the *AcuGroup* a rather passive role as a receptor of both strategic and operational priorities set at higher levels (i.e. national services frameworks and hospital’s targets) and, to a lesser extent, operational priorities originating from a lower level (CU level).

The ambiguity provoked by such a large number of diverse externally-driven priorities presents cognitive and normative challenges for *AcuGroup* members. First, the possibility of integrating all the priorities seems to be beyond any cognitive competence. Over time, team members facing many fundamental incompatibilities (epitomized by what has become a *topos* of the irreconcilable tension within the NHS – that between “best care” and “lowest cost”) have developed a situated logic of compromise (cf. Archer, 1995). This logic, that is not homogenous across *AcuGroup* members, arises as a balancing act when having to select

certain priorities and not others (in a situation of necessary incompatibility). While the NHS and Trust perspectives seem to be that the priorities are achievable all at once, and managers seem to agree to some degree with this vision, doctors of the *AcuGroup* do not. Instead, they come to believe that there are some priorities, among the big number of them, that become true priorities:

It depends what the government does. Most things are set by government and as soon as the government sets it comes to the top and everything else gets ignored. (D5, Chair)

Second, this logic of compromise⁴² is also supported by the common perception across doctors that the lack of achievement of some, or even many, organizational priorities does not bring any big penalty, both at the individual and group level:

But I guess my view of it is that the management of the NHS is a bit, it is slightly woolly in [the] sense...that there probably isn't an enormous punishment or a kind of deadline if you don't make it. Someone's going to get fired or told to leave because they haven't done a good enough job: it just doesn't seem to work that way... (D4)

From a normative point of view, priorities in the *AcuGroup* also generate an ambiguous situation. Inherent in the very nature of the priority to establish precedence in order or time (OED, 2010), is a need to endorse certain expected future realities by requiring special attention from the receivers of such priorities. In other words, priorities endorse certain understandings on what the group *has to do*. In *AcuGroup*, the two features of priority-setting described above – incompatible multiplicity and perceived low forcibility – erode this prescriptive, and hence disambiguizing (cf. Greimas & Courtés, 1982), function of priorities:

⁴² Logic of compromise results in lesser number of priorities and lower forcibility than original expected

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Part of the challenge is to look at the changing agenda and to figure out what's important and deal with that and not get too stressed by it all....One of the biggest difficulties is to know whether the financial target is more important than the performance target. So, in our directorate we have a four hour wait target for the front door and we have our financial target. I never know which one is more important. Officially they are both important but they're in conflict. (D5, Chair)

Practice	Main Characteristics	Knowledge Barriers	Resolution
Purpose definition	Lack of external frame of reference, diffuse provenance, lack of discussion across <i>AcuGroup</i> members on group purpose	Cognitive aspects: ambiguity due to lack of internal or external common frame of reference	N/A
Priority setting	Multiple and not always compatible frame of references, large number of priorities (not always compatible)	Cognitive aspects: ambiguity due to the excessive number of non-dominating external frame of reference.	Partial: logic of compromise; artefact (agenda, stabilize certain priorities across team members)

Table 4.2: Exemplars of Cognitive Barriers

Nonetheless, as is summarised in Table 4.2, in contrast to the practice of purpose definition, *AcuGroup* members have developed a logic of compromise that help them to *prioritize* among the multiple and not always compatible goals. In *AcuGroup*, this exercise very much resembles a political sense-making process, wherein doctors and managers try to ponder gains and losses with the concrete Trust situation as a backcloth. These activities manifest themselves in discussions held between the Clinical Director and the Directorate Manager prior to each group meeting and is apparent from the *AcuGroup* meeting agenda. My observation of such meetings and team members' interactions in small get-togethers seems to suggest that the materiality of the agenda helps to stabilize and to give some order to the fluid situation of multiple externally driven priorities, by providing team members with fixed categorical scripts to organize the discussion and to keep records of them.

4.2.2.2 Social-epistemic barriers

Although closely related to the cognitive barriers discussed above, in this section the analysis will focus on social-epistemic barriers, which are more immediately rooted in professional ethoi and schemata. The cross-occupational nature of *AcuGroup* presupposes the existence of multiple social epistemologies anchored in professional knowledge. As collectives entities, the different occupational groups represented in the *AcuGroup* are bearers of different epistemic – what is known and believed – and doxastic – what is taken for granted – states (for the latter, cf. Bourdieu, 1977).⁴³ As a result of their membership in these different epistemic communities, *AcuGroup* members not only develop diverse interpretations and expectations around knowledge and knowledge-sharing, but also attribute to them different degrees of legitimacy:

I think the main challenge is that people have different points of view because of their clinical background, because of their own experience. And I think that could potentially be the major challenge. I mean, you know, so you might want to do something or introduce something which is, from a nursing point of view is very relevant, and it won't be for the medics or it might not be for the physiotherapist and the occupational therapists. And I think the challenge is bringing it in a way that everybody can understand and see the importance really, and not just for you as a profession but for the unit. (N2)

Social-epistemic boundaries in priority setting: In contrast to the pilot findings described in §3.2, where profound hermeneutical asymmetries limited the understanding across team members from different occupational groups, in *AcuGroup* there do not seem to be problems in terms of understanding others' language and knowledge content. *AcuGroup* members, regardless their professional affiliation, seems to be able to adjust their communication to make it both appropriable for the rest of the team members and

⁴³ In this respect, my understanding of social-epistemic barriers is not far from that of Ferlie et al. (2005).

appropriate to the operational nature of most of the issues discussed in the group⁴⁴. But while social-epistemic frameworks seem not to pose challenges at the knowledge level, they do influence the appearance of boundaries at the attitudinal and doxastic levels. Under multiple and not always compatible priorities, different team members hold different views on the value to be attributed to each priority. These different stances, views, or opinions are mostly ingrained in professional schemata:

I think it's quite interesting from a financial perspective because obviously we've got a budget we need to agree to, we need to try and come in on budget every year, and that's a challenge in itself. What makes that more difficult is the competing priorities between finance and clinicians, because obviously there's quality, safety issues that come from the clinicians which are really, really important and they sometimes conflict with the financial objectives in terms of agreeing a budget that we can hit and we can meet year on year. (F1)

Behind these later statements also lay doxastic differences. *AcuGroup* members tend to take for granted that other members' attitudes towards priorities are primarily rooted in professional schemata – rather than individual or other attitudes – and as such they reflect collective occupational beliefs rather than personal ones. As a consequence of this perception, the same or similar pattern of understanding and attribution of value toward priorities is expected among members with similar professional affiliation. Mutual stereotyping in this way reduces the motivation for knowledge-sharing at *AcuGroup*, as other's ideas and attitudes are considered to be known in advance.

⁴⁴ Three initial observations seem to explain such a difference. First, the two most senior doctors at *AcuGroup* have experience in participating in similar cross-occupational groups both at the CD and Executive levels. In the case of matrons, the second largest occupational group in the team, they usually consider themselves able to understand and communicate both clinical and operational issues. Second, in contrast to the team study in §3 where some doctors hold a very negative view on managerial issues and managers, in *AcuGroup* doctors though having an unfavourable attitude, they do not hold such animadversion. Finally, the organizational and contextual stringent conditions make the discussion of operational and managerial issues more relevant and urgent in *AcuGroup*.

In sum, social-epistemic boundaries affect knowledge exchange in *AcuGroup* priority-setting at two mutually reinforced levels. First, in the face of multiple priorities, team members tend to privilege different priorities based partly on interpretations rooted in their professional schemata. Second, over time, such patterns of interpretation and attribution of value affect the expectations and interpretations of others' behaviours. Eventually, *AcuGroup* members reinforce doxastic states over the others' preferred understanding on priorities, stereotyping other interpretations and reducing the perceived value of future knowledge exchanges.

Social-epistemic boundaries in monitoring team progress: Another example of a practice where social-epistemic boundaries are more noticeable is that of *monitoring team progress*. Every single CD Board, especially through its constituent Clinical Units, is confronted with a large number of metrics, rates, goals, and standards that monitor its overall progress⁴⁵. As with the case of priorities discussed in § 4.2.2.1, this plethora of indicators covers almost every relevant activity – and its known consequences – performed in each CD. *AcuGroup* is not an exception on this respect. Furthermore, most of the tools and indicators to monitor progress are externally driven and mandated by the Trust, the Department of Health (or some of its agencies), the PCT, the SHA, the respective Royal Colleges and professional associations, and other institutions.

⁴⁵ Some few examples of these different indicators of progress for *AcuGroup* are: infection control rates, patients length of stay, delayed discharges per unit, mix sex accommodation rates, ED four-hour waits, mini stroke outpatient services, budgets, patient complaints, risk register, pharmacy targets, patient safety issues, hygiene, HR related indicators (sickness, absence rates, staff performance, recruitment, locums, etc).

Overwhelmed by this flow of externally-driven information on *AcuGroup* progress, team members carry out assessments of legitimacy of group progress indicators by considering the legitimacy of the institutional sources that produce them. In turn, such acts of attribution of authority – and the complementary inherent acts of denial – to certain external institutions are deeply rooted in professional beliefs and epistemologies. This situation conceals considerable ambiguity as doctors, nurses, and managers are not always explicit about such assessments. From the interviewees' narrative, it can be inferred that managers, and to a lesser extent nurses, consider both the Trust and the DoH agencies legitimate sources, and hence do not usually question the information produced by them. Doctors, on the other hand, tend to consider Royal Colleges and professional bodies as legitimate institutionalized sources, and so value the information these professional institutions produce on CD activities:

So the Centinal Stroke Audit, for instance is, that's a national audit across, it's England and Wales actually, you never get it in Scotland but it's, the buy is sent out nationally and then the results are collated on a national basis and published in the public domain. So that's an every other year audit, and that's quite an important one, it tends to, the Trust as a whole tends to take a view on how we have done as a department. Each department across the country is ranked against each other so it's a competitive thing. And that's, that kind of audit does drive change because it's very high profile, it's in the papers basically, and it's run by a Royal College, it's something that's happening every two years and it's probably going to go on for the long run. (D4)

Doctors are also active in explicitly pointing out the limitations of both the Trust itself and some of the external agencies that monitor *AcuGroup* progress as sources of information. They do that by either critiquing the general reliability of the source (a rhetorical converse form of the appeal to authority or *argumentum ad verecundiam* fallacy) or the concrete reliability of their data collection/analysis methods:

I think most, in terms of external organisations much of this is, has been imposed, as it were. We do not routinely, I cannot recollect a situation where the directorate went out and asked for a group external to the [Hospital] to comment [on] or [appraise] performance, we do not do it. However, there are a number of organisations which comment on our performance. So others may have mentioned, for example, the Doctor Foster group:...essentially an external organisation which nationwide takes mortality data, raw data and analyses that according to a specialty diagnosis hospital and in a blunt statistical way looks for outliers. And inevitably, even a good unit at times will be a statistical outlier, inevitably there will be an overrepresentation of poor units in most statistical outliers but there is a risk that good units will be within them also, an inevitability of that. And general, acute general medicine and indeed gerontology in the later part of 2008 were statistical outliers. (D2)

Finally, as in the case of cognitive barriers, partial resolutions are to be found for social-epistemic barriers (see Table 4.3). In the case of divergent value attribution to priorities, usually negotiations are held within and across Clinical Units, and then ultimately sealed-off between the Clinical Director and the Directorate Manager.

I mean the priorities, if they're going to be set will be set by [Clinical Director] and [Directorate Manager] who are the, they're the ones that would be setting it. (D1)

I would suggest that the Directorate Chairman and our Directorate Manager as they're the ones who lead the meeting. (D3)

As for different assessments on legitimacy of sources and reliability of information on *AcuGroup* progress, team members tend to take information in heuristically: knowledge and information are granted with certain utility – as potentially serving to find out problems in *AcuGroup* performance - but not with complete reliability.

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Practice	Main Characteristics	Knowledge Barriers	Resolution
Priority setting	Multiple and not always compatible frame of references, large number of externally driven priorities (not always compatible)	Social-epistemic aspects: 1) Divergent value attribution to priorities across occupational communities; 2) Reinforcement of stereotyping across occupational communities	Negotiation across communities
Monitoring team progress	Multiple external sources of information on <i>AcuGroup</i> progress; mandated nature of monitoring progress, wealth of information.	Social-epistemic aspects: 1) Different attribution of legitimacy to sources of monitoring across occupational communities; 2) Different attribution of reliability to information generated by such sources Across occupational communities	Heuristics: knowledge and information is granted with certain utility but not complete reliability

Table 4.3: Exemplars of Social-epistemic Barriers

In sum, as laid out in Table 4.3, social-epistemic boundaries inhibit knowledge exchanges across *AcuGroup* members not only by fostering different interpretations and attributions of value to the knowledge and information received by the group but also by investing certain external sources with different degree of reliability. Consequently, knowledge in *AcuGroup* is clothed or endowed with different attributes and qualities (cf. Bourdieu, 1977) across the occupational communities that comprised the group. Negotiation across communities and heuristic approach to information are two of the mechanisms used by *AcuGroup* members to cope with such boundaries.

4.2.2.3 Pragmatic barriers

In the previous two sections, I have depicted how knowledge-exchanges at *AcuGroup* are inhibited by multiple and frequently irreconcilable interpretations of team purpose,

priorities and information based on ambiguous references and different occupational epistemologies. In contrast to these cases, pragmatic barriers are most immediately rooted in differences in the identification of the practical consequences of knowledge-in-practice. Following Bourdieu's relational structuralism (Bourdieu & Wacquant, 1992), Carlile (2002:445) describes how interactions across practices are not inconsequential, as they can put at stake the knowledge people have accumulated. Hence, people are reluctant to engage in practices and exchanges that can question what they "know". While I found support for Carlile's definition, the narratives and observation of *AcuGroup* members also point towards an extension of this pragmatic understanding of knowledge boundaries: team members are reluctant to engage in certain practices and exchanges because of the practical consequences that the knowledge embedded in such practices could entail to them (cf. Thorne, 1997).

In a context of increasing operational and financial pressure, team members are aware of the consequential character of knowledge and information embedded in *AcuGroup* practices. Directly or indirectly, knowledge and information could point to some states of group affairs – such as clinical, operational, or financial situations – that might compromise the CD and/or its clinical units in the future. Such strong perceived indexicality of knowledge is noticed not only for the more immediate and evident consequences, but also in the case of eventual and unclear ones, as both might compel the Trust's attention in the future. In the rest of this section, three practices in which pragmatic barriers affect knowledge-exchanges across *AcuGroup* members will be presented as exemplars of the consequential character of knowledge-in-practices.

Pragmatic barriers in using information: Information is an important symbolic resource invested in *AcuGroup* practices, as it is only partially used with its original referential meaning and purpose. To the extent that information carries potential consequences that are not always manifest in the information *per se*, team members need to engage in collective inferential processes to uncover those consequences. This is more immediately noticeable in *AcuGroup* formal and informal meetings, where team members spend time discussing received information and its possible consequences.

From meeting observations and narratives analysis, three information characteristics emerge as central for *AcuGroup* members. First, *comprehensiveness* – the received information is vast and consists of collections of decontextualized representations of different *AcuGroup* processes and activities. Additionally, it includes similar decontextualized data from “equivalent” collectives – quasi-“*league tables*” composed of information from different CUs and CDs across the Trust, and from the broader NHS – in areas such as clinical governance (e.g., quality and outcomes), operations (e.g., access), finance, and HR. This is a characteristic which resonates with Tsoukas’ argument about how rational governance is only possible through the collection, processing and manipulation of large amounts of information (1997:832).

Second, the *degree of disaggregation*: information is assertive and remarkably concrete in its reference to specific CD practices and behaviours. The complexity of *AcuGroup* practices and activities is treated analytically, so that information is broken up into discrete

and commodified pieces of data often as specific as describing the number of times the CD staff wash their hand when entering and leaving a given ward.

Finally, the *degree of accuracy*: as already explained above, the perceived degree of accuracy of the information varies to a great extent across team members, and it is the subject of considerable debate between *AcuGroup* members. Usually, this cannot be solved with more information, as it is not only the referential aspects but also the terms of interpretation and representation that are at stake. Therefore, team members tend to disagree not only over the accuracy of the information, but also with the way the information has been interpreted and represented by external sources.

These information characteristics have an impact on the pragmatic level, as they refer to the consequential character of knowledge. Initially, as information is objectified and concrete, it may refer (or intend to refer) to concrete situations; in turn, concrete situations may signal concrete accountabilities and consequences. Hence, many exchanges in *AcuGroup* meetings tend to focus on the consequences that the information received and shared could entail for CUs and/or for the group. In this context, the first and most salient method to gauge the possible consequences is not evaluation of accuracy but comparison:

[...] but I think we are probably doing more than most. Well we are doing more than most in comparison to our peers [...]. (Divisional Manager)

The other I think is around benchmarking and looking at how, [by] comparing how your team's performing against other teams as well,...through that you can measure the degree of cohesion that there is as well. And that goes again, you know, and again that then will

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inform things like performance against timescales, it will inform whether we're hitting our targets or the organisational imperatives that we need to get. (M1)

Interestingly, and paradoxically, it is the relative situation rather than the absolute one that is important for *AcuGroup* members in their preliminary judgments of consequences. Comparison with other CDs and CUs across the Trust indicates to team members how imperative the situation could be. In the follow up interviews, when I explicitly asked about the group's practice of gauging relevance based on comparison, *AcuGroup* members agreed that in the current Hospital situation bad results are to be expected and usually do not bring any further serious penalties. What can potentially bring negative consequences for the CD and its constitutive CUs – usually in terms of limitations of CD discretionary power – is being perceived as “the worst in the list”.

While concreteness makes information indexical, the unevenness in its perceived accuracy (or inaccuracy) makes the same information contestable:

Everybody lives on bad data. There is no resource to make it right. (D5, Chair)

The *AcuGroup* is embedded in a proximate context of overabundance of information, whose quality is inconsistently judged by group members. As a result, consequences tend to be (dis) credited differently across team members, depending on their perception of sources' (dis) reputability. But contestability is still a limited secondary mechanism for *AcuGroup* as even so-considered not respectable sources for the entire team may be highly institutionalized and accepted sources for the Trust, or in the broader NHS. Hence, team

members tend to use the information collated by the Trust and some external agencies to infer consequences, but hardly with a blind faith.

Finally, the constant comparison and defensive use of information limits knowledge-exchanges between team members, especially in areas where consequences are perceived as more likely to occur (cf. Edmondson, 2000). In such cases, the definition of consequences is itself at stake at *AcuGroup*, with consequences being interpreted differently by group members based on the different impact they would have on each professional community and/or department. Such situations reinforce occupational boundaries. Moreover, partially due to the ambiguous state of the Trust, even clear consequences which have been identified *a priori* might never occur. In other words, even when information may point to certain problems and potential negative consequences, these are not always backed by sanctions (cf. Coleman, 1990). Hence, general ambiguity is amplified together with the lack of confidence on the Trust and many external NHS agencies.

Pragmatic barriers in communication: Another example of a practice in which the consequential character of knowledge-in-practice may hinder sharing exchanges is that of communication. While team communication across occupational boundaries is leveraged by similar inner contexts (Trust, cohort of patients, operational challenges, etc.), languages (§ 4.2.2.2) and some degree of cross-occupational previous experiences (Table 4.1.), it is also partially affected by the different channels of communication used in the *AcuGroup*.

Nurses, although they usually play a more passive role during *AcuGroup* formal meetings, engage in a number of informal meetings as a way of enhancing communication at the CU and CD level. Indeed, if something should be done quickly they rely heavily on the use of email for communication. Managers instead seem to prefer big and general meetings as a favoured place in which communication both within and across occupational boundaries should take place. Additionally, emails are commonly used as a channel of communication. In contrast, clinicians prefer much more “face to face” contact (D3) and “talk things through” (F1). While such differences in preferences reflect the structuration of daily work across occupational communities, it also points toward the possible future consequences of each means of communication.

In particular, doctors and nurses seem to be more aware of the different consequences attached to the diverse material mediation of communication. *AcuGroup* members know that formal meetings – that should be minuted – and emails can be subject to future scrutiny. In many of the observed meetings, doctors (only very rarely managers) preceded their comments with a clear warning “this is not to be minuted”. More generally, team members use the label “*audit-trail*” to express how the materialization of certain ways of communication could leave evidence of the way process or actions have been executed, hence exposing the group to future, albeit often unclear, consequences. Hence, knowledge-sharing is affected in two ways. First, the use of different means of communication – partially guided by the varying perception of traceability – tends to reinforce professional boundaries and occupational closure (cf. Coleman, 1990; Kitchener, 2000). Second, such

different ways of communication also reinforce asymmetrical access to information and hence reproduce power structures, as diffuse communication prevails at the *AcuGroup*:

I think in this Trust we underestimate the [number] of informal, personal relationships, [and] the effect that informal meetings have on decisions that we think are made at meetings that are minuted. You actually find that people have had conversations in the corridors that sometimes can undermine what you're trying to achieve as a team. And so this hospital is unique in so much as – well some would argue it's not unique – [but] my view is it is particularly run on personal relationships and who knows who and who talks to who in the corridor, which is not good because that's not governed. (Divisional Nurse)

Pragmatic barriers in managing conflict: A third example of the pragmatic boundaries that affect knowledge-sharing in *AcuGroup* is that of conflict. Differences in the way conflicting knowledge is shared are to be found amongst team members, and in turn these are rooted in different understandings of the practical consequences generated by sharing this kind of conflicting knowledge. These situations highlight both the context-dependent and social-epistemic nature of the understanding of such consequences. While managers perceive conflict as a desirable sign of “good health” — an expression of mutual challenge and control — doctors and nurses try to avoid open confrontation. This point has an important impact on *AcuGroup* exchanges, as the way in which conflict is managed affects the way in which conflicting knowledge is shared.

Team members believed that sharing conflicting knowledge may affect, and undermine, social relationships and social capital (cf. Nahapiet & Ghoshal, 1998). This threat has been explicitly pointed out by the lead clinicians, for whom the go-between role (Thorne, 1997) is perceived as a risk to their relationships with peers. Whenever sharing some information may entail a potential hazard to their community memberships, doctors tend to be more

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cautious than managers are. This risk is also associated with the nature of each group's perceived commitment: while managers usually move from job to job every two or three years — thus characterized as a “passing commitment” (Dawson et al., 1995:171) — doctors stay in the same job for 20 years or more. The long-term nature of medical relationships — associated not only with a perceived probability of and value in future exchanges but also with a set of norms of consistency (cf. Staw, 1981) — seems to affect knowledge-sharing by doctors in a way that they become more aware of the consequences of such exchanges.

Practice	Main Characteristics	Knowledge Barriers	Resolution
Use of Information	Vast amount of de-contextualized and objectified information; information on “equivalent” collectives, comparison and heuristic use.	Pragmatic aspects: 1) Divergent consequence identification across members and occupational communities; 2) Amplification of ambiguity and lack of trust on institutional sources	1) Collective inferential processes 2) Comparison 3) Heuristics: knowledge and information is granted with certain utility but not complete reliability to infer consequences
Communication	Multiple channels of communications, each community tend to prefer some of them based on structuration of daily work routines and perceived consequences.	Pragmatic aspects: 1) Difference in channel of communication increase occupational community closure 2) Asymmetrical access to information	N/A
Managing conflict	Conflicting knowledge can have consequences on social relationships, importance of community tenure for such identification	Pragmatic aspects: 1) Divergent consequence identification across members and occupational communities	Adoption of doctors / nurses grammar of action when managing conflicting knowledge

Table 4.4: Exemplars of Pragmatic Barriers

In sum, as shown in Table 4.4., pragmatic barriers inhibit knowledge-sharing as they lead to divergent processes of consequence identification across *AcuGroup* members. In turn, as

described in the cases of *use of information* and *communication*, they may strengthen occupational boundaries as consequences cannot be inferred independently of the concrete situation of each department or occupational group. By reinforcing occupational groups' interests and perspectives, these occupational boundaries and professional closure are ultimately reinforced.

4.2.2.4 Structural barriers

The previous sections have dealt with different barriers that have emerged from and/or are intertwined with some systemic and organizational structural features. While the analysis has mainly focused on the cognitive, social-epistemic, and pragmatic aspects that inhibit knowledge-sharing in *AcuGroup*, it has also stressed the role of the contextual elements in conditioning and shaping group practices. In doing so, the analysis shows that it is not only the presence and stringency of certain structural features, but also sometimes their absence (as it is the case of virtually leaderless Hospitals in § 4.2.2.1), what might condition knowledge-exchanges in *AcuGroup*.

In synthesizing the limited commonalities between structuration theory (Giddens, 1979) and the morphogenetic approach (Buckley, 1968), Archer (1982:456) defines structure as “the unacknowledged conditions of actions that ineluctably shape social practices”. This definition might initially seem somewhat problematic because of the term “unacknowledged”. Many *acknowledged* structural conditions might exist – indeed, they do exist for *AcuGroup* – and they undoubtedly exert a conditioning power over practices. Yet, this distinction can prove to be analytically useful to the extent that it helps to focus the

analysis on the unrecognized – or not immediately admitted (OED, 2010) – structural elements that exert influence on knowledge-exchanges.

Hence, the current section complements and extends the previous analysis on structural conditions by focusing on knowledge barriers that emerge as a result of hidden and/or informal structural features:

Structural barriers in decision-making: CD Boards are, among other purposes, meant to be fora where decisions regarding their constitutive CUs are made (Button and Robert, 1997, Llewellyn, 2001). Their very cross-occupational composition and the existence of clear rules for making/escalating⁴⁶ decisions would seem to indicate their suitability for such a purpose. Yet, when *AcuGroup* members were asked about this practice, a unanimous response was received: decisions are not made at the *AcuGroup*. Observation of team meetings only gave further support to these assertions. Decisions are presented to the group as a “*fait accompli*” (D2), and the group role is relegated to the rather passive ritual of “rubber stamping” (N2) and “ratification” (D5). Different reasons explained this situation. First, the team as a whole formally meets once a month. In a continuously challenged service, each CU and its representatives cannot afford to delay vital decisions until the next monthly meeting. Second, as it is composed of representatives of the different CUs and occupational groups, the team is considered far too large and heterogeneous to table

⁴⁶ The Trust, due to the financial constraints, defined three thresholds to escalate decision. Decisions that involve expenditures lower than 50.000 GBP can be made at the CD level. Decisions that involve between 50.000 GBP and 250.000 GBP should be escalated to the Divisional Level. Finally decisions that involve expenditures above 250.000 GBP should be agreed at the Trust Executive Board level.

decisions that only involved specific communities or CUs. Third, there is a strong medical-led culture of making decisions in the “corridors”. Busy doctors cannot “afford” having long meetings in which to make decisions; rather they prefer to do that during their clinical rounds and small get-together with peers in the middle of their daily medical routines. Finally, and perhaps even more importantly for the current section, many people mentioned the reluctance of key doctors to join the formal Trust managerial structure⁴⁷. Instead, decisions are made in informal settings between *AcuGroup* medical members and these senior doctors who do not belong to the formal hospital structure yet retain a big quota of discretionary power. These informal networks exert great influence on the entire process of decision-making, and point to the existence of hidden structures from which *AcuGroup* has to gain support⁴⁸. The following conversation is revealing about the impact of such hidden structures:

D5, CD Chair: Many doctors particularly are... don't want to be or are not anyway on the management Boards. So if I want to get something done, the doctors on the management Board are not the people I want to influence, I've got to go and talk to a lot of other doctors to get them to agree to something, and that's all done informally.

T_Farchi: What happens if you don't take into account their opinions?

D5, CD Chair: It won't happen.

T_Farchi: How can they influence decisions if they're not in the formal structure?

D5, CD Chair: If you make a decision then you're a bit like on the Titanic, it won't happen. The doctors simply won't do it, then... what do you do? They will think of a reason why it doesn't apply to them and you can't effect change. Some things you can do without doctors

⁴⁷ Willcocks (1998) suggests a series of reasons why some doctors remain uncommitted with managerial processes and structures. The most salient were perceived to be problems inherent in the doctors themselves, such as lack of time, training, experience, or prior medical education, and the existence of poor working relationships and tensions with other occupational groups and Trust managerial structure.

⁴⁸ A closer analysis of the language used in the narratives shows how strategically this practice is perceived. *AcuGroup* members, when talking about decision making, used words pertaining to three interrelated semantic clusters: politics (“support” “consensus building” “influence”), power game (“stalemate”, “tipping point” “playing field”) and warfare (“allies”, “enemies”, “opponent”, “resistance”).

but anything that needs doctors to support, it won't happen unless you get their support. You won't get their support because the Director of managers says it works.

The above dialogue resonates with Luke's two-dimensional view of power, wherein doctors that inhabit these informal spaces retain considerable veto power and so can prevent decisions "from being taken on *potential issues* over which there is an observable conflict of (subjective) *interest*" (1974:20)⁴⁹. Furthermore, as the quote below indicates, such hidden structures inhibit knowledge-sharing in the *AcuGroup*, by generating asymmetrical boundaries of awareness and access across occupational groups. More immediately for managers, relational knowledge ("knowing whom") seems to be highly esoteric and belonging to the inner medical circle. But even if over time managers are able to acquire such relational knowledge, access to these informal networks seems to be limited:

Like I do, I know instinctively, and you might get it wrong but you know instinctively if...[you are] coming from outside it's like a nightmare because the influential doctors won't tell you they're influential. But that's the same everywhere, that's like going into a foreign country and trying to talk to a big company, how do you know who is in charge. And they all smile sweetly, if you go to the Far East they all smile very sweetly and the person in charge you can't even see, and the person you see isn't in charge. Very, very important with lots of badges but isn't in charge. [...] I don't think it's different, I think it's a challenge to managers to know how to do it. (D5, CD Chair)

Structural barriers in communication: At the very heart of every cross-occupational constitution there is an attempt to foster lateral communication and knowledge-exchanges (see e.g. Ancona & Caldwell, 1992). On the one hand, every group member retains – through their membership to each occupational community – access to vertical lines of communications within each occupational cadre. On the other hand, the same group interaction fosters lateral lines of communication between members largely through the

⁴⁹ *Italic in the original.*

newly emerged conduits. The final picture would bear a resemblance to collectives with high capillarity within and across their constitutive occupational groups.

In the case of CD, this image should be complemented with the existence of an institutionalized vertical line of communication: the CD Board itself. Within the Trust Hospital, it is expected that for important and not strictly internal professional issues, the “natural” channel of communication (especially with those higher in the hierarchy) is the Board itself. In this vein, a key boundary-spanning role is played by the Clinical Director and the Directorate Manager, who are regular members of the next governance level (i.e. the Divisional Board). But the very nature of the double structure – namely occupations alongside CD – implies the possibility of bypassing the natural channels to get information and, more importantly, to influence decision-making by other means. While the existence of multiple channels of information is an acknowledged structural feature within *AcuGroup*, the continuous circumvention of the CD Board by the consultants is a common, albeit not openly recognized, trait:

The other thing that happens by the way is the consultants are very good at networking above you, so if I wanted to effect change I would have to get agreement not only from doctors but get agreement from the chief executive, the chairman of the Trust and if it's really important, from the SHA and from the royal colleges before I effect change because I will find that they will network above me. (D5)

Ultimately what is at stake, and underlying this situation, is the very definition of normality (Abbott, 1988; Hughes, 1980). Namely, while for the Trust the institutionalized channel is the Board, consultants deem intra-communal channel of communication as the “normal” and preferred ones. The fact that medical channels are deemed both more organic and

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effective than the institutionalized managerial ones only reinforces such customary practice, as is suggested by the quote above. Overall, and similar to the previous practice, this situation not only furthers asymmetries across professional communities in the *AcuGroup* but, more importantly, erodes the status of *AcuGroup* as a recognized forum to exchange and channelize knowledge. To the extent that parallel channels of communication exist and are often used by one of the constitutive occupational communities, trust of and commitment to the *AcuGroup* diminish together with the motivation to exchange knowledge within it.

Practice	Main Characteristics	Knowledge Barriers	Resolution
Decision Making	Multiple level for decision making, few decision made as a team, multiple stakeholders, support seeking; political/power game/ warfare analogies.	Structural aspects: 1) Hidden structures with veto power; 2) Asymmetrical awareness and access to such structures for managerial and nursing communities.	Partial: <i>AcuGroup</i> doctors actively engaged with and look for support with doctors in informal settings.
Communication	Multiple channels of communications, each community tend to prefer some of them based on structuration of daily work routines and perceived consequences.	Structural aspects: 1) Parallel and competing channels of communication and circumvention of the CD Board 2) Erosion of trust and motivation to channelized communication in <i>AcuGroup</i>	Partial: <i>AcuGroup</i> doctors using similar "parallel" networks to counteract potential medical networking.

Table 4.5: Exemplars of Structural Barriers

In sum, as Table 4.5 summarizes, structural barriers are related to the existence of a double structure in which the *AcuGroup* is embedded. Such a complex structure, which is an overt trait, in turn makes resistance and by-passing possible not immediately recognized characteristics of this CD. The response given by the doctors of *AcuGroup* to such structural features are somehow paradigmatic. By actively engaging with such hidden and

competing structures, doctors seem to ultimately defend and pursue *AcuGroup* and CD interests. But by the same token, such actions reinforce and perpetuate the hidden structure, furthering the asymmetries of knowledge and access of the other occupational communities.

4.2.2.5 A non-problematic practice: visibility of demarcation

In previous sections, the analysis of practice-enactment depicts the problematic nature of knowledge exchanges in *AcuGroup*, partially attributable to the constitution of cross-occupational teams as collectives constituted by multiple boundaries. Moreover, the study shows the close interdependence of structure and group practices and its effects on knowledge-sharing across *AcuGroup* members. Surprisingly, given the context of the previous narratives, an intriguing coincidence appeared: all Directorate members agree on considering task allocation as a non-problematic practice.

Task allocation is deemed as quick, unproblematic, and straightforward for *AcuGroup* members. Most of the task allocation occurs outside the group, since it is directly performed by each CU and its members. When task allocation does occur within the CD Board, it follows what could be labelled as a *departmental allocation*. That is, tasks and work aspects are matched and assigned to each corresponding clinical department, and within each department to the corresponding occupational group. The resulting correspondence between problems/responsibilities and occupational communities/specialities is preceded by clear shared understandings held by most of the

team members on what should be assigned to whom. When tasks to be allocated do not neatly fit within the boundaries of each occupational group's responsibilities, then these tasks are usually divided by either the CD manager or the Chair in smaller bits and then distributed to each team member based on her/his affiliation to some occupational group and department:

Some of them are quite straightforward. If it's related to emergency medicine it's coming to me, if it's related to acute medicine then it will go to Doctor (...). So if it's actually very clear that it belongs to a particular department, then that's it. If it's effecting two departments mainly, then it will be a case of those tasks will be divided between the two relevant. (...) We all have our own sort of fields, so anything that it clinically medically emergency medicine I will take on, if it's more a sort of a nursing role then my Matron, (...) and she will then take that on. If it's more financial then obviously it will be Mr... (D3)

Everybody tends to have their own role (...) It's really quite clear. (A2)

Since most of the tasks to be allocated are operational in nature, and hence are assumed to correspond perfectly with each occupational group's responsibility, this practice is not perceived as contentious. The words used by team members to describe which tasks fall within the expected range of recognized responsibilities evidence a longstanding boundary-work across occupational communities. Some of the binary qualifications used include:

“ongoing/odd” tasks (A1)
“logically-compartmentalized / non-logically compartmentalized” tasks (D2),
“obvious” tasks (N2)
“single/multiple department[s]” tasks (D3),
“departmental/generic” tasks (F1),
“operational/strategic” tasks (M1),
“territorial” (D4)

In addition, the above qualifications suggest that the demarcation of responsibilities across team members is partly descriptive, partly normative. This demarcation, which is ultimately drawn around occupational boundaries, enhances the visibility of both the task and

responsibilities amongst *AcuGroup* members. In turn, it facilitates knowledge-sharing as it enhances awareness of other responsibilities and anticipation of the value of knowledge-exchanges that may occur between members of the *AcuGroup* (Nahapiet and Ghoshal, 1998).

Practice	Main Characteristics	Knowledge Barriers	Resolution
Task Allocation	Task are being allocated at multiple levels, work aspects are matched with departments and occupational groups, visibility of occupational demarcation	N/A	N/A

Table 4.6: Exemplar of a non-problematic practice

Therefore, as suggested in table 4.6, the visibility of occupational demarcation – on which the practice of task allocation is ultimately based – facilitates mutual knowledge amongst *AcuGroup* members of the distributed task, responsibilities, and areas of work. Consequently, there is little ambiguity concerning others team members' activities and roles as mutual awareness seems to be cemented on a shared knowledge base.

4.2.3 Conclusions

Throughout §4.2 the analysis has focused on *AcuGroup* practices and the effects of their specific enactment on sharing knowledge at the group level. In following this analytical path not only the vexatious fact of knowledge is asserted, but also its location, investment, and embeddedness in practice and context. Subsequently, from the cross-practice analysis four categories of knowledge barriers have emerged as most salient for the *AcuGroup*:

cognitive, social-epistemic, pragmatic, and structural barriers. These four categories of barriers are not meant to be considered as mutually exclusive or collectively exhaustive, as their limits are blurred and common consequences and outcomes might occur. Moreover, logical necessity cannot be predicated *ex-ante*. The interplay of *AcuGroup* members with some of these knowledge-sharing constraints leads to the resolution in the case of some constraints, but does not affect, or even can exacerbate, others. Ultimately, formalizing these four knowledge barriers necessitates a relatively static view of practices and their possible interactions. Yet, as I will argue in §6, a configurational approach is needed if a more complete view is to be depicted.

In identifying these four barriers, the interplay between *AcuGroup* practices and its immediate inner context (and also the more general outer NHS context) becomes evident. As for cognitive barriers, the presence of a large number of non-dominating external frames of reference amplifies the already high organizational ambiguity. In turn, social-epistemic divergences foster uneven attribution of legitimacy and value to these external sources amongst team members. Consequently, knowledge in *AcuGroup* hinders exchanges as knowledge is invested with different attributes and qualities across the occupational communities that comprised the group. For instance, pragmatic barriers emerge in the case of different consequences being identified by group members. Moreover, the indexical nature of information and the practice of “performance by comparison” (D5, CD Chair) generates a situation in which there is little direct competitive interaction with other groups in the hospital, yet there is high mutual awareness leading to indirect competition. Finally, as in the case of structural barriers, the existence (and use) of hidden structures of decision

making and parallel channels of communication limits managerial and nursing discretionary power and erodes the *AcuGroup* as an institutionalized channel of communication.

Finally, from the previous analysis a semantic consistency⁵⁰ emerges across interviewees' narratives and my meetings observation and field notes. At the most general level, such analysis suggests that *AcuGroup*, as a collective, is seen to be displaced in at least two ways. First, *AcuGroup* is deemed temporal-spatially displaced. Meetings and group practices are perceived as inapposite for CUs and occupational groups' needs. In other words, *AcuGroup* is perceived as disconnected from the pressures and demands of the acute clinical service provided, which is continuous and localized around the emergency floor. The second displacement is a deontic⁵¹ one. The perception of the level of obligation and appropriateness of certain practices, at least as they have been institutionalized in and for the *AcuGroup*, varies a great extent across the different occupational communities. This is particularly the case for *AcuGroup* as a communication channel and decision-making forum (see § 4.2.2.4). Doctors, and to some extent nurses, in contrast to managers, perceived the "reliance" on the CD Board for such ends not only supererogatory but also non-permissible for their own respective communities.

⁵⁰ To account for this emergent semantic consistency, I initially relied on Greimas' concept of isotopy (Greimas and Courtes, 1970:188). The notion of isotopy, considered as the recurrence of similar elements of meaning, provides analytic tools to analyse not only similarities across narratives but also in which contexts such similarities occur.

⁵¹ Strictly speaking, deontic is a branch of symbolic logic that is concerned with obligation, permission, and related concepts (Stanford Encyclopaedia of Philosophy, 2010). In the current thesis, deontic is use in a more impressionistic way in accordance with its etymological meaning – Greek, *deontos*: "of that which is binding" (OED, 2010) – focusing only on some specific aspect such as the permitted, the obligatory, and the forbidden.

4.3 Case 2, MedGroup

In § 4.2 the focus of the analysis was on both *AcuGroup* practices and the structural conditions affecting them, with special emphasis on unveiling the consequences for sharing knowledge. In the current section the analysis will proceed with the examination of the second exploitative team: the *MedGroup*. The analysis of the current case depicts a large number of commonalities with the previous one. This is by no means unexpected, based on the replication strategy followed (Yin, 1994), as *MedGroup* is also a CD Board belonging to the same Division and Trust hospital. Yet, some distinctive variations appeared which will help to enrich our understanding of the conditions affecting knowledge-exchanges. For the sake of brevity, while commonalities are going to be pointed out, the analysis will particularly focus on distinctive aspects and conditions. Finally, in order to help the comparison across cases, the same analytical structure will be used as for case 1.

4.3.1 Introduction

MedGroup is the Board of a Clinical Directorate created in 2000 as part of a large reorganization of the Trust Hospital services. The *MedGroup* has final responsibility – clinically and financially – for the management and provision of a large variety of very specialized clinical services.⁵² The CD is comprised of six different and unrelated medical departments or CUs – Respiratory Medicine, Dermatology, Diabetes, Clinical Immunology, Haemophilia, and Infectious Disease – with almost no overlaps in terms of staff, patient

⁵² As was introduced in § 3.2, Clinical Directorate Boards serve as management units and they are formed around either a medical specialist or a support service in order to oversee the management of its own budget, the recruitment of professional staff, and the monitoring of service quality, with the overall goal of seeking contracts to supply hospital services (Llewellyn, 2001).

cohorts, facilities, technology, etc. In comparison with the previous group, these CUs are fairly small – even the largest one (Diabetes) has no more than 82 staff members⁵³. In addition, these medical departments provide clinical services in three different sites across the county and serve local, regional, and in some cases, national patient communities. Similar to the case just described, *MedGroup* is the most senior management team within the CD and, as a group, is accountable at the Divisional and Trust levels.

At the moment of this study, two general situations were most salient for the group. First, the complex financial condition of the Trust had an impact at the operational level by “freezing” processes for replacement consultant posts. The fact that the CD is composed of relatively small medical departments makes this restriction more critical as it compromises the capacity for delivering clinical services in accordance with targets and goals. Financially, the signing of a capped contract between the PCT and the Trust for the financial year 2008-2009 had an impact, especially on those departments that tried in the past to maximize incomes by expanding capacity. In the cases of Dermatology and Respiratory Medicine, the excess of activity over the capped contract in 2009 was worth £1.2 million and £0.5 million respectively. Such unpaid activity had to be addressed in the CD cost improvement plan, launched in April 2009.

⁵³ The total number Whole Time Equivalent (WTE) staff members in the CD at Feb 2010 was 252.4. The distribution of staff (which encompasses doctors, nurses, managers, and others) is as followed: Respiratory Medicine (42.7 WTE), Dermatology (45.3 WTE), Diabetes (81.5 WTE), Clinical Immunology (9.3 WTE), Haemophilia (24.2 WTE), and Infectious Disease (46.2 WTE). Finally, unique to *MedGroup*, there are 3.2 WTE staff members.

From the operational perspective, in the last part of 2009 the CD Board was asked by the Trust Executive Board to initially offer intensive support to a speciality from another CD. By the end of this study, in March 2010, the *MedGroup* was formally incorporating this speciality into the CD. The poor results of this CU, both in clinical and financial terms, not only affected the aggregated performance of the CD but also absorbed most of the time of both the Directorate Chairman and Manager in this initial period

In terms of group composition (see Figure 4.2 for a group chart), each medical department appoints one lead clinician and one manager to be part of the *MedGroup*. Besides these appointed members, this CD is led by a medical Directorate Chairman, who is supported by a Directorate Manager, a finance officer, and a nurse manager or matron (Dawson et al., 1995; Thorne, 1997). As in most of the cases in this Hospital NHS Trust, the Directorate Chairman and Manager are regular members of the next-highest level governance group (the Divisional Board). As it is common practice in most UK hospitals (Fitzgerald, 1994:33), the Directorate Chairman carries out his responsibilities on a part-time basis while continuing his medical practice. Something similar occurs with each lead clinician from the clinical departments. Like in the previous case, the position of both – i.e. Directorate Chairman and clinical leads for each department – is rotated among senior clinicians, following a collegiate agreement among medical peers.

In the case of department managers, they are expected to actively participate in the group, but this is only part of their informal job description – it is assumed, and there is no formal documentation requiring this. The Directorate Manager is responsible for supporting the

Directorate Chairman as he executes managerial issues related to the group or the departments. He carries out his responsibilities on a full time basis. Finally, and similarly to doctors, the Matron represent the nursing community in the CD Board and has a mixed mode responsibility (partly clinical, partly managerial).⁵⁴ In addition, like doctors, she carries out her CD Board responsibilities on a part time basis.

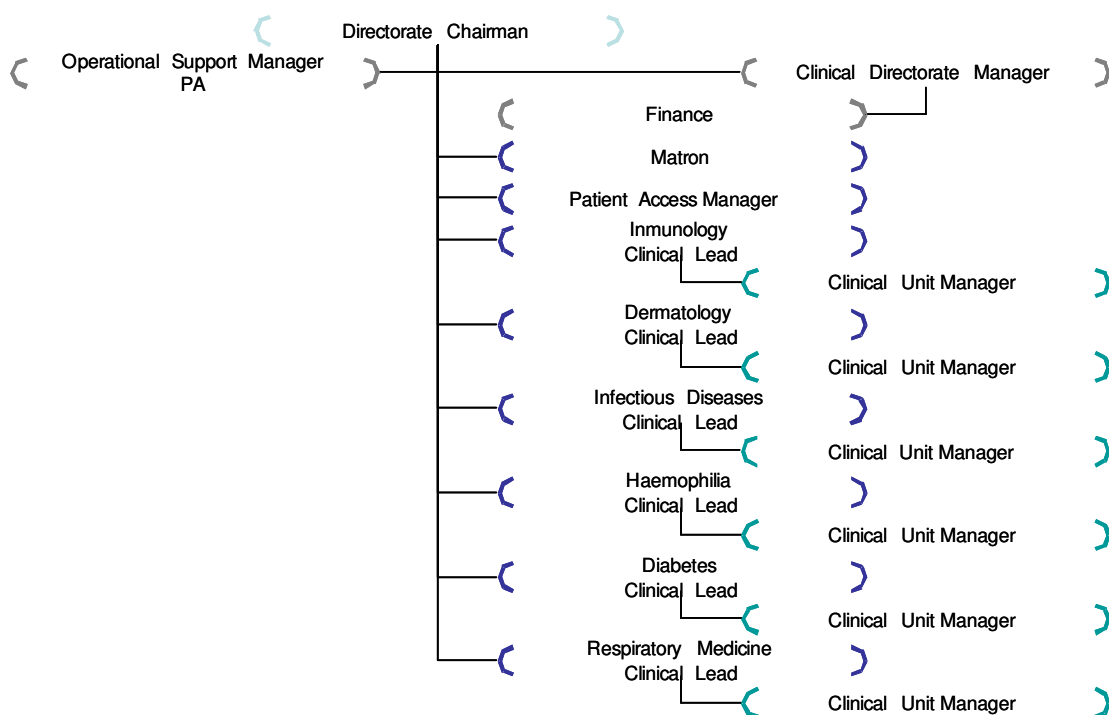


Figure 4.2: MedGroup organizational chart

Table 4.7 summarizes MedGroup membership characteristics. At the moment of the study, there were 16 active members.⁵⁵ The average tenure in this group at July 2009 was 36.5

⁵⁴ The post of matron and its responsibilities vary at a large extent across Trusts (Read et al., 2004). Yet, some typical responsibilities include those of “exercising clinical leadership to improve standards of nursing care, strengthening clinical governance by developing protocols and achieving greater compliance with them, helping to improve skill mix and staff retention” (Read et al., 2004:1).

⁵⁵ Note: this number differs with the organizational chart portrayed in Figure 4.2. Two situations explain this difference at the moment of this study: the position of Patient Access Manager was vacant and the Clinical

months (SD = 25.14months) and the average work experience in years by the same date was 19.92 years (SD = 6.66 years). In contrast to the previous group, the tenure of the *MedGroup* is less skewed and follows a more normal distribution.⁵⁶ Overall, both the average tenure and average work experience is longer in *MedGroup* compared with *AcuGroup*. Perhaps more relevantly for the current analysis, the total number of members in each occupational community is very different between the two CDs. While in *AcuGroup*, the two largest occupational communities are the medical (5 members) and the nursing (4 members) ones, in the *MedGroup* the two major communities are the medical (6 members) and the managerial (6 members) ones.

Lead of Immunology did not participate in any of the observed meetings, delegating all their CD Board responsibilities to the CU manager (M2). Although I contacted her in different ways, I did not receive any answer in my request for an interview.

⁵⁶ In order to test this I drew a graph representing the density function of the Normal probability distribution of the tenure of each team.

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Current Occupational community/ Informants	Total work experience (in years)	Tenure in the team (in months, until Jul 09)	Motives to join the team	Initial attitude towards the team (fav., neutral, unfav.)	Any previous cross-occupational experience
Administrative: A3	Dk-1	Dk-1	Dk-1	Dk-1	Dk-1
Clin. Governance: C2	14	Dk-1	Dk-2	Favourable	Yes (work experience, education)
Medical: D6	10	24	“Part of my responsibilities”	Favourable	Dk-3
D7	30	84	His turn (rotational system)	Favourable	Yes (education)
D8	10	54	Mandated	Unfavourable	No
D9	25	36	“I regard it as a duty”	Unfavourable	No
D10	23	42	Enjoy new challenges	Favourable	Yes (educational, work experience)
D11	Dk-1	24	Her turn (rotation al system)	Favourable	Yes (work experience)
Finance: F2	24	48	Dk-2	Neutral	Yes (work experience)
Managerial: M2	21	84	Career progress	Neutral	Yes (work experience)
M3	17	02	Career opportunity	Neutral	Yes (work experience)
M4	26	20	Career opportunity	Favourable	Yes (work experience, education)
M5	21	36	Comes with the post	Favourable	Yes (education)
M6	Dk-1	18	Career opportunity	Favourable	Yes (educational, and work experience)
M7	12	03	Career progress	Favourable	Yes (educational, and work experience)
Nursing: N2	26	36	Comes with the post	Neutral	Yes (education)

Dk: Don't know; Dk-1: question not asked; DK-2: asked but not answered (strayed from question, didn't know the answer) Dk-3: ambiguous answer

Table 4.7: *AcuGroup* membership characteristics

Like in the case of *AcuGroup*, there are marked similarities within each occupational community in terms of motives to join the CD Board. These similarities suggest that professions provide some programs of action and interpretation (cognitive and normative)

that guide the practices and (inter-) actions of their members (Allen, 2000; Barley, 1986). Just like the nurses from the previously analysed group, the only nurse in *MedGroup* (N2) perceives that CD membership is a responsibility which she is bound to do and comes with the matron post. Similarities of motives are also to be found in the group managers, who clearly perceive their position in the CD Board both as career progress and career opportunity. It is perhaps this positive motivation, and the managerial nature of the group, what could explain that the initial attitude towards the team is predominantly favourable.

Finally, doctors' motivations to join the CD Board seem to be rooted in similar deontic and communal bonds to the doctors from *AcuGroup* – namely, a sense of duty and responsibility toward their CU peers. Yet, such responsibilities are not deemed supererogatory as in the case of the previous CD Board. With the exception of D8 and D9, the rest of the doctors perceive their managerial duties as deeply and naturally engrained in their medical responsibilities. Such broader definition of medical responsibilities, one that seems to logically include managerial ones, may explain their favourable attitude towards the team.⁵⁷ This attitude is epitomized by that of the Directorate Chairman (D10):

Firstly I enjoy new challenges. I like to think about different ways of doing things, I enjoy working with new individuals, I enjoy the sensation of working as a team. I'm passionate about protecting Dermatology and that we can do that by running out business well. And I can see that within [*MedGroup*], I can protect [*MedGroup*] as well if we run our business well. I think the main thing is knowing what's going on, being able to influence what's going on and meeting new people and the challenges that come with that. (D10, Directorate Chair)

⁵⁷ Different reasons could be articulated for this broader and all-encompassing understanding. First, most of the Clinical Units are fairly small, which seems to increase the sense of ownership. Second – especially in the case of Dermatology, Diabetes, and Infectious Disease – previous positive experience and outcomes from medical involvement in managerial issues set positive precedents. Third, the motivational role of the CD Chair (D10) who holds a positive and all-encompassing view on managerial responsibilities, had fostered such an understanding.

As with *AcuGroup*, professional background and professional identity are inextricably interwoven in the case of doctors and nurses. This is immediately noticeable for all the group members, as knowledge of team roles leads to knowledge of professional affiliation, and in turn to knowledge of general background and education. This is clearly not the case with managers. While group roles signal current occupational group affiliation, this current affiliation does not suggest any specific career path or previous education. But even current affiliation and identity with the NHS managerial cadre is perceived as fairly loose in comparison with the other two epistemic communities:

And I think where I noticed the difference was when I was managing nurses, they are a profession, they have a sense of commitment to their patient. I found with administrators, they're not necessarily, they're professional but they're not a profession. Does that make sense? [...] nurses, they're very much proud to be a nurse, where [as] with administrators, they don't have so much that pride of being part of an administrative system. They're proud of their work, but not the body they represent. (M6)

4.3.2 Knowledge Barriers in MedGroup Practices

Like *AcuGroup*, most of the barriers that inhibit knowledge-sharing in *MedGroup* have cognitive, social-epistemic, and pragmatic aspects. Moreover, the enactment of many *MedGroup* practices – embedded in very similar structural conditions – bears a resemblance to that of the previous group. Yet, certain group characteristics, a participative leadership, and a sense of ownership seem to have softened some knowledge barriers. While still focusing on the common aspects, the rest of this section will put analytical emphasis on depicting the different forms of resolution found in the team practices in response to these knowledge conundrums.

4.3.2.1 Cognitive barriers

As with to the previous CD Board, *MedGroup* faces cognitive boundaries that are most directly related to organizational and informational ambiguity. Facing both multiple external stakeholders with differing information and frames of actions⁵⁸ and a Hospital which as an organization fails to provide a shared frame of reference, *MedGroup* has similarly limited resources to anchor its equivocality. Yet, and in contrast to the previous case, in *MedGroup* resolutions to this ambiguity have followed different paths, by focusing on shared experience of team participation and by developing boundary-objects (namely, a balance scorecard) that help to span community boundaries, and to disambiguate and legitimize the knowledge-in-practices. The remaining part of this section will analyse two practices with similar cognitive barriers to those of the previous case, yet with a different resolution.

Ambiguity in group purpose definition: Created after a major restructuring in the Trust in 2000, *AcuGroup* had not received any term of reference, nor did its members seem to have engaged in any discussion (either formal or informal) about its *raison d'être*. This accepted diffused provenance, that may signal the persistence and taken-for-grantedness of a mode of organizing, generates little space for discussion of and negotiation about purpose. As a result, somewhat different understandings are held by team members of the main team purposes. However, and in contrast to the previous case, the analysis of *MedGroup* members' narratives depicts a much more cohesive general understanding of

⁵⁸ Such as Royal Colleges, different DoH agencies, other NHS institutions, etc.

CD Board purpose. Two predominant and complementary definitions coexist across team members: to be a forum and to be a communication channel.

It's supposed to be information sharing, so there are opportunities for information coming from above, although that information at the moment is unclear. So messages from above down, messages from down up, so we encourage the clinical units to feed back on specific issues that they might have and we tend to do that at the end of the meeting. And then it's the way I said, information sharing as far as say performance, as far as clinical risk, as far as income, all of those aspects...and clinical governance, so it is an information sharing at that stage (...), so the sharing of experience allows us to share a problem and make it easier to bear even though there may be no answers (D10, Directorate Chairman).

Although under similar conditions to those of the previous case – unattributed diffuse provenance, absence of organizational term of reference, and passiveness of members in discussing group purpose –, *MedGroup* members understanding of team purpose is far more cohesive.⁵⁹ Two possible complementary explanations may enlighten such a difference. First, although not collectively discussed, team purpose definition seems to be primarily derived from a common phenomenological experience of team interactions and practices (which is consistent with my own experience as an external observer). Second, in contrast to the previous case where the four constitutive CUs are closely interrelated, in *MedGroup* the constitutive CUs are very autonomous and unrelated. This characteristic may narrow members' expectations, as common decisions and actions are not expected to occur at the CD Board Level.

Such a degree of complementary understandings and adjusted expectations amongst team members about *MedGroup's* purpose may help to anticipate the value of both team

⁵⁹ As has been pointed out earlier, the lack of sharing understanding has been recurrently depicted as one of the causes for failure in knowledge-sharing in several literatures (see for example Gerwin and Moffat, 1997; Chalos and Poon, 2000; Fay et al., 2006).

interactions and the knowledge-exchanges that occur within it. More importantly, it provides a loose yet somewhat integrated frame of reference that partially mitigates ambiguity of team practices. This also can increase the likelihood of generating group identification, as it may facilitate the inference of similarities across group members⁶⁰.

Ambiguity in priority setting: when asked about priority-setting, team members invariably referred to the setting of the team meeting agenda. With such an understanding, which is consistent with the predominant identification of *MedGroup* with a forum,⁶¹ agenda is considered externally-driven and top-down. But the hierarchical image depicted also includes a high level of ambiguity, as a large number of different and non-dominating priorities coexist. Similar to the previous case, a situated logic of compromise has emerged when having to select certain priorities in a situation of necessary incompatibility with others. In contrast to the previous case, however, such situated logic of compromise has been discussed, agreed and finally materialized and embodied in an artefact: a scorecard.⁶² From March 2009, and for three months, under the initiative of the newly appointed Directorate Manager, all the team members discussed and negotiated the main priorities for the CD and constitutive CUs. From the numerous priorities and targets, 48 were agreed across the team members as the most salient for the CD (see annexe 5 for an example).

⁶⁰ In his review of the social-psychology literature, West (1994:199) maintains that there is no need for inferred similarity to other group members for group identification to occur. Yet, in the case of CD Board, as the primary identification is with the occupational community, such common grounds may help in this secondary process.

⁶¹ Team members' understanding of "forum" bears close resemblance with the second assertion given by the OED, that is "as the place of public discussion" (2010).

⁶² For a review and critique of this performance management tool see Voelpel *et al*, 2006.

The embodiment of such a logic of compromise in a material artefact has had at least three consequences for knowledge-exchanges in *MedGroup*. First, as a boundary object it inhabits intersecting occupational communities and satisfies the information requirements of each of them (Star & Griesemer, 1989:393). It seems to be epistemically flexible enough to be appropriable for different team members, and yet also be robust enough to maintain identity across team members (Bechky, 2003b; Star & Griesemer, 1989). Second, to the extent that it carries information on a reduced number of indicators and helps to focus on a smaller number of priorities, the scorecard performs a disambiguizational function. Finally, as the materialization of a negotiated and agreed logic across team members, this boundary object – and the information that it may carry – is invested with a higher degree of legitimacy.

Practice	Main Characteristics	Knowledge Barriers	Resolution
Purpose definition	Lack of external frame of reference, diffuse provenance, lack of discussion across <i>MedGroup</i> members on group purpose	Cognitive aspects: ambiguity due to lack of internal or external common frame of reference	Adjusted expectation and phenomenological experience
Priority setting	Multiple and not always compatible frame of references, large number of priorities (not always compatible)	Cognitive aspects: ambiguity due to the excessive number of non-dominant external frames of reference.	Logic of compromise; artefact (epistemic functions: boundary object, disambiguation, legitimacy)

Table 4.8: Exemplars of Cognitive Barriers

As is summarized in Table 4.8, under similar cognitive conditionings, *MedGroup* practices present different resolutions. For purpose definition, the resolution is fairly unintentional and emergent, as the lack of excessive expectations on team purpose and role seem to help

the team to draw on their phenomenological experience as team members. In the case of priority-setting, an intentional and negotiated materialization of a logic of compromise has helped the team to partially bridge boundaries across the occupational communities and CUs.

4.3.2.2 Social-epistemic barriers

While social-epistemic barriers – namely, those immediately rooted in professional ethoi and schemata⁶³ – exist in *MedGroup*, they are less stringent than in the previous case. In fact, with the exception of communication, little if any evidence was found in the interviews and observations of meetings of social-epistemic barriers in team practices. The latter is not to say that epistemic boundaries are blurred or do not exist between team members. Rather, it merely means that 1) diverse understandings and epistemic values seem to be better negotiated across the team members, and as a result 2) legitimacy is more evenly attributed. An example of the former, and in contrast to *AcuGroup*, is that of priority setting. By means of an artefact (scorecard), the group engaged itself in epistemic negotiations both on the meanings of priorities and on their values. An example of the latter is that of monitoring progress. *MedGroup* does not usually engage in assessment of epistemic legitimacy of external institutional sources. Rather, when monitoring progress, they focus the assessment on the information provided by those sources.⁶⁴

⁶³ Professional schemata are defined in the current thesis in a somewhat similar way to its philosophical meaning in the OED, as forms or rules through which the understanding individual applies its professional categories to the reality in the process of realizing knowledge or experience (cf. OED, 2010).

⁶⁴ One structural situation may partially favour this change of epistemic assessment from source to content of information on team progress. While *AcuGroup* is a CD composed of very large and stressed CUs, *MedGroup* is composed of fairly small and less demanded CUs. Challenge data implies using doctors and nurses' time to

...and that is exactly why I'm challenging people to go back and challenge the data set so we've got evidence in our Board papers – this is the performance that's being reported, however we challenge the data and we know it not to be the case. So there's a clear audit trail from our directorate that “hang on a minute, this performance indicator isn't right”. (M7, Directorate Manager)

Social-epistemic barriers in communication: the practice of communication is deemed fluid and comprehensive across *MedGroup* members. The CD Board is considered both a safe and an open forum for communication; and multiple channels are used both within and across its constitutive CUs. However, moderate social-epistemic barriers are to be found on at least two levels: syntactic and customary. With regards to the syntactic level, *MedGroup* members recognize that membership in different epistemic communities inevitably brings variations in terms of language. Although such syntactic differences do not completely affect the overall understanding, they make it somewhat problematic. This situation is more evident when compared with communal syntaxes – language in *MedGroup* is far from presenting the more shared and stable syntactic attributes seen in each occupational community (cf. Carlile, 2002):

... I think it just depends on the background of the individual. So for instance, in specialist medicine we've got some Clinical Unit Managers who come from a nursing background and equally those that don't come from a nursing background, and so their understanding and language is different, you know, so I think that's an issue. I think between specialities amongst doctors, there's no problem with language, we talk very much a similar language. Directorate Managers who come from a non-medical background, again it's interesting, they have a huge learning curve because we'll be talking in terms which they're not familiar with. So there are issues of communication and language which are issues but the way we get round that is that those who are non-clinical in their background are encouraged to attend clinical meetings. They come and sit in clinics, they speak to the medical staff, and so they become familiar with the medical issues within the patch even though they don't even know the language. (D10, Directorate Chair)

I'm often very impressed by some of the manager's grasp of the issues and the way they can be very articulate about it. (D11)

painstakingly going back to original clinical notes, reconstructing the history of the case(s) or collecting information about patient flows or services provided. Hence, the smaller size and level of demands of *MedGroup* allows such informational challenging.

Well that's my get out of jail, if you like, because I sort of say well hang on, I haven't got a clinical background so could you just explain that to me in John-speak? That's my way of getting around things, to say actually I don't understand when you're talking in big clinical words, tell me what that means in English. But I think people should be allowed and that's, if you like, part of the role that we have, to be able to challenge. (M4)

Second, similar to the previous case, each epistemic community has customary channels of communication (e.g. managers seem to prefer electronic means, and open meetings, whereas doctors and nurses rely more on informal encounters amid their clinical practice). However, in *MedGroup* these different preferred means of communication primarily reflect the structuration of daily work across occupational communities. Group members are not only aware of such differences but also tend to flexibly adopt different channels for different purposes:

I would say the only difference I've noticed in terms of communication styles is that for managers email can kind of be used as a good, quick flyer thing, whereas that doesn't work very well with consultants because consultants want to be seen face to face. And that's always my preference as well. There is obviously a need sometimes to formulise stuff and, you know, email or electronic communication is quite good. But a lot of, you know, when decisions really get made and when there are no misunderstandings, it's face to face. (M7, Directorate Manager)

Practice	Main Characteristics	Knowledge Barriers	Resolution
Communication	Multiple channels of communication, each community tend to prefer some of them based on structuration of daily work.	Social-epistemic aspects: 1) Different lexicons and syntaxes across communities, 2) Different preferred channels of communications across communities	Exposure to others language and realities, room for questioning, use of multiple channels of communication.

Table 4.9: Exemplar of Social-epistemic practice

In sum, as laid out in Table 4.9, social-epistemic barriers, while limited, have an impact on knowledge-exchanges across *MedGroup* members. Differences in terms of language and

occupational backgrounds, and customary communicational practices, may initially hamper knowledge-sharing and understanding in the group. Yet, team members are not only aware of this difference and its roots in social-epistemic affiliation, but also try to bridge them by focusing on common areas of understanding, challenging or questioning other languages, and by using multiples channels of communication.

4.3.2.3 Pragmatic barriers

Embedded in and exposed to equivalent contextual conditions, *MedGroup* presents comparable pragmatic barriers to *AcuGroup*. CD Board members, aware of the potential consequences of *knowledge-in-practice* and information, limit their exchanges when consequences are perceived as potentially negative. These similarities are clearly noticed in the case of managing conflicting knowledge. Like in the previous case, *MedGroup* clinical members tend to avoid conflict and challenges in open situations where “some members may feel compromised” (D10, Director Chairman), as such open challenges may harm lasting social and professional bonds.

Yet, as the analysis seems to suggest, the saliency and stringency of this type of barrier are lower than in the previous case studied. This is most noticeable in two practices: communication and using of information. For the former practice, the choice of different communication channels seems not to be explicitly preceded by any evaluation of the potential future consequences, as in the case of *AcuGroup* (see §4.2.2.3). Rather it seems to respond to communal customary practices and individual preferences. Two reasons may

mutually contribute to explaining this difference with the previous case. First, in line with Edmondson's concept of psychological safety (2000), the group is considered a safe and an open forum – as interpersonal risk is generally perceived as low for speaking up. Second, the constitutive CUs are small, independent, and well performing units. With these mutually reinforcing characteristics, the imperative of collectively gauging consequences appears far less compelling in *MedGroup*.

For the latter practice, while information used by this CD Board has the same characteristics as that described in the previous case (comprehensiveness, disaggregation, and uneven accuracy), the process of consequence identification is far less intricate. Interviewees' narratives concur in the existence of two hermeneutical states. Either information is taken at its *face value* – and the most immediately recognized consequences accepted – or it is challenged – and consequences are not considered until there is a result of such challenge. Still, team members spend time weighing relevance of Trust imperative by comparing information and results with that of others CDs.

People are interested in other areas, they like to know how they compare, if they've been told to achieve something they don't just accept it, they like to be confident that everyone else has been asked to achieve something as well and they like to know what they're doing in relation to everybody else, particularly the doctors. (F2)

However the uncertainty is, well, we've achieved it but then we've heard that there is a directorate within this division that will be physically unable to achieve theirs and, being the cynical old bugger that I am, we know that there [are] other areas within the Trust that won't achieve theirs. So the worry is that we've ticked all the boxes, we want to get on with business as usual, we won't be allowed to because we'll then end up having to make more savings because elsewhere can't. (M4)

In the remaining part of this section, one practice in which pragmatic barriers were found to partially affect knowledge-exchanges will be analysed.

Pragmatic barriers in decision-making: similar to *AcuGroup*, decisions are not made at the group level. Constituted by fairly discrete and autonomous Clinical Units, CD Board members believe that CUs are better placed for making decisions. Under this subsidiary principle, decisions are “elevated” to *MedGroup* only for final signoff and ratification for further escalation.⁶⁵ Underlying this practice there is a clear perception of the consequences for team members of refusing support to colleagues. While team members generally perceive a low interpersonal risk for speaking up, they are more cautious when openly criticising other CUs decisions. Finally, the quotations below also suggest that the awareness of consequences is held not only for the individuals but also for the collectives. In other words, team members carefully avoid challenging other ideas and projects because of the consequences that such encroachment could entail for their own occupational communities in the future.

In a directorate that's a bit more problematic because people all have to live and work together, so it's very difficult to say no. And I think one of the features of having divisions and directorates is, and I think this is like a division, is that divisions often say no. The directorate will say we can't have both but we can't decide because we all want to work together, and the division will have to say actually strategically this is the one we're having, you can't have that one (Divisional Manager).

There is very rarely any vote, the usual things of which the Board decides on are initiatives of individual clinical units. (...) and the Board will usually ascent, and very rarely does the Board turn on one of its members that's putting forward a case and saying no, we don't think you should be doing this. It's generally I think individual units don't want to tread on other people's activities and sort of they respect the individual units as individual units. (...) (D7)

⁶⁵ Different to *AcuGroup*, the language used by *MedGroup* members to describe decision making pertains to a similar semantic cluster. When describing this practice, they use words such as “agreement”, “support”, “consensus”, “discussion”, “encouragement”. No confrontational isotopies were found.

Practice	Main Characteristics	Knowledge Barriers	Resolution
Decision Making	Multiple level for decision making, few decision made as a team, multiple stakeholders, collaborative understanding.	Pragmatic aspects: Consequences for social and communal relationships for challenging other ideas and decisions	People either resolve difference at CUs level or wait the Division to say no.

Table 4.10: Exemplars of Pragmatic Barriers

In sum, therefore, as shown in table 4.10, pragmatic barriers partially inhibit challenging knowledge and decisions by team members as they can potentially bring consequences in their communal and personal bonds. In turn, this type of challenge may signal encroachment across occupational communities.

4.3.2.4 Structural barriers

In the previous sections the analysis has focused on how the exchanges of knowledge embedded, invested, and located in *MedGroup* practices may become problematic. In this vein, clear patterns were found between the two exploitative cases. Such commonalities were partially explained by the embeddedness in common structural conditions. Yet, the analysis has shown how *MedGroup* as a collective facing similar contextual conditioning has managed to soften some knowledge barriers by enacting practices in different ways. Practices, as Bourdieu suggests (1977), are not rigid and taxonomical scripts that strictly typify conducts and legitimize meanings. Rather they provide a flexible repertoire of

possible responses when facing similar situations.⁶⁶ In the rest of this section, an example of these different responses (both cognitive and normative) when facing similar structural (*hidden*) barriers will be analysed in the case of communication within *MedGroup*.

Structural barriers in communication: Like in the previous case, formal and informal vertical means of communication coexist in the CD. *MedGroup* itself can be described as a formal one, as it connects the CUs with the next levels in the Hospital in a structured and routine manner. Informal ways are multiple, as they might encompass personal contacts and spontaneous exchanges “which can occur outside the 'organisational chart'” (Peters & Fletcher, 2004:747). Under the latter definition, intra-occupational channels of communication, especially in the case of doctors and nurses, are deemed more informal. Embedded in such double communicational structure, the possibility of *MedGroup* circumvention becomes real as doctors might use the intra-communal channels to bypass the CD Board and exert influence at higher levels.

What should happen is that anything that goes outside of the red blue channel should be bounced back. What's tended to happen in [the Hospital] is consultants have shouted and they've got what they wanted. So giving you a specific example, we had something called ECMO which is a machine that's linked to the intensive support of patients, and a particular ITU consultant wanted it for Swine Flu patients. Now the Department of Health, having commissioned the service to be run I think in Leicestershire, but because we're [the Hospital] and we needed this ECMO he managed to get it and it was forty-five thousand pounds. (...) This organisation purchased a piece of equipment which stopped us purchasing something else which had followed the business case for it. (M7, Directorate Manager).

Yet, as it emerged in the follow up interviews and feedback sessions, in contrast to *AcuGroup*, circumvention is a rather limited phenomenon in this CD. As the example

⁶⁶ Nonetheless, it is important to point out that for Bourdieu such flexibility is not indefinite, as it has at least two concrete boundaries: violation and *méconnaissance* (misrecognition) (1977).

above hints at, bypassing the CD Board is not considered normal (as *MedGroup* members deem this group as the genuine channel to persuade other levels, support/defend CUs, and obtain resources) or acceptable (as erode CD Board legitimacy and authority). The response of both the Directorate Chair and Manager has been treating these behaviours as deviant, with doctors involved privately admonished and the focal actions discouraged. The double cognitive and normative dimensions of this response explicitly tried to limit the potential erosion of *MedGroup* as the legitimate channel of communication. This attempt has been further reinforced by two team traits. First, both Directorate Chairman and Manager have played an effective ambassadorial role (cf. Ancona and Caldwell, 1992) at the Division and Trust levels by successfully negotiating resources for the constitutive CUs or communicating their concerns. Second, Medical Leads and CUs managers have also effectively represented CUs' interest in the *MedGroup* (the fact that CUs are small and cohesive would seem to make such representation easier).

Well we discuss it and, if you like, we task back to [Directorate Manager] and [Directorate Chair], because they sit on the Divisional Board, to find the answers for us. You know, what are we hearing at Divisional Board or what's being discussed with [Divisional Manager] at her team meeting? What's the word on the street, what have they heard? (M4)

...there are some departments in the hospital that I think are very dysfunctional and the colleagues don't get on, there [are] camps, there are cliques and so forth. We are very cohesive, we're seven, eight consultants, we all get on very well. We don't have cliques here. (D11)

Practice	Main Characteristics	Knowledge Barriers	Resolution
Communication	Multiple channels of communications, each community tend to prefer some of them based on structuration of daily work routines.	Structural aspects: 1) Parallel and competing channels of communication allow circumvention of the CD Board 2) Erosion of trust and motivation to channelized communication in <i>MedGroup</i>	<i>MedGroup</i> members have treated these behaviours as deviant. The normative response has reinforced the legitimacy and authority of CD Board as a channel of communication (especially further up)

Table 4.11: Exemplars of Structural Barriers

Overall, therefore, as Table 4.11 summarizes, structural barriers are related to the existence of a double structure in which the *MedGroup* is embedded. Different channels of communication exist, and are encouraged to be used, across CD and CD Board. However, using such channels in order to influence decisions and obtain resources without consultation is considered deviant behaviour. This normative position has strengthened the role of *MedGroup* both as a knowledge forum and as an ambassador for CUs, limiting asymmetries of knowledge and enhancing the access of the other occupational communities.

4.3.3 Conclusions

The analysis of *MedGroup* practices has revealed how similar classes of barriers affect knowledge-exchanges at group level. Although they have different impacts, the most relevant categories of barriers remain the cognitive, social-epistemic, pragmatic, and structural ones. Cognitive barriers emerge from the highly ambiguous context, characterized by a wealth of information and of competing frames of references, in which

MedGroup is embedded. Social-epistemic barriers become visible as different understandings and epistemic values are held by team members. Yet the stringency of this kind of barrier is limited, as these social-epistemic differences seem to be well negotiated, and hence legitimized, between occupational communities. Pragmatic barriers are reduced as team members – aware of the consequences of not supporting others decisions – avoid challenging others ideas and proposals. Finally, structural barriers are related to the existence of a double structure of communication. Against customary practices in the medical community, the Directorate Chair and Manager have limited the circumvention and erosion of the group by engendering a normative response to behaviour that is perceived to be deviant.

Finally, the analysis conducted on *MedGroup* practices highlights three further salient areas. First, not unlike the previous case, *MedGroup* members unanimously described task allocation as an unproblematic practice. To the extent that task allocation follows occupational demarcation, team members find it normal to receive tasks that are naturally within the bounds of their current occupational community. The *normal* and *unproblematic* nature of this practice not only reduces the possibility of encroachment, but also enhances visibility of others' work and tasks, as they draw on well-known, historically enacted boundaries. Second, and differently to *AcuGroup*, displacement is not a semantic consistency (Greimas and Courtes, 1982). The team as a collective are endowed with formal and informal spaces for knowledge-exchanges between team members. As such, it is not perceived as temporal, spatial or deontically inapposite. Finally, from a more functionalist perspective, *MedGroup* as forum of diverse and unconnected CUs allows team

members to have direct accounts of other CUs' situations and challenges. This vicarious learning would be impossible beyond the open and safe exchanges of knowledge produced in *MedGroup*.

4.4 Chapter Conclusions

In the current chapter I have analysed the enactment of group practices in two exploitative cross-occupational teams. As a full cross-case analysis is beyond the scope of the current chapter, and a full conclusion will be provided in chapter 6, at this point only some concluding observations will be made.

First, the two analysed cases provide divergent examples of interaction between contextual conditioning and enactment of group practices, and their impact on knowledge exchanges. However, the evidence shows that for the case of knowledge barriers rather than differences in kind, there are mostly differences in degree between both cases. Such findings, consistent with the replication sampling approach followed, help in identifying both common patterns and variations that further our understanding of *knowledge-in-practices*.

Second, these two cross-occupational teams inhabit a highly bureaucratic and strongly ruled environment. Subjected to great public scrutiny, procedural rigidity and professional norms, there seems to be limited space for individual and team initiatives and risk-taking. Within this chapter, the analysis has partially focused on understanding the impact of this institutional context on team practices and knowledge-exchanges. However, there are two

striking characteristics that partially soften the institutional constraints. First, as numerous externally driven and somewhat competing rules, procedures and goals exist, the agenda-setting power of the stakeholder is reduced. Interestingly, and somehow differently to Luke's second dimensional view of power (1974), such wealth of external mandates loosens the stringency of some of the structural conditioning. To the extent that team members cannot concentrate/deliver such a diverse and large number of priorities, they need to engage in a selective attention process. Moreover, as Tsoukas (1996), following Wittgenstein (1958), points out, rules and procedures are not self-contained, but are always inherently indeterminate as they need to be interpreted by agents.

Under the latter two conditions, the ambiguity and conflict of interpretations hinder on knowledge-exchanges in both *AcuGroup* and *MedGroup*. Furthermore, different social-epistemologies provide different frames of references on which to anchor such equivocality. Two analysed practices give interesting counterfactual examples: such conflict across social-epistemologies is reduced when a) there is no encroachment across understandings (that happens when communal boundaries are respected as in the case of task-allocation in both groups) or b) when all the communities adopt one grammar (as in the case of managing conflicting knowledge, in which the medical grammar seems to prevail) (cf. Abbott, 1988).

Finally, the analysis of both teams highlights the differentiated character of information and knowledge (cf. Boisot & Canals, 2004). Information in both teams seems to bind its holders because of its indexical nature, while knowledge seems to bind its holders because of its

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deontic nature. Knowledge, as a belief, is deeply ingrained in both professional schemata and experience. As such, though pragmatic barriers exist for both cases (i.e. information and knowledge) the nature and characteristics are quite disparate.

5. Explorative case studies: innovation generation and spread across the NHS

5.1 Institutional overview

The NHS is a tax-funded system that provides all English citizens with a complete range of health services, most of which are free at the point of use (Oliver, 2005). As described in the previous chapter, these services include primary care, acute care, in-patient care, mental care, long-term healthcare, ophthalmology and dentistry. In order to deliver such a complete range of clinical services, the NHS employs approximately 1.3 million people, which make it one of the largest organisations in the world. Moreover, NHS England's budget in 2008 was £92.5bn (HM Treasury, 2008), which represents almost 7.7% of England's total GDP.

The magnitude of both the level of service coverage and the resources invested generate two major challenges that underlie some of the tensions described in the previous chapter. The first one is cost containment, as expenditure has risen at a rate of approximately 2% above GDP growth (Darzi, 2008). The second is related to the quality of services provided, as the NHS continues to lag behind various health systems in the developed world in terms of health outcomes. In trying to find an answer for these challenges, the NHS has increasingly focused on fostering innovation across the system in order to enhance performance.

Although this interest in innovation is not new in the English public sector (e.g. Baker, 1999; Haldane, 1918; Rothschild, 1971 among many others), the development of innovation policies in the NHS gained momentum from the 1990s onwards. The publication of the report “*Supporting research and development in the NHS*” (Culyer, 1994) set a major milestone as it not only highlighted the importance of innovation for individual NHS providers, but also extended the definition of this concept beyond basic scientific research. Such a broad definition has been successively augmented by numerous reports commissioned by the DoH on the management of innovation in the NHS (Department of Health, 2000, 2001, 2002, 2006).

These different policy documents broadened the understanding of innovation from its original association with basic research towards a more inclusive concept, legitimizing different forms of *applied-* and *practice-*based innovation. However, there was also an increasing appreciation of the difficulties of generating and adopting innovation beyond basic biomedical sciences (see for e.g. Cooksey, 2006). While innovation can occur in clinical and administrative areas as a response to problems in daily practices, this practice-based type of innovation is fairly limited because professional and financial incentives and competing organizational demands often tend to discourage it.

Recognition of this problem has sparked a “plethora of innovation-promoting organizations within the NHS, leading to a highly complex institutional landscape” (Salge, 2009:49). Table 5.1 shows that there are currently eleven nation-wide organizations fully involved in the generation, promotion or regulation of innovation in the NHS. The complexity of this

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situation is further increased by the existence of a growing number of specialized *arm's length bodies* (so called by the DoH) that include executive agencies and non-departmental public bodies (NDPBs).

Year	Organization	Role in Innovation in the NHS
1999	National Institute for Clinical Excellence (NICE)	(1) To evaluate the clinical and economic effectiveness of novel medicines, medical devices and treatments. (2) To provide guidance on disease prevention and public health.
20003-2006	National Innovation Centre (NIC) and Regional Innovation Hubs	(1) To identify, protect and commercialise Intellectual property (IP) generated by NHS staff. (2) To build capabilities in IP and project management.
2004	UK Clinical Research Collaboration (UKCRC)	(1) To strengthen the collaboration between the NHS, research councils, research charities and industry. (2) To promote the establishment of research networks around key diseases.
2005	NHS Institute for Innovation and Improvement (NIII)	(1) To encourage innovation in the NHS. (2) To develop innovation, change and management capabilities in the NHS.
2006	National Institute for Health Research (NIHR)	(1) To support, commission, fund and disseminate research in the NHS. (2) To promote applied and translational research in particular.
2007	Biomedical Research Centres (BRC)	(1) To strengthen the cooperation between local NHS Trusts and universities. (2) To promote excellent clinical research.
2007	Health Innovation Council (HIC)	(1) To champion medical innovation in the NHS. (2) To advise on the diffusion of medical innovations.
2008	Academic Health Science Centres (AHSC)	(1) To build research-based, world-class centres of excellence within the NHS. (2) To accelerate the translation from biomedical lab to patient bedside.
2008	Collaborations for Leadership in Applied Health Research and Care (CLAHRCs)	(1) To strengthen the cooperation between local NHS Trusts and universities. (2) To promote excellent applied health research.
2009	Health Innovation and Education Clusters (HIEC)	(1) To strengthen the cooperation between local NHS Trusts, universities and industry. (2) To facilitate joint research, innovation, and education programmes.
2009	Health Innovation Challenge Fund (HICF)	(1) To recognize outstanding innovators within the NHS.

Notes: Adapted from Salge (2009:50)

Table 5.1: Institutional landscape of Innovation in the NHS

5.1.1 Institutional setting

The two explorative cross-occupational teams examined in this study – *CommGroup* and *SaferGroup* – belong to one of the DoH's *arm's length bodies* (colloquially known as quangos). The mission of this quango, established in the early 2000s' and initially fully

funded by the DoH, is to support the transformation of the NHS by developing and spreading innovation across a wide range of health care organizations such as Acute Trust, PCTs, SHAs, and Royal Colleges. For the sake of confidentiality and to ensure the anonymity of those interviewed the name of this *quango* is withheld. In order to substantiate quango's mission, since its inception the organizational strategy has been one of creating and propagating inventive, clinically-led and tested practical ideas which can transform NHS practices. To deliver such a strategy, the quango has been organized around five core innovation programmes. The first focuses on developing tools that can help NHS organizations to achieve both quality and efficiency in their clinical services. The second programme converges around fostering a culture of innovation in NHS organizations, which may encourage internal adoption of best practices and innovation. The third programme has evolved through a series of teaching modules and tools designed to reduce "waste and variation and to improve productivity" (Internal doc. 2009/2010). Finally, the last two innovation programmes focus on developing tools and learning modules to improve commissioning and safer care. These last two core programmes will be further described in § 5.2.1 and § 5.3.1, as they are run by the two explorative teams that are the focus of the current chapter.

While the quango is located in southern England, it tries to attract experts from all around the country. In order to do so, the organization has a very flexible working scheme that allows most of its staff to work from home three days a week. Each programme has two designated on-call days that in principle oblige all programme members to be physically present in the quango's main location. In practice, attendance even on on-call days is quite

haphazard. The employment contract scheme is also quite diverse, as it encompasses permanent, temporary, and fixed-term employees. This is especially the case for the last category, within which many employees are working via the legal means of secondments, in an attempt to increase staff knowledge, abilities and skills by bringing in experts that can share, on a temporary basis, experience which they have gained in other organisations.

At the time of this study, at least two big challenges affected this organization. First, with expenditures above £50 million pounds a year, since late 2008 the quango has received clear signals from the DoH that funding would be limited in 2009/2010, and significantly reduced from 2010 onwards. This situation forced the quango executive board to reorganize its income strategy and embrace a more business-like approach by marketing and selling its portfolio of innovations across SHAs and other targeted organizations, and even launching a new company to carry out international business. This radical change from a public organization to a business-oriented one, and from being a cost centre to being a producer of income, had left, at the time of the study, visible effects on the staff, as a sense of both fragility and uncertainty about the future emerged among them.

Second, under this financial pressure and increased scrutiny from the DoH, the quango executive board decided in early 2009 to make the process of selecting and funding innovation projects much more transparent. They did so by introducing a formal so-called *pipeline process*. This assessment scheme attempted to systematize the selection process and to provide further legitimacy by involving potential NHS customers as evaluators. This decision added further uncertainty among all the programmes, as all existing projects were

asked to go through the pipeline assessment process to secure funding from 2010 onwards. As will be discussed below, such introduction had implications for the explorative case studies.

5.2 Case 3, *CommGroup*

5.2.1 Introduction

The *CommGroup* was formally launched in April 2008 with the ultimate aim of supporting PCTs to achieve the World Class Commissioning⁶⁷ competencies promoted by the DoH. This new reform followed the publication of the “Commissioning a patient-led NHS” report in 2005 which called for “[a] shift to a focus on commissioning through structure and process – moving the emphasis from spending on services to investing in health and well-being outcomes” (DH/Commissioning 2007:1). In order to substantiate this, the *CommGroup* has developed and launched a number of different projects and tools since its creation. Some examples of these new initiatives include: 'PCT Board Development' (a tool that helps PCT Boards to consider how they operate as a corporate entity and enhance their effectiveness); 'Strategy Development and Implementation' (a tool that aims to help top PCT teams think and develop their own strategy); and 'Improving Patients' Pathway' (a series of tools and workshops that help commissioners to promote improvements in care pathways). Due to the nature of group tasks and the number of different innovation projects in ideation phase, *CommGroup* can be characterized as a highly exploration-oriented team.

⁶⁷ The World Class Commissioning programme's aim is to deliver a more strategic and long-term approach to commissioning services, with a clear focus on delivering improved health outcomes. There are four key elements to the programme: a vision for world class commissioning, a set of world class commissioning competencies, an assurance system and a support and development framework (DoH, 2007).

At the time of this study, and based on my observations, three general group characteristics were most salient. First, the change in the quango funding structure from 2010 onwards has sparked, since early 2009, continuous team-level discussions of both the political and technical challenges associated with such a change. While a personal discussion between the Head of the Programme and the DoH sponsors was usually sufficient to secure next year's funding, under the new scheme *CommGroup* members would have to sell their tools and services across PCTs and SHAs. This situation generated considerable uncertainty among team members, raising questions about the programme, projects and team identity and impact. The survival of some of the projects was also subject to continuous discussion by late 2009, as it was not immediately clear how *CommGroup* could sell such a diverse programme across so many and different PCTs.

This general situation was further exacerbated by the departure of the Head of the Programme from the quango in September 2009. It is worth noting that the Head of the Programme not only chaired the group from the beginning, but also that he was initially responsible for the design and inception of the current team and for the recruitment of its members. Moreover, the pronounced hierarchical structure of the quango made him the only interlocutor with both the quango executive board and the DoH sponsors.

Finally, although it only affected the last month of the studied period, the quango decided by January 2010 to start to investigate the possibility of a profound reorganization of its five core programmes. If this plan were to happen, the *CommGroup* as a team would be dismantled, and their permanent members would be part of a vast yet undefined group of

experts that would be recruited on a project-by-project basis. Team members referred to this situation to illustrate the overall fragility of the quango and its strategies.

In terms of group composition (see figure 5.1 for the team chart), the *CommGroup* is led by the Head of the Programme, who is accountable for the performance of the whole team, its strategic direction, and the delivery of the different tools and workshops. He is also in charge of external relationships with the main authorities from the DoH, SHAs and PCTs. The number of members within the group closely follows the number of projects and tools they offer, since it is a common practice that each team senior member formally leads one project (although they could informally collaborate with other programmes). In terms of the status of employees, most of the senior associates have a permanent contract with the quango, although there are a few working on secondment. Secondment contracts are more common among junior members. Finally, as was highlighted above as common practice within the quango, group members mostly work from their homes in different parts of the country. They only have to attend the quango premises twice a week, on Mondays and Tuesdays. This flexible arrangement tries to reflect the national character of the organization and their members: that they have to continuously work around the country, and will come from different locales.

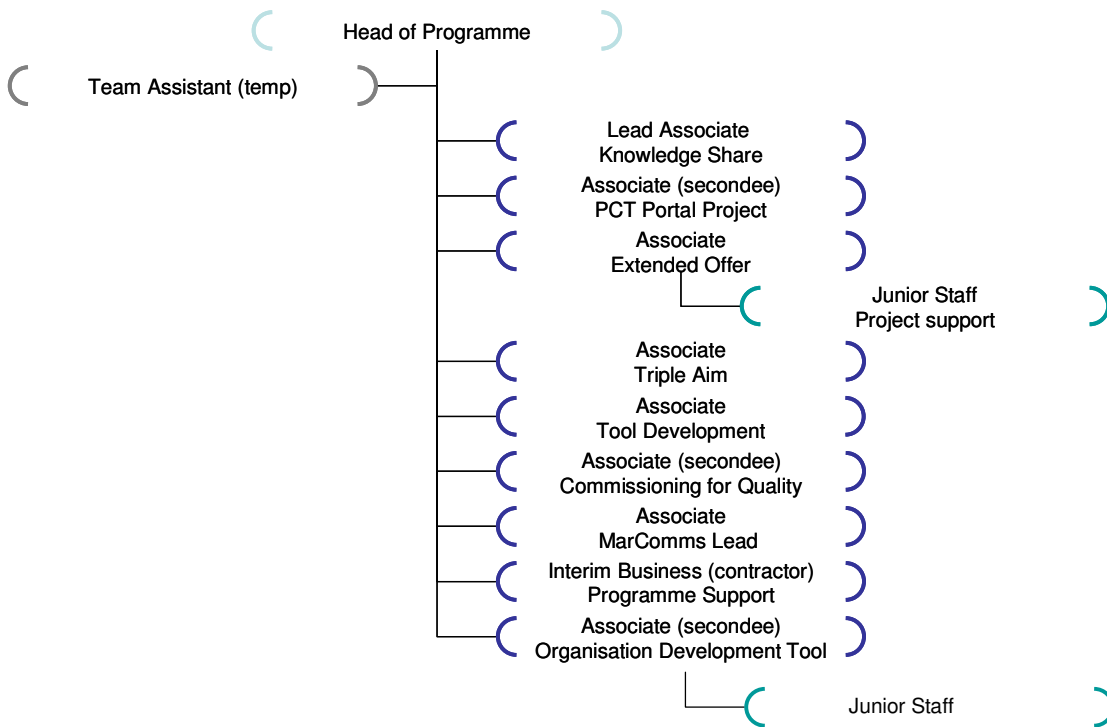


Figure 5.1: *CommGroup* organizational chart

Table 5.1 summarizes *CommGroup* membership characteristics. At the moment of the study there were 13 active members. In July 2009, the average tenure in the group was 12.41 months (SD = 3.77 months) and the average work experience in years was 16.15 years (SD = 10.35 years). Tenure in the team is fairly homogenous as most of the team members joined *CommGroup* at its inception or some time after from different NHS organizations or other public bodies. Finally, the standard deviation of team members' work experience reflects how the team is composed of both a sub-group of very experienced members and another sub-group of young professionals, mostly in assistantship roles.

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Current Occupational community/ Informants	Total work experience (in years)	Tenure in the team (in months, until Jul 09)	Motives to join the team	Initial attitude towards the team (fav., neutral, unfav.)	Any previous cross-occupational experience
Administrative: A4	02	15	Job opportunity	Neutral	Yes (education: international relations)
Marketing: Mk1	11	12	Focused and creative work	Favourable	Yes (political sciences, educational and work experience)
Mk2	06	15	Job opportunity	Favourable	NO
Organizational Development: O1	08	15	Interesting project, development of expertise in Commissioning	Favourable	Yes (Physics, educational and work experience)
Project Management: P1	01	08	Job opportunity	Neutral	Yes (Advertising, work and educational experience)
P2	27	15	To apply expertise on project and change management in national projects	Favourable	Yes (Archaeology, educational experience)
P3	20	DK-2	Job opportunity	Favourable	Yes (work experience)
P4	25	14	Challenge position	Favourable	Yes (social anthropology, educational and work experience)
Service Improvement: S1	25	03	Challenge position	Favourable	Yes (nursing, educational and work experience)
S2	20	12	Development of expertise in Change Management	Favourable	Yes (nursing, educational and work experience)
S3	10	10	Development of expertise in Commissioning	Favourable	Yes (community management, work experience)
S4	33	15	Develop expertise in service improvement, national scope	Favourable	Yes (Management, work experience)
S5	22	15	Challenge position, national scope	Favourable	Yes (Human resources, work experience)

Dk: Don't know; Dk-1: question not asked; DK-2: asked but not answered (strayed from question, didn't know the answer) Dk-3: ambiguous answer

Table 5.2: CommGroup membership characteristics

Unlike the exploitative teams analysed in chapter 4, *CommGroup* members clearly do not perceive affiliation to any particular occupational community. Interestingly, this situation resonates with the description of managers in *MedGroup* provided by M6 in § 4.3.1 – “they’re professional but there are not a profession”. As will be analysed below, *CommGroup* members do not present a clear occupational identity, and the members’ self-identification is with areas of expertise rather than collectives (for instance, Organizational Development, Service Improvement, Project Management). As for their motives to join the programme, most of *CommGroup* members, with the exception of the three most junior members, perceived the new position as a new career challenge, which would allow them to develop or further their expertise in some areas (usually commissioning or service improvement) within a national organisation. The initial attitude expressed towards the team is mostly favourable.

As was suggested before, professional identity is fairly diffuse across *CommGroup* members. Both in the interviews and introductions in the meetings which were observed, group members hardly identified themselves with any occupational community. When presenting themselves, they usually referred to their position in the quango (senior associate, associate, etc.) and the project on which they were working. The fact that the majority of the team members have been exposed to multiple jobs in different organisations within and outside the NHS makes the identification of professional trajectories even harder. When explicitly asked about such diffuse identities, team members described how in the quango expertise rather than affiliation is what matters. The stringency and saliency

of professional demarcation (collectively and individually) seems to be perceived as unimportant in comparison with other NHS settings, to the point that members expressed their ignorance over others' backgrounds. More generally, and somehow resembling the "free spaces" concept (cf. Evans & Boyte, 1986; Kubal, 1998) there is a perception that the quango both has little hegemonic control from certain professions and it is normatively less constrained by professional regulation.

We gather bits around that, there isn't any formal process for making people clearly aware of what experience or working people have got and you just pick it up via conversations. But that's a very hit and miss process so you don't, [that] I'm not personally aware of, you know, the vast majority of backgrounds of people in the team. (O1)

I think in the wider NHS, if you are working in a clinical role your roles find you. So you have got to, if you say that you are a doctor or a nurse then people immediately pigeon hole you into a particular [position], and you are known as that and that is very much a part of your identity. I find that much less here, it seems to be less relevant. (S2)

And in fact, to the point that I don't know – I was talking to [O1] today and he told me that he's a physicist and that he stopped his PhD partway through in physics and that was his professional background. Now I didn't know that, I'd made some assumptions that he probably was from a professional background [that] involved, you know, sort of numbers because he's the person who's in charge of measurement. (S5)

5.2.2 Knowledge barriers in CommGroup practices

CommGroup members inhabit much less constrained institutional spaces than the exploitative cross-occupational teams examined in §4. This characteristic, common for both the inner- and outer-contexts of embeddedness (Pettigrew, 1987), permeates most team practices. As a result, knowledge-sharing in *CommGroup* is differently affected by physical, cognitive, social-epistemic, pragmatic, and structural inhibitors than in previously analysed cases. It is the purpose of this section to analyse these different constitutive aspects, focusing on team practice enactments and their consequences in terms of group knowledge barriers.

5.2.2.1 Physical barriers

The inherent material mediation of group practices, as an array of (inter) actions between subjects and objects, brings the role of their physical placement to the fore. In both *AcuGroup* and *MedGroup*, this physical placement is characterized by its high concentration, as group members not only inhabit similar locales, but also enact all the practices in similar locations (such as hospital facilities or the same wards). However, subtle differences were found as occupational communities invested differently in concrete spaces with more or less legitimacy. In contrast, two characteristics of the quango seem to suggest that the physical placement of *CommGroup* practices can be described as dispersed. First, group members work most of the time from their homes in different parts of the country. They only have to attend the quango premises twice a week. Second, by the end of 2008, the quango's HR department decided to change the office layout towards an open hot-desking plan. In practical terms, this meant that even on on-call days team members might not be collocated.

This dispersed physical placement conditions group practices and in turn poses challenges in terms of knowledge exchanges in *CommGroup*. This resonates with Davis' (1984) argument that physical structure and architectural design influence and regulate social interaction. Interviewees' narratives and my observations of the working space, in keeping with past research (such as Davis, 1984; Pinto, Pinto, & Prescott, 1993; Souder, 1981), suggest that physical distance has a broad effect on group practices by reducing the likelihood of personal interactions and cooperation. In addition to this general assertion, in

the context of the current research, the evidence also suggests that the influence of physical distance is more immediately noticeable and salient in the case of two practices: *Communication* and *Decision-making*.

In the last part of this section, two group practices in which physical barriers were found particularly salient will be analysed. Physical barriers are defined here as creating a lack of physical proximity between group members, and inhibiting knowledge-sharing at a group level. While team members contended that not working near each other generally affects team interactions, the analysis of *CommGroup* practices provides further evidence of the concrete effects of physical barriers on knowledge exchanges.

Physical barriers in communication: Communication is generally perceived as diverse in the interviewees' narratives. *CommGroup* members described how differences in preferences exist between team members when communicating. The basis of communication diversity is three-fold. First, differences in preferred channels of communication (direct ways such as face-to-face encounters and phone calls, versus indirect ways such as emails and web spaces). Second, differences in preferred "styles" of communication (described in terms of being more or less "directive", "assertive", "outspoken", or "vocal"). And third, differences in languages (specifically in the use of "jargon" and "acronyms"). When asked about the roots of these different patterns, interviewees invariably associated them with a personally-preferred style of communication rather than with any other social-epistemic elements.

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I've been in another NHS multidisciplinary team where it is clear that those with a clinical professional background have a communication channel that they use that isn't understood necessarily by those without, and it's just through their training. And I can honestly say that – and there are people in the team I know who are nurses by background, and we've had physiotherapists and Richard's a GP – in this team for us whether you have a health professional background, clinical background or not, [it] doesn't affect the way that communication [occurs] and team members interact with each other. It's peculiar. (S5)

Generally, *CommGroup* members are positive about diversity. They do not only have a high level of awareness of such differences, but also a richer lexicon to describe such diversity in comparison with exploitative group members. This difference can be partially explained by the participation of the entire group in a psychometric assessment in early 2009, and six months later in a one-day workshop headed by an external consultant to focus on leveraging diversity in the group. Yet, members recognised that physical distance across them does not help improve their communication flows and relationships. Actually, and in keeping with Keller and Holland's (1983) findings, the lack of propinquity has inhibited communication flows and limited the creation of supportive group relationships:

I mean different practical challenges in the team in that we, we're not all in the office at the same time so we're not, you know, we're not a nine to five, five days a week team. So you don't always get to meet people face-to-face as I'd like to, and then you're relying on other methods like telephone conference calls and communication is sort of difficult because of phone lines and not seeing body language or reaction and that sort of stuff. (O1)

I think the way that we work is a challenge because we're expected to [act as a] help desk, work[ing] from home. A lot of us are, you know, all over the place, up and down the country and so, you know, for that reason we rely quite heavily on emails, which works for some, you know, [but] it doesn't work for others...(S3)

... because we're working on lots of different projects, people aren't working together so much, so getting alignment is tricky. And then I think that the way that, you know, we [share an] internal office with organisations so that we no longer have a specific team area where we all sit, just seeing each other becomes more difficult. And previously we had half a dozen desks and that's where we sat and so there was a sense of team, now we're scattered all over the place. (P2, Head of the Programme)

Finally, group members have recognized that certain IT technologies, such as WebEx conferences and a corporate version of “My Space”, have partially helped to bridge such

physical barriers. Nonetheless, these boundary technologies are not fully adopted by all team members as more direct means of communication are preferred and/or different levels of technological competence deterred full usage.

Physical barriers in decision-making: Physical distance has a second and distinctive effect on knowledge-sharing in the case of decision-making. This practice has been generally characterized by team members as consensus-based. Yet, observations and some narratives point to the existence of multiple levels and places for decision-making where a collective unanimous opinion is not always present. Project-level decision-making usually involves the project leader and the Head of the Programme. Team- or programme-level decisions are primarily made by the Head of the Programme with opinions sought from the rest of the team. While team meetings are considered the natural place for such general decisions, their monthly occurrence conspires with this end. In practice, because of the need to make decisions on a more frequent basis, the Head of the Programme makes decisions individually and/or after informal and short talks with team members that happen to be present in the quango facilities at a given time. As the quote below seems to suggest, two further characteristics make the stringency of physical barriers more salient. First, such decisions made informally and only with those present at the quango usually overturn decision made by the entire team in the monthly meeting. Second, the lack of communication and limited physical presence of team members in the quango limit the general awareness of the decisions made outside team meetings and in smaller groups.

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[The Head of the Programme] is the ultimate decision maker and he's very open to influence, so he'll present his ideas and we'll input to them and we'll come to a decision. And it's normally in team meetings, I guess – [that] would be when the decisions are made. Although it's really difficult at the [quango], because it's a national organisation [...] and we all live all over [...]. There are people within the team that live local and so are in five days a week, there are people that don't live local [...]. And so what happens is that those people who are in, on a Thursday afternoon if someone has a good idea, those people who are in will get together and talk about it and make a decision. So then if you haven't been party to that, you'll come in next on a Tuesday and you're working on something assuming the last meeting, the decision that was made at the last meeting. But there's been a conversation in between time and it's changed and you're not, you haven't been told about it. So actually thinking about it, decisions are made in team meetings and in project meetings but they're overturned or changed in conversations with a smaller number of people and don't ever go back to the sort of project team for ratification. So you've got decisions being made without full awareness of the consequences because you haven't got the people in the room on whose work it will impact. So yes, actually a lot of decisions I've experienced have been made by a small number of people who have been in the office and then that is not communicated in a robust way to other people. (Mk1)

Practice	Main Characteristics	Knowledge Barriers	Resolution
Communication	Multiple channels of communications, each team member tends to prefer some of them based on personal preferences.	Physical aspects: No physical propinquity: 1) reduces frequency of communication and, 2) Limits the use of more direct ways of communication (e.g. face to face)	Partial: recently the group launched boundary technologies, but they are unevenly adopted at the individual level.
Decision-making	Multiple levels and places for decision-making. Decisions are made in team meetings but they can be overturned in informal meetings led by the Head of the programme and few other members.	Physical aspects: 1) Large number of decisions made in informal small group composed only of members physically present in the quango, 2) Low-level of awareness of such decisions for people not physically present in the quango.	N/A

Table 5.3: Exemplars of Physical Barriers

Overall, as table 5.3 summarizes, physical barriers, materialized as the limited physical proximity among team members, hinder knowledge exchanges by reducing the likelihood of encounters and stressing the reliance on indirect means of communication. In the case of communication, the recent introduction of certain boundary-spanning technologies has

seemed to foster communication between some members, yet the different degree of literacy has limited its overall adoption. In the case of decision-making, the physical absence of many members in the quango limited the general participation of team members in this practice, generating opacity over the results of the decision made in smaller or informal gatherings.

5.2.2.2 Cognitive barriers

As explained earlier, cognitive barriers are boundaries that inhibit knowledge-sharing which are most immediately related to processes of cognition. In the two previous cases, cognitive barriers were associated with informational ambiguity and the existence of multiple and non-dominating frames of reference. In contrast, in the case of *CommGroup*, uncertainty appears to be the primary factor affecting knowledge exchanges. However, before analysing its effects, uncertainty needs to be contrasted with ambiguity. Exploitative teams inhabit informational spaces characterized by a wealth of equivocal information, provided by very diverse external stakeholders. In this situation, no single understanding dominates the others. In *CommGroup*, however, practices are embedded in political, organizational and informational contexts characterized by limited knowledge, vagueness, and the indistinct meaning of their boundaries.

Two characteristics of this case are of particular relevance in highlighting uncertainty as a salient inhibitor of knowledge exchanges. These are, first, the very explorative nature of the group task. *CommGroup*'s main task is to translate general DoH policies and

recommendations into concrete tools and services to help improve commissioning practices in NHS organizations. While in the exploitative teams, translation simply means selection and reduction of competing understandings, in *CommGroup*, it means expansion from abstract and sometimes vague recommendations to potentially multiple concrete innovations in a context of limited knowledge.

Second, *CommGroup*'s political and organizational embeddedness can also be characterized as uncertain. As the concluding part of this section will examine, *CommGroup* needs to constantly engage with the DoH, SHAs and the quango executive board in continuous negotiation and legitimization of both the group as a collective and its particular projects. Precarious and changing situations, under conditions of limited knowledge, have an impact on the way practices are enacted, and knowledge is exchanged.

Unlike physical boundaries, cognitive barriers (ingrained in political, organizational and informational uncertainty) permeate most of the analysed practices. Yet, its negative impact seems to be particularly salient in the case of two practices: *Priority-setting* and *Decision-Making*. In the remaining part of this section, the effects of cognitive barriers on the knowledge embedded, invested and located in these practices will be analysed.

Cognitive barriers in priority-setting: in contrast to exploitative groups, *CommGroup* members largely agree on the ultimate team purpose: to support PCTs in achieving the DoH's aspiration that they are world class. Such unanimously agreed upon statement, a *figurehead* for the programme, is directly inspired by two DoH policies which were

intended to establish strategic direction for commissioning healthcare: *Commissioning a Patient-led NHS* and, more centrally, *World Class Commissioning: Vision* (DoH 2005, 2007 respectively). However, despite the considerable initial agreement, setting priorities and programmes of work that relate back to this espoused purpose has proved challenging for *CommGroup* members. As the DoH considered itself “two-steps removed” from implementation of World Class Commissioning (WWC), there is usually no provision for specific guidance or recommendations in these policies (Department of Health, 2008).

Consequently, priorities are primarily set by the Head of the Programme mainly through processes of unearthing, “gathering”, “making sense [of issues]”, and “negotiating” with different stakeholders. Whilst having a broad and openly-stated conceptual frame of reference facilitates agreement among members about general and broad team purpose, that same generality and political dependence on external stakeholders reduces their ability to set their own priorities.

The main purpose of the team is to help commissioners across the NHS and England to become better commissioners, which sounds fairly vague and part of the challenge has been to work out what does that actually mean. [...] and a major part of what we’ve been trying to do over the last year has been to be clear about what it is that we should be doing. And so I have regular and frequent contact with the Director of Commissioning in the Department of Health who own the policy on World Class Commissioning and also each of the SHAs has a World Class Commissioning lead person. And so I talk regularly with all of them to say well, you know, the way that we are thinking about this is in this way and getting feedback from them. (P2, Head of the Programme)

As the above quotation suggests, at least three characteristics increase the uncertainty of priority setting in *CommGroup*. First, the existence of multiple and changing stakeholders require the Head of the Programme to engage in continuous negotiation and legitimacy-seeking. As most of the stakeholders are in high political positions (such as Directors at the

DoH and SHAs, and quango executive board members), it is only through reliance on the Head of the Programme that the group can vicariously engage in this practice (as described in the second point below).

Effectively I do [it] through a process of discussion. I think for the whole of last year the team was formally sponsored by [...] the Director of Commissioning at the Department [...] . It was very much down to, down to me to work out what I thought we should be doing and then test that with him and with others. (P2, Head of the programme)

Currently it's shifted so that the sponsorship is from the SHAs rather than the Department and that's led us in to a fairly complex process whereby, you know, if there's ten of them rather than one and, but it's [something other] than my specific programme being sponsored by a specific person in the Department, the policy now is the service equivalent [of the] work of the [quango] as a whole [being] sponsored by the ten SHAs. (S3)

They say here [that] is our ultimate goal that you need to be heading towards, but in terms of how you get there and the impact you have, well we don't really know. And it becomes much more down to the individual perception of key people around the system who may or may not agree with each other, and there's often not a clear hierarchy in terms of whose opinion is more important than someone else. (P2, Head of the programme)

Second, uncertainty is further augmented by the lack of clarity of both the demands of the stakeholders and the process of negotiation itself. For most of the team members such processes remains fairly vague and the limits of its negotiations unknown. Political access, or lack of access, makes this process of negotiation highly esoteric for team members and the information of such regular meetings at higher levels are only communicated on a weekly basis in a succinct way (no more than 30 minutes) in team conference calls by the Head of the Programme. Finally, the degree of abstraction of the stakeholders' demands, which do not indicate concrete courses of action to be followed yet retain veto power on priorities set by the team, affect the general level of uncertainty. Team members' narratives indicate that the meaningfulness of boundaries becomes blurred as they have to apply very general principles to particular innovation projects and outcomes.

And sometimes those things, sometimes what we end up doing is trying to translate what's come to us effectively as a [single] sentence into a programme of work. (P4)

In sum, cognitive barriers characterized by high informational and organizational uncertainty hinder knowledge exchanges at *CommGroup*. First, the existence of multiple key stakeholders, to whom the majority of the team do not have access, limits the opportunities for exchanging knowledge with those stakeholders. Hence, the practice of priority-setting is solely enacted by the Head of the Programme, and the conditions of this practice remain esoteric for the rest of the team. Second, the fact that the guidance provided by external sources is general and not always clear blurs the boundaries of interaction:

I think that when [The Head of the Programme] set up the team initially and we were all fairly uncertain as to where the future [of] the team was heading, we realised that [The Head of the Programme] had a very difficult job in carving out the role for the team and so if he made decisions that we disagreed with we would just accept them and take that as part of the process. (S5)

It feels sometimes a bit chaotic and I think that's the fact that we're all very, very independent practitioners. So, and because we're working at a very fast, you know, kind of... pace, it's quite hard to bring the different parts together. And also with, certainly the commissioning side is new in terms of its development in comparison to the other parts of the [quango]. So we're still, I feel a little bit under scrutiny, if you like, in terms of what we need to deliver and the benefits of it. And because we're not so connected or have such a strong, close association with the patients [...]. It's, I think the patient, if you like, is one step removed but that the focus should still be on patient delivery and patient services. So obviously that needs to be very strongly there. So I think there's something about the newness of the commissioning group, it's still got to, if you like, there's still a sort of validity part to us, I think, and we've still got to have some very, very strong benefits that derive from our programme. (S1)

Cognitive barriers in decision-making: Uncertainty was also found to be critical for decision-making practices at *CommGroup*. In contrast to the exploitative groups studied, where ambiguity can be characterized as a semantic indeterminacy, the relevant indeterminacy in *CommGroup* can be characterized as *de re*. Uncertainty is not because of the vagueness produced by multiple and non-dominating interpretations, as was the case with *AcuGroup* and *MedGroup*, but because the vagueness of team purposes, priorities and tasks themselves. As analysed in the previous chapter, exploitative groups need to make

decisions at a local level, with an operational focus, and around practical problems (i.e. concrete boundaries). In contrast, *CommGroup* needs to make decisions on a more general level, with a very theoretical focus, and around conceptually driven problems (indistinct boundaries). In such a situation, team members find it difficult to “crystallize” decisions both at the individual and at the group level.

I think the main challenge that people find, I think, is working at a national level. So it's because there's, I think the main thing that people find is that, you know, they're used to working in a local organisation which has a very operational focus and very clear lines of accountability and very practical day-to-day problems, you know, challenges and issues. And I think then working at a national level, where we are seeking to advise and influence, so we can't tell anyone to do anything, our lines of accountability are very, very complex and not always very clear, and we tend to be operating in a much more sort of theoretical context. And I think making that shift is the main challenge for people (P2)

I found it, it's a little frustrating [...] it's good that you can think and you're given the time to reflect and so forth, but what sometimes happens is that you're thinking so much and you're coming up with new and different ways of, you know, working and theories, [and] it can actually complicate matters significantly. So [what] you actually end up [with is] your head's swimming around with lots of different ideas, lots of different theories and you're thinking help, you know, what do I do? And if that direction isn't necessarily there it's even worse because you have all of these thoughts, all of these ideas, you're pressured for time, you're looking for direction at the organisation and it isn't necessarily there, that you have to go on and make the decision anyway. (S3)

Such uncertainty for decision-making has at least two clear impacts on knowledge exchanges at *CommGroup*. First, as described in the previous section, little decision-making is done by the whole team. As a consequence, general awareness of the decisions made outside team meetings and in smaller groups is reduced. This situation is further intensified by the high level of uncertainty, as individual or small group rationales for decision-making cannot be clearly anticipated. As a result team members perceive high levels of opacity not only over the content of the decisions but also the rationales that might inspire them. Second, and as a consequence, *CommGroup* members find it difficult to take the values or standards of other team members or that of the group as a comparative frame

of reference (Merton, 1968, in Nahapiet & Ghoshal, 1998), making overall identification somewhat problematic (cf. Child & Rodrigues, 1996).

Well it's particularly difficult if there's more than one person working on a project because they're not always all involved in every decision, and it means that the rationale that we use for our decisions isn't necessarily common. (P4)

Individually people are brilliant. Bringing us together as a whole and it just does not seem to mesh. (MK2)

In order to cope with such uncertainty and to “systematize” the rationales for making decisions at a project and team level, the quango has fostered the implementation of the so-called “work-process”. This is a structured process that tries to help quango members generate, test and implement innovative ideas. Conceived as a method of problem-solving and inspired by the design industry, the work-process encourages quango members to make decisions following a systematic process. There are four main phases in the work-process: understand and reframe, develop concepts, test and learn, and design the delivery. Yet, the evidence from *CommGroup* suggests that the adoption of such general frame is both loose and partial. With the exception of S4, most of the team members recognized that either they not used it at all or they only used it as a general idea but never follow it with the degree of detail that work-process was designed to be used.

Yes, yes we do [have the work-process methodology] but I would not say as a team we necessarily follow that right. (S2)

We're not that disciplined, the people that have been here a lot longer know the process so they do it instinctively. People that are, so [S4] talks a lot about we're in the understand and reframe stage, we need to go to the test and learn stage. But I am, you know, I've only been in the Institute a year, I've only had an hour's session with [HR Director] on the work process methodology, I've got the book. [...] And because we don't do that and we rely on [S4] to say we're understanding and reframing, new people coming to the team don't get that discipline. (Mk1)

Chapter 5. Explorative Case Studies

Practice	Main Characteristics	Knowledge Barriers	Resolution
Priority-Setting	Multiple stakeholders, key role of the Head of the Programme in unearthing and negotiating priorities. Limited agency for the rest of the team.	Cognitive aspects: Uncertainty due to the existence of multiple stakeholders, with diffuse, abstract or unclear demands.	Partial: vicarious participation of team members through Head of the Programme's narratives on weekly conference calls.
Decision-making	Multiple levels and places for decision making. Decisions are made in team meetings but they can be overturned in informal meetings led by the Head of the Programme and a few other members.	Cognitive aspects: 1) Low levels of awareness of other members' rationales for making decisions partially due to high uncertainty, 2) Limited common frame of reference.	Partial: "work-process methodology", but it has been unevenly adopted at the individual and group level.

Table 5.4: Exemplars of Cognitive Barriers

As is summed up in Table 5.4, cognitive barriers are primarily influenced by the high degree of uncertainty of team task and context. The evidence of team members' interviews and meeting observations suggest that the uncertainty is not semantic, as in the case of *AcuGroup* and *MedGroup*, but *de re*. This is most clear in the case of two practices, *Priority-Setting* and *Decision-Making*, where team members enact the different array of actions with limited knowledge, under conditions of vagueness, and the indistinct meaning of the boundaries of action and interaction. Such uncertainty hinders exchanges of knowledge, by limiting both the anticipation and awareness of other rationales, and the development of a common frame of reference.

5.2.2.3 Social-epistemic barriers

Social-epistemic barriers are distinctively shaped by both the characteristics of the quango and the kind of staff the organization attracts. The quango is an organization that operates

removed from the NHS's classical professional jurisdictional structures. While still politically dependent on the DoH and SHAs, the quango enjoys a high degree of autonomy in terms of internal governance and practices. This rather distinctive characteristic is complemented with a recruitment policy that tries to attract experts from different industries and sectors, either on a temporal (secondment) or a lasting basis (full contracts). As a consequence, programme members tend to be recruited because of their expertise rather than because of their professional affiliation. In this overall context, while professional demarcation becomes blurred, social epistemologies become hazy.

CommGroup is not an exception in this respect. The fact that most of the *CommGroup* members (excluding S1 and P1) do not recognize themselves as members of any specific occupational community further reinforced the haziness of social-epistemic boundaries. This is also noticeable, as analysed in § 5.2.1, in the difficulty that team members have for tracing other group members' epistemic and doxastic judgments back to any specific occupational community. *CommGroup* members also struggle to identify their colleagues' membership of any "thought worlds" (Dougherty, 1992a; Douglas, 1987).⁶⁸ Exemplifying this characteristic, and in contrast to exploitative teams where conventional stereotyping was found to be based on commonly simplified conceptions of occupations, in *CommGroup* stereotyping was found to be based on individual preferences revealed in a psychometric exercise done by the team.

⁶⁸ Thought worlds are defined by Douglas (1987) as communities of persons engaged in a certain domain of activity who have a shared understanding about that activity.

Should social-epistemic barriers then be disregarded in this kind of explorative team, where membership to occupational communities or thought worlds is very loose or inexistent? *CommGroup* data suggests that the very haziness of social-epistemic boundaries generates in itself specific barriers for sharing knowledge that are based on such a diffuse identification with a corpus (or even corpora) of professional knowledge.

So it's, it's professional backgrounds but with a small 'P', not a kind of clinical as opposed to managerial. But that doesn't stop us confusing each other, I promise you." (P4).

In the remaining part of this section, two *CommGroup* practices will be examined. In these practices, *Task Allocation* and *Communication*, the haziness of social-epistemic boundaries in particular was found to affect knowledge-sharing across *CommGroup*.

Social-epistemic barriers in task allocation: In contrast to the exploitative case studies, where task allocation is deemed unproblematic and based on occupational demarcation, in *CommGroup* task allocation is unanimously perceived as random and undetermined. When members join the team, they tend to have a general project assigned to them. But the incoming pieces of work are assigned by the Head of the Programme following different and not always clear criteria (could be fitted with previous projects, or skills, or availability). Interestingly, five out of the 13 members used the word "random" to describe the practice of task allocation; two characterized the practice as "not formal"; and finally one described the practice as "not logical or straightforward".

Two team features contribute to the perceived randomness of this practice. On the one hand, the innovative and less defined nature of the task makes any "logical and

straightforward” task allocation somewhat difficult (P2, Head of the Programme). On the other hand, the lack of clear social-epistemic ascription across team members makes identification and matching of work aspects problematic, with members having to rely on multiple and not always steady criteria to allocate team tasks.

And I think it's also that life isn't straightforward and logical and things come in and you think well we need to be involved in this but it's not obvious where it should go, so I'm going to send it to here because I have to send it to someone but, you know, it could equally have gone to someone else and we'll sort it out as we go. (P2, Head of the Programme).

Exploitative teams' concreteness of task and clear occupational demarcation visibly contrasts with *CommGroup's* indistinctiveness in both task and social-epistemic boundaries. As a result of these latter self-reinforcing characteristics, knowledge-sharing is inhibited in several ways. First and foremost, discretionary task-allocation increases knowledge barriers by reducing the visibility of both task and responsibilities amongst *CommGroup* members. This situation of low awareness generates “confusion” that in turn affects the anticipation of the value of knowledge-exchanges amongst team members. Second, such low level of awareness arises also outside the team with other members of the quango. Finally, the discretionary aspect of the practice limits and blurs team members' obligations and expectations in the team which are likely to influence the motivation to combine and exchange knowledge (Nahapiet & Ghoshal, 1998:255).

So what happens as a result is I've got a very clear idea of what my role is within the team but that isn't shared with the team, so we've got lots of team members thinking about lots of things that we're already working on, [and] individuals are already working on. (P4)

So...we end up with something that's a little less formal and as a consequence has a danger of creating confusion both in their minds and also in the minds of other members of the organisation looking at the team and saying who's dealing with what. (S4)

A bit random, (...) sometimes it feels a bit arbitrary and we are left wondering why and sometimes it does not happen in a clear cut way (S2)

In sum, social-epistemic barriers affect knowledge-sharing in *CommGroup* not because of apparent and unambiguous boundaries but rather because of indistinctive ones. Therefore, and paradoxically, in this team the very stringency of social-epistemic boundaries is based on their hazy natures. As a consequence, low visibility and awareness of other team members' tasks and responsibilities reduces the anticipation of value and motivation for future knowledge exchanges.

Social-epistemic barriers in communication: as aforementioned, team members seem to have high awareness of the differences that exist among them in terms of communication styles (see § 5.2.2.1). However, and in contrast to the evidence from the exploitative cases, the diffuse professional identity (and hence, the diffuse adoption of social epistemologies) makes it difficult to infer any professional affiliation from the enactment of this practice. Team members struggle to identify any collectively or occupationally driven pattern of communication, and tend to associate different styles with different individuals' personalities.

I've not made that distinction anyway in terms of, you know, peoples' backgrounds and certainly, you know, from a clinical or managerial position I haven't seen that, no. (S4)

I'm not sure whether I've noticed patterns. There's certainly, there's certainly some strong characters within the team with.... but I think, but I don't really see patterns, I'm not sure about patterns. (S5)

Team meeting and conference call observations give further support to this evidence, as little cues are deployed in communication so as to allow individuals to infer any kind of specific social-epistemology. The indistinctiveness of social-epistemic boundaries (what is

known, believed, and taken-for-granted) makes team members not attribute any affiliation or just attribute a fuzzy one.

Although we do have different backgrounds, we all tend to be sort of a managerial background within the NHS. (O1)

Nevertheless, when team members described differences in language they tended to associate them with either different expertises or diffuse social-epistemologies. Such association is usually in itself vague and depicts a limited understanding of other team members' frames of reference and schemata. This difficulty in identifying other frames of reference, in the context of producing communication, generates both misunderstandings and confusion among team members. However, as the quotes below seem to imply, at least in *CommGroup* the awareness of such diffuse differences makes team members more aware of the potential communication and knowledge-exchange problems.

I think the fact that we don't have, we don't use a common language I think is the biggest barrier, I think, because we're describing things in a different way, the same thing in a different way. (Mk1)

... we don't always talk the same language, but at least we notice that we don't talk the same language, so we do spend quite a lot of time explaining ourselves to each other but it tends to be outside the team meetings and it tends to help when there's somebody else joined us because we find ourselves explaining things to each other and finding that we haven't understood each other. (P4)

The haziness of social-epistemic boundaries is also perceived in the lack of doxastic states rooted in clear social-epistemologies. In other words, *CommGroup* members do not take for granted that other members' forms and means of communication are primarily rooted in any professional schemata. Rather, they tend to root them in individual preferences, reflecting personal rather than collective beliefs. This is most noticeable in the lack of stereotypes based on professional affiliation. In *CommGroup*, stereotypes (or stereotypical

judgments) are very rare in interviewees' narratives and only related to an individual psychometric exercise done in the past.⁶⁹

So we were all, we all have an idea of our preferred communicating and learning styles and preferred, you know, way of working. And so, for example, there are a few red, what we call red team members who are very directive, very assertive, very outspoken, very vocal, and who make no apology for that. And everybody, you know, we make a joke that they're having a red moment. I'm a blue which means I'm quite... I can be quite introverted and quiet, but very analytical and think things through, and so it's recognised that I might not always say something at the time but I'll go back and reflect on it. So I think, I suppose what I'm saying is that people do give consideration to peoples' personality types and that's strengthened by this Insights Profile that we had. (S3)

The colour thing. The way we refer to that now has become ritualistic, we're no longer thinking about what it really means and what we were supposed to use it for, we're using it as a way of kind of pigeonholing people, which is exactly what you're not supposed to do with it. (P4)

However, under the lack of any collective definition of normality (Abbott, 1988; Hughes, 1980), *CommGroup* members seem to be more aware of potential diffuse and subtle differences. They are also less limited by "inherent tenacity" (Fleck 1979, in Dougherty, 1992) of the thought worlds or occupational communities in their interpretations. As a result, they usually regard such differences as positive, especially for enhancing collective action.

...it's very collaborative and, I think it's collaborative and people have got a lot of expertise from different backgrounds that they can apply to, you know, to the situation. And actually it doesn't matter if it's NHS or non-NHS really, it's as applicable in my view and I think that's a tremendous strength of the team. (S1)

⁶⁹ The psychometric exercise done by the team is a preference-based system with its foundations in the work of Carl Jung. It uses colours as a common language for self-understanding, and interaction. Different colours indicate dominant or preferred individual style of thinking, working and communicating.

Practice	Main Characteristics	Knowledge Barriers	Resolution
Task allocation	Tasks are allocated following unclear criteria. Newness of task and hazy social-epistemic affiliation makes matching between work aspects and team members more difficult.	Social-epistemic aspects: 1) Indistinctive social-epistemic boundaries do not provide steady and visible criteria for allocating task. 2) Low awareness of others' responsibilities and tasks reduces anticipation of value of knowledge exchanges.	N/A
Communication	Communication is perceived as rich and fluid. Multiple channels of communication are used. Differences are perceived but not clearly rooted within any specific schemata.	Social-epistemic aspects: 1) Difficulty in identifying other frames of references, generates both misunderstandings and confusion across team members	Partial: lack of normality increase awareness of differences

Table 5.5: Exemplars of Social-epistemic Barriers

Therefore, as laid out in Table 5.5, the fuzzy nature of social-epistemic boundaries inhibits knowledge exchanges across *CommGroup* members. In the practice of task allocation, it reduces both the visibility of team members' tasks, and hence the anticipation of the value of exchanges between team members. In turn, it affects knowledge exchanges in communication to the extent that frames of references are difficult to infer, and, consequently, misunderstandings and confusion occur between team members.

5.2.2.4 Pragmatic barriers

In the previous chapter, pragmatic barriers were described as inhibiting knowledge-exchanges across team members because of the consequential character of the information and *knowledge-in-practice*. Such high indexicality and consequence awareness were

associated not only with some information characteristics (see § 4.2.2.3), but also with both the nature of the task and that of the occupational membership. In clear contrast, the stringency of pragmatic barriers – at least as they were portrayed for the exploitative teams – seems to be lessened in *CommGroup*. However, certain quango and team characteristics have induced the emergence of a different kind of pragmatic knowledge barriers, which will be analysed hereafter.

Initially, two task characteristics seem to reduce the stringency of pragmatic barriers at *CommGroup*. First, the innovative nature of task makes comparison with “equivalent” collectives (either inside or outside the quango) complex. Mutually the novelty and uniqueness of group tasks make it difficult to normalize; reducing the chances for external or internal comparison with other teams. Moreover, the very structure of the task, organized around very different and somewhat unconnected individual projects, makes a comparison with intra-group projects also arduous.

In addition, information and knowledge embedded in *CommGroup* practices are *conceptual* (hence not immediately related with the team practices enactment), and *aggregated* (general, do not point to specific group practices or behaviours). As analysed in the previous chapter, within exploitative teams information is indexical to the extent that it “describes” or “constates” some states of groups affairs. This constative characteristic logically explains both its consequentiality and contestability. In contrast, much of the information and knowledge embedded in *CommGroup* practices are, in Austin’s terms (1955), not truth-evaluable as they are not related to descriptive but rather normative and

performative information.⁷⁰ An example of such performative information is, most notably, the DoH white papers that inspire the team's main purpose and serve as general conceptual guidance to motivate its new innovations.⁷¹

Finally, the limited and diffuse occupational affiliation of *CommGroup* members also plays a role in lessening pragmatic barriers. This is, for example, noticeable in the practice of managing conflict, where limited occupational bonds and passing commitment seem to reduce the perception of the consequential character of conflicting knowledge on social-epistemic relationships (cf. Dawson et al., 1995). Consequently, and similar to managers in exploitative groups, conflict is perceived positively and open disagreement is seen as helpful among *CommGroup* members (i.e. an opportunity to air differences and change courses of action).

However, some diffuse elements at the pragmatic level do affect knowledge-exchanges at *CommGroup*. In the rest of this section, *Monitoring Progress* practice will be analysed as an exemplar of how different and diffuse arrangements at the pragmatic level may nonetheless hinder knowledge-sharing.

⁷⁰ One clear example of such a difference is to be found in the materiality of group practices. While in CD Boards, meetings are informed by a large number of lengthy documents (usually Excel spreadsheets and Word documents) with very concrete data about team different process and activities, in *CommGroup* meetings are scarcely informed, with only a few short documents (usually PowerPoint slides) with conceptual models and analysis.

⁷¹ Most of the DoH white papers that inspire *CommGroup*'s purpose and tasks can be analysed as statement of intent. As policy documents, they are designed to "raise ambitions" in areas and practices that have not yet been developed or fully implemented (DoH, 2007).

Pragmatic barriers in monitoring progress: *CommGroup* is confronted with a very small number of general and self-set metrics. As these metrics were self-defined from the moment that the group was established, they are currently perceived as not fit for purpose and as simply “paperwork” (P2, Head of the Programme). External accountability is rather limited, and as a collective *CommGroup* only provides aggregate information on the general progress of the programme both to the DoH and the quango executive board through three general indicators^{72 73}. Internally, monitoring progress is primarily carried out in two ways. First, project leaders periodically meet with the Head of the Programme (P2) and his deputy manager (S4) to assess the overall evolution of each project. Second, the team participates in weekly conference call meetings to provide a very brief update (usually no more than two minutes per member) on the progress and main challenges of the project.

CommGroup members largely agree on the formulaic nature of the formal aspects of this practice (i.e. the estimation and presentation of the group metrics to the quango executive board and the DoH), and its overall low forcibility and impact. In contrast to exploitative teams, where metrics and goals are externally mandated, in *CommGroup* metrics are self-referential and focus more on general process (and activities) rather than on outcomes. In the follow-up interviews, when asked about this latter point, team members agreed that measuring outcomes is complex. Two reasons seem to point to this idea: first, the

⁷² This general indicators were: 1) *Evidence-based approaches to improve performance* (measure by number of PCT using programme’s tools), 2) *Knowledge Share* (measure in similar way in relation to this project), and 3) *Extended offer* (measure by number of PCTs or PBCs who have taken up the Extended Offer tool).

⁷³ In the last quarter of my observation period, the quango formalized an organization level process to approve both future new projects and also ongoing ones. All *CommGroup* projects went through this process in late 2009 and their funding and continuity were approved. The projects were presented in front of the quango executive board, and followed the structure of a business case.

conceptual nature of the task (which is allegedly removed from operational and concrete practice) and, second, its pluri-causality (*CommGroup* interventions are only one factor among multiple factors that might affect the commissioning performance of PCTs).

It is hard to answer really. There are no kind of good measures, there are no real milestones that we have to meet. (Mk2)

Again we had to identify them [the metrics] right at the start [...] so before we really knew what we were doing, and we were looking for things which were going to be specifically measurable, which is tricky given that most of what we do isn't really measurable. [...] We're so far removed from operational activity and it's quite difficult to get any kind of cause and effect relationship. (P2, Head of the Programme)

But even for the more informal array of activities of this practice, such as the weekly conference calls, team members concur on its formulaic nature and the lack of forcibility. In my observation of these conference calls, very brief self-reporting and absenteeism signal the perceived low consequences of this practice and the information and knowledge embedded in it.

But the only way we currently monitor progress as a team is if we get asked to say how we're doing at a team call, and if you're not there you're not asked. So if a project isn't represented and nobody knows and it's entirely self-reporting, [then] there's no kind of checks and balances. I could be making it up and nobody would know. (P4)

...and I know we do have these weekly team calls but sometimes they could be pushed back and pushed back and pushed back and you can't hear anything about one, one area of the team for a few weeks. (P1)

As a consequence, the practice is perceived as meaningful only in its more reduced aspect: in the interaction between projects leads and the Head of the Programme.

Echoing many findings in professional literature (e.g. Scott, 1982), team members consider that part of being professionals is the ability to exercise self-control and regulation without the need for external bodies to monitor their projects. However, such internalized normative

structures are not immediately associated with any occupational collective, but rather are based on a diffuse idea of being “professional” and on an individual or career basis. In this vein, the gauging of the potential consequences is not done at the collective level but at the individual one. This more individualistic understanding of consequences has two concrete implications for knowledge-exchanges at a group level: low visibility across projects and reduced responsibility for team members, which in turn reduce the awareness and the anticipation of the significance of knowledge exchanges. Second, the lack of cross-checks blurs the understanding of obligations and affects expectations across team members.

I mean I know what I've spent and I know what stage my work is at and I know when my next deadlines are coming up, but they're mostly self-referential. (...) So I've told them when to expect things and therefore they expect things by those dates, but we don't, not every project has that and we don't do that as a team for all the projects, it's much more on an individual basis. So the individual project leader is accountable in some way but not to the rest of the team, it's much more individual than that. (P4)

Practice	Main Characteristics	Knowledge Barriers	Resolution
Monitoring progress	Very small number of self-set metrics. Limited external formal accountability and forcibility. Monitoring progress is done mainly at project level through regular encounters between team members and the Head of the Programme.	Pragmatic aspects: 1) Low forcibility of the practice does not encourage information sharing across project, 2) Consequently, this reduces the awareness of others team members' projects and their knowledge of specific areas.	Partial: only through brief self-reporting in weekly conference calls.

Table 5.6: Exemplars of Pragmatic Barriers

In sum, as shown in Table 5.6, limited accountability and forcibility of collective action reduce the incentives to share information among team members. The more individualistic approach in the understanding of consequences further reinforces knowledge boundaries around a project, as it is perceived that project leaders are only accountable to the Head of

the Programme. Together with this reduced visibility between projects, the lack of cross-checks blurs the understanding of mutual obligations among team members.

5.2.2.5 Structural barriers

Previous sections have analysed how both the enactment of group practices and the structural conditions of embeddedness have a mutually affecting impact on knowledge sharing. In most of the cases, while the analysis has primarily focused on the practices *per se* it was done without omitting the most salient structural features. In order to complement this study, and in the vein of previous sections (e.g. §§ 4.2.2.4, 4.3.2.4), the analysis of structural conditions will focus hereafter on the unacknowledged and less recognized structural aspects.

Three initial observations of *CommGroup* are most striking on this respect. First, most of the team members had considerable work experience, with responsibilities that usually spanned former teams or even organizations boundaries. However, in *CommGroup* their roles are very much focused on each individual project and somewhat secluded from relations with external stakeholders.

One of the things that surprised me about this team is the extent to which it, the majority of interaction that the team has is with other team members, so it has less external meeting points with things, you know, people like Primary Care Trusts or hospitals, etc. So it tends to have quite an inward-focus in many ways. (O1)

Second, team members' narratives highlight the lack of restriction for innovation projects. Yet, they also emphasize the need to gain and regain political support from the external

stakeholders (mainly through the Head of the Programme's agency).⁷⁴ Finally, and very much related to the previous point, there is a sense of organizational and project fragility. In contrast to CDs, where many times even a bad performance does not bring any team or service to a conclusion, vulnerability and high dependence toward informal political networks is a recognized feature in the quango.

... this is a very fragile type of organisation. Nobody comes in to an arm's length body like this expecting it to last very long, and so the fact that our team is still here is a measure of success (S5)

I think the organisation is very fragile because we're undergoing significant change in many different dimensions at the same time. So there's a change in sponsorship arrangements, so moving from being sponsored by the Department to being sponsored by the SHAs, there's a change therefore in the accountability arrangements. There's a change in focus from being much, from being essentially a sort of theoretical product development agency to being a practical delivery organisation... (P2, Head of the Programme)

Analysing these features would be misleading without considering the dominant effect of structural constraints on the quango. As a fairly new organization, the quango is loosely embedded in the NHS structure. Hence, the main role of quango executive board members and the five head of the programmes is to engage in vertical exchanges (especially with key stakeholders in the DoH and NHS) in order to persuade them to support the quango and its programmes and projects, and to lobby for resources (cf. Ancona & Caldwell, 1992).

This characteristic defines, structurally speaking, two levels⁷⁵ of membership at *CommGroup*. At one level, there is the Head of the Programme, who has access to the ruling power elite in the NHS, and hence to both privileged information and a broad range of political opinions. At another level, there are other *CommGroup* members who have very

⁷⁴ To the extent that innovation is considered a translation from general policies to concrete innovative outcomes, they need the political endorsement of the original policy sources.

⁷⁵ Level is here defined as a set of "social positions that have a similar command of resources and access to capital (including social capital)" (Lin, 2001:168).

limited or no access to such elites, and while they manage a broad range of theoretical and conceptual information, do not have direct access to political sources.

We take our information from the senior team and what comes out of the link directly from these meeting. (Mk2)

I think the main one is [Head of the Programme's] conversations with the very senior people that he meets, because he meets more senior people than we meet. Or [Head of the Programme] will have a conversation with a Chief Executive or a Director at a Strategic Health Authority and say we're thinking of doing X, Y and Z, and the reaction that he gets back from them will in turn inform whether we go ahead or not. (S5)

Finally, there are two further impacts of these structural constraints on *CommGroup*. First, as already mentioned only the Head of the Programme has access to further up levels. As a consequence, and in contrast to CD Boards, bypassing or circumventing the team is extremely rare. Second, the differentiated nature of the informational exchanges both among team members and between the Head of the Programme and the power elites establish two types of knowledge. While team members' information is more conceptual and referential, information and knowledge held by the Head of the Programme is political and relational (this distinction will be further expanded below).

In the rest of the current section the analysis will focus on knowledge barriers that emerge from these structural features in the practice of *Using Information*.

Structural barriers using information: In §5.3.2.4 some of the characteristics of information embedded in *CommGroup* practices were analysed. Two primary points were highlighted: their *conceptual* and *aggregated* nature. This conclusion can be complemented with a topical analysis as information embedded in practices can be related to two main

themes. The first topical area may be preliminarily labelled as *project-related* to the extent that it is associated to innovation theories, concepts, activities, practices, etc. The second topical area may be labelled as *political-related* to the extent that it refers to information concerning social networks and interactions, especially those of power elites (the DoH, SHA, PCTs, and quango executive boards). While in the former area, the concept of information and knowledge is a substantialising one, for the latter the concept is mainly a relational one.

These two kinds of information not only provide the team with referential content but also with terms of interpretation. From the observation of *CommGroup* meetings, it follows that *political-related* information provides frameworks for evaluation and prognosis. Instead, *project-related* information provides both general terms of interpretation and referential content for projects. Finally, as was suggested in previous sections, *project-related* information provides very loose terms of interpretation.⁷⁶

The asymmetrical access to, and command of, these two kinds of information reinforce a two-level membership (and related activities). A *project-related* membership seems to inform team members developing and delivering innovative projects, while a *political-related* one seems to inform Head of the Programme negotiating and securing support for the projects. But at the same time, the asymmetrical access increase team members' uncertainty, and the general sense of fragility. The opacity and esoteric nature of *political-*

⁷⁶ Though the quango favoured the adoption of the work process methodology as a boundary object and as a script for managing information, its irregular adoption across team members has somewhat reduced its impact.

related information brought by the Head of the Programme only reinforces this perception.⁷⁷

This structural feature inhibits knowledge sharing and integration. The asymmetry in the distribution of information and the lack of shared understandings, due to this double nature of information, affect knowledge exchanges by increasing general uncertainty. This also increases the indistinctiveness and instability of meanings as *project-related* knowledge can be easily re-signified or even rejected by *political-related* information.

I've sometimes been surprised [by] how difficult people sometimes find it to deal with the ambiguity, but I think we're operating in a very ambiguous situation and I think that I haven't always taken account fully of how difficult some people find that, that people want a bit more certainty and I think we just haven't really been able to have that. (P2, Head of the Programme)

And the other thing that surprised me is just the extent to which the purpose and work plan of the team seems to keep being reinvented and it can change course quite often and not necessarily for clearly explained reasons (O1)

However, a partial resolution is to be found in the case of structural barriers. The Head of the Programme usually spends 30 minutes in each weekly conference call just going through his diary for the previous week and sharing it with the rest of the team. He usually focuses on his meetings with key stakeholders, sharing his ideas and impressions from those encounters. The rest of the team engaged in a sort of exegetic interaction, usually by asking questions and trying to draw possible consequences for each individual project.

⁷⁷ In the last meeting chaired by S4, the whole team spent almost an hour in trying to formalize, and even draw S4's network. They even asked him to introduce his contacts to them. They tried to capture such relational knowledge by systematically asking 1) who is who, 2) type of relationship, 3) frequency of interactions, 4) expected outcomes and support expected in each relationship, 5) who is the leader in the different external networks, etc. Such opacity and high dependence were explicitly highlighted in this last meeting, and epitomized with questions such as "are we left exposed after your departure?"(S1)

Practice	Main Characteristics	Knowledge Barriers	Resolution
Using information	Information is conceptual and aggregated. Topically, it is centred around two themes: <i>project-related</i> and <i>political-related</i> . The latter distinction is related to asymmetrical access and command among CommGroup members	<ol style="list-style-type: none"> 1) Asymmetrical distribution of information across team members 2) Increased uncertainty both on individual projects and on the Programme 	Institutionalized sharing information process between the Head of Programme and the rest of the team (on weekly basis).

Table 5.7: Exemplars of Structural Barriers

In sum, as table 5.7 summarizes, structural barriers are related to the existence of two levels of membership in *CommGroup*. The Head of the Programme has a greater command of resources and access to social capital (in this case, power elites). As a result there is an asymmetrical distribution of *political-related* information across the team, which in turn increases instability and haziness of meanings of more *project-related* information.

5.2.3 Conclusions

The cross-practice analysis in *CommGroup* has revealed a new class of barrier affecting knowledge-sharing (i.e. physical one). In addition, it has depicted similarities in classes for the other four barriers vis-à-vis that of the exploitative cases (i.e. cognitive, social-epistemic, pragmatic, and structural). However, a closer analysis of such classes of knowledge barriers reveals profound differences in some constitutive elements. In other terms, even within the same class of knowledge barrier different configurations of elements were found. Such findings help understand the roles of context and nature of task on

differently conditioning group practices enactment and embedded knowledge-exchanges. In addition, they might equally indicate a complex and even equifinal nature of the analysed emergent categories. This becomes particularly evident in the case of social-epistemic barriers. While clearly defined social-epistemic boundaries across team members pose some challenges for knowledge-sharing in exploitative teams, so does the very haziness of social-epistemic boundaries for *CommGroup* members.⁷⁸

Furthermore, in analysing these five knowledge barriers in *CommGroup*, a semantic consistency emerged. Many practices are deemed spatial-temporally displaced, as located and occurring in outer networks and locales. This is clearly the case of practices with a strong asymmetrical agency and participation of external stakeholders (such as *Purpose Definition*, *Priority Setting*, *Use of Information*, etc). However, in contrast to exploitative teams, the perception of such displacement is diffuse. That is, many practices are enacted outside the team (both as a collective and as a symbolic space), yet the knowledge about where / when actually occur is vague and limited for most of the *CommGroup* members. Such diffuse perception is further reinforced by the fact that the quango *does not provide / it is not recognized as* a referential and stable locale, as it provides only spatial-temporal limited interactional spaces for enacting practices. Moreover, there is no such a deontic displacement perception as in previous cases (specifically *AcuGroup*), as the boundaries of what is permitted, obligatory and forbidden are vague. This perception is based on personal judgements rather than on collective bindings, as is the case of exploitative teams.

⁷⁸ Fiss (2007:1181), based on previous configurational theorists' arguments, describes how equifinality is related to "complex non linear relationships across the elements that constitute the categories with some elements being unrelated and even inversely related".

5.3 Case 4, SaferGroup

Following the replication approach described in § 3.3 and applied in the previous chapter, in this section I will analyse the second explorative team, *SaferGroup*. Embedded in similar structural and organisational conditions to *CommGroup*, *SaferGroup* presents many commonalities in terms of knowledge barriers at the group level. However, as this section will make clear, there are also differences in degree between the two explorative cases, which are partially attributable to differences in the type of task, leadership, and team members' identities. This section will begin by identifying the most salient characteristics of the group. It will then go on to analyse the five emergent classes of knowledge barriers, drawing on the consequences which a particular enactment of practices will have on knowledge-exchanges. Finally, it will conclude by briefly highlighting some salient findings for the explorative teams. As in the previous chapter, and for the sake of brevity, the analysis will particularly focus on distinctive aspects and conditions, although it will still draw attention to the aforementioned commonalities.

5.3.1 Introduction

The *SaferGroup* emerged in July 2007 as a direct response by the quango to the DoH report “*Safety First*”, which was published in December 2006. This report, commissioned by the NHS Chief Medical Officer, highlighted the fact that not enough “has been made of opportunities for achieving real ‘on the ground’ improvements across the NHS” in terms of safe care (Carruthers & Philip, 2006). Initially the quango was given a remit to design and

launch a national patient safety campaign which would inform and motivate clinical staff both to provide safer healthcare, and to collaborate with Medical Royal Colleges in educational and training initiatives that would support patient safety (Quango Internal document, 2009). To the extent that the *SaferGroup* was specifically set up to respond to the concrete challenges outlined in the report, it has a clear frame of reference for defining its general purpose and its main innovations and activities.

In this vein, the team has launched a series of different tools to provide education and training for building capacities and capabilities across the NHS to reduce unintentional harm to patients. Examples of its projects include '*Human factors*' (both a scoping study and an educational project trying to increase the understanding of the characteristics of human interactions with technical systems); the '*Improvement in Patient Safety*' (a programme for acute care to help embed a culture of safety improvement in organizations); and, the '*Trigger tools*' (a series of tools for conducting rapid structured reviews to measure the rate of harm in healthcare).

At the organisational level, *SaferGroup* was also affected by the revision of quango's funding structure. If the new scheme were to be implemented, *SaferGroup's* members would have to sell the team's products and charge for participating in educational programmes. However, and in contrast to *CommGroup*, this potential change did not spark – or increase – uncertainty among team members. Three reasons might explain this difference. First, in contrast to the previous group, *SaferGroup* has a much larger and diversified audience (not only commissioners, but potentially all healthcare staff in

primary, secondary, and tertiary care). Second, the programme is considered not only one of the quango's "flagships", but also "high" in the DoH political agenda, as it addresses visible and salient NHS challenges. Finally, the fact that many projects were already in the delivery stage, and hence that their outcomes were well tested and adopted, seemed to have strengthened group members' confidence.

At the group level, there were two salient situations. On the one hand, although many of the team members joined *SaferGroup* expecting to work in multiple projects and in close collaboration with other team members, in practice they work separately on each individual project with little formal or informal collaboration between them. This compartmentalized task organization, around somewhat disconnected projects, has toughened projects' boundaries and reduced visibility between them.

I was expecting to be working on several projects with people but instead, as I say, the fact [is that] we all work very much in silos... I wasn't really expecting that. (N11)

On the other hand, although the Programme still has some projects in the ideational phase, most of them have reached the delivery phase. As mentioned above, having tested and adopted deliverables has increased team members' confidence on the future of the programme. However, in team members' narrative there is also a perception that the pace of innovation is noticeably slowing down and this situation is perceived somewhat at odds with the innovative character of the quango and its tools.

So I never feel that we've used the work process methodology effectively and I think subsequent members of the team coming in, my view is that they've struggled to use it at all. Because we're so far down the methodology, we're at the design delivery stage and we've almost been there from the beginning of the programme, so to go back and understand and reframe and develop concepts has been, to me, virtually impossible. (S6)

In terms of group composition, just as with the previous group, the number of team members has grown as each new tool or service has been developed. In most of the cases, each new employee has had the responsibility of not only developing the new service but also delivering it. Therefore, it is not unusual for the same person to remain in charge of delivery of a service or tool following its initial launch (see the team chart in Figure 5.2). Another similarity to *CommGroup* is that *SaferGroup* is led by the Head of the Programme (S8). She was in charge of defining the team's main purpose and tasks at its inception; and she is currently accountable for the overall team performance. She also acts as the main liaison officer between *SaferGroup* and both the directors of the quango and key external stakeholders (PCTs, Trusts, Royal Colleges, and other institutions). Finally, both teams apply similar employment arrangements, in terms of type of contracts and ways of working. What is different in this group vis-à-vis *CommGroup* is the closer collaboration with a group of clinicians (the so called *Safety Improvement Faculty*), who help to deliver some of the tools and services through workshops and seminars. The initial criterion for this strategy was to reduce potential resistance that medical staff in hospitals and Royal Colleges would have had with non-medical interlocutors.

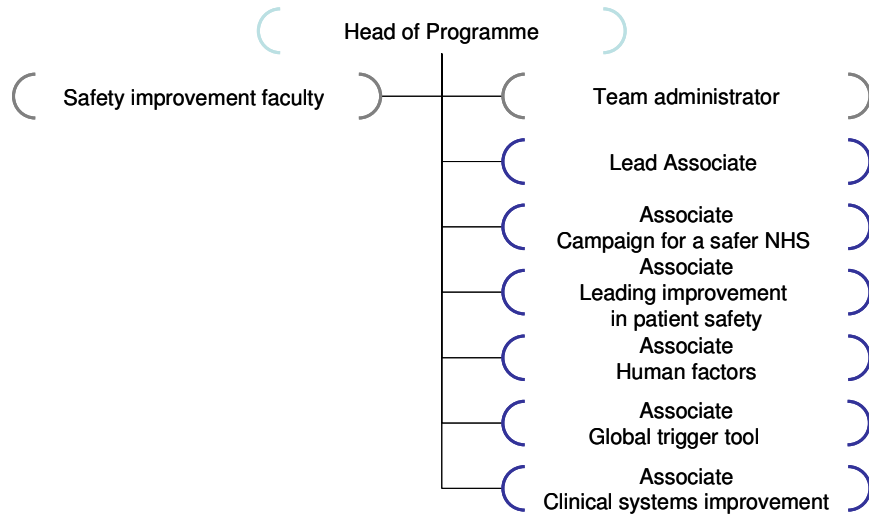


Figure 5.2: SaferGroup organizational chart

Table 5.8 summarizes *SaferGroup*'s membership characteristics. At the time of the study there were 8 active members. The average tenure for the group as of July 2009 was 14.87 months (SD = 5.76 months), and the average length of work experience in years at the same point in time was 16.28 years (SD = 4.57 years). Tenure in the team is fairly homogenous as most of the team members joined *SaferGroup* from different NHS organizations or the private sector when the team was established. Moreover, in contrast to *CommGroup*, the relatively low standard deviation of team members' length of work experience reflects how the team is mostly composed of experienced members, and there is not a group of young professionals in assistantship roles.

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Current Occupational community/ Informants	Total work experience (in years)	Tenure in the team (in months, until Jul 09)	Motives to join the team	Initial attitude towards the team (fav., neutral, unfav.)	Any previous cross-occupational experience
Business management: B1	12	18	Career change	Neutral	Yes (education and work: telecom engineer)
Communications: C1	12	06	Job opportunity	Favourable	Yes (work: private and public sector)
Nursing: N11	13	13	Job opportunity	Favourable	Yes (work experience in NHS Trusts as nurse)
N12	20	20	DK-3	Favourable	Yes (work experience in NHS Trusts as nurse)
Organizational Development: O2	24	15	Job opportunity	Favourable	Yes (pharmacist, work experience)
Service Improvement: S6	18	20	Challenge position	Favourable	Yes (nursing, educational and work experience)
S7	15	07	Development of expertise in Change Management	Favourable	Yes (nursing, educational and work experience)
S8	Dk-1	20	Dk-1	Dk-1	Yes (physiotherapist, educational and work)

Dk: Don't know; Dk-1: question not asked; DK-2: asked but not answered (strayed from question, didn't know the answer) Dk-3: ambiguous answer

Table 5.8: SaferGroup membership characteristics

Lying somewhere in between the exploitative cases and *CommGroup*, most *SaferGroup* members present both a clearer occupational ascription and a self-identification with an area of expertise – e.g. “nurse” with “service improvement experience” (S7). The saliency of professional background and original occupational affiliation in *SaferGroup* is a clear

contrasting feature vis-à-vis *CommGroup*. Consequently, most team members seem to present a clear awareness of others' background and affiliation, and possible areas of expertise. This hybrid configuration of identities (neither purely based on occupational affiliation nor on an area of expertise) has had a distinctive impact on the enactment of *SaferGroup* practices, as will be analysed in § 5.3.2.3. Suffice it to say here that such original affiliation is used as main informal criteria for the team's internal stratification (understood as a hierarchical arrangement of members) even though it is still recognized that in the quango there seems to be less hegemonic control from certain professions, and a more diffuse demarcation.

Moreover, in the [quango] there is no a clear professional identity, at least as in the hospital. We do not have such strong identity... (S6)

I don't ever forget I'm a pharmacist but I, it's not in the, it's certainly not at the top of my mind about the fact that I'm a pharmacist, it's just some, it's just a set of skills that I bring with me that are just very useful.... (O2)

I think people know where people came from. I think there is less respect for people who don't come from a medical background. So [B1] isn't a medical person and yet she has Lean experience, she has six sigma experience, she has product methodology experience, and that isn't tapped in to. (C1)

Finally, as for the motives for joining the group, in most cases *SaferGroup's* members described their motivation as job, learning, or career opportunity. In many cases, it also encompassed an initial perception of career challenge. The innovative and national scope of the quango in general, and the programme in particular, were considered a big element of such a challenge. The initial attitude towards the team is almost totally favourable, with the exception of B1 for whom it was neutral.

5.3.2 Knowledge barriers in SaferGroup practices

From the analysis thus far, four common classes of knowledge barriers have emerged. This analysis has also depicted a fifth class of barrier as primarily affecting the explorative cases, based on the distinctive physical placement of their group practices. In the remaining part of this chapter, and drawing upon the enactment of group practices, I will more specifically analyse *physical*, *cognitive*, *social-epistemic*, *pragmatic*, and *structural* barriers for sharing knowledge in *SaferGroup*. Many of the group practices, and their enactments, bear a resemblance to that of *CommGroup*. However, as the analysis below suggests, certain task and projects characteristics, a secluded leadership, and team members' multiple identities seem to have softened some knowledge barriers, but strengthened others.

5.3.2.1 Physical barriers

Some previously mentioned characteristics of the quango (location, remote working, and hot-desking) led to a description of the physical placement where group practices occur as dispersed. This is so insofar as the quango facilities seem to provide team members only with an interactional space (Lyman & Scott, 1967) characterized by its brevity and protean nature (i.e. only two days a week, and continually mutable as people are not usually seated in the same place). As such, dispersed placement becomes a social gathering area conditioned by continuous reconfigurations of its physical boundaries of interactions.

The fact that the team don't sit together physically and aren't always in the same place surprises me.
(C1)

What makes these physical characteristics of even greater importance for *SaferGroup* members is not only the limited physical proximity between team members but also the virtual physical absence of the leader. Consequently, the difficulties that team members encounter in meeting the Head of the Programme only increase the challenges in terms of knowledge exchanges in *SaferGroup*. While having an impact on many practices, its negative effect is most salient for the case of decision-making as analysed below.

[The Head of the Programme], for my first thirty days, was in the office one day and I wasn't in the office that day. So I have never met with [Head of the Programme] other than a brief twenty-minute chat before I started. (C1)⁷⁹

Physical barriers in decision-making: In *SaferGroup*, decisions are primarily made by the Head of the Programme both at the Programme and at the Project level. Such a highly centralized decision-making process includes decisions on very concrete and even mundane project details, which need to be presented by each project leader to the Head of the Programme for final approval. With the exception of O2 and S6, who have more leeway for decision making,⁸⁰ the rest of the team members need to constantly refer back to her. This pronounced asymmetry in term of agency is disapproved of by most team members, but ultimately accepted or tolerated because of the perceived political pressure that exists over the Head of the Programme.

⁷⁹ This description coincides with my own experience. After numerous failures and cancellations of interviews, I could only have a brief phone interview only 5 months after starting my fieldwork with this group.

⁸⁰ When asked about these situations, they implicitly referred to their seniority, but also to the fact that they have been able to internalize S8's ways of thinking and making decisions. As S6 described "I've spent a long time working with [The Head of the Programme] to understand how she operates and have found my way of coping with that management style". Similarly, O2 noted, "I've asked [The Head of the Programme] to have a meeting just to have a conversation, not decisions, just for a conversation to catch up with where she is in her thinking. Because unless I'm inline with her thinking I can't,I get stuck as well because I don't know what [The Head of the Programme] thinks".

I suppose [The Head of the Programme] on the whole has the final say. There's some things we could make decisions on but a lot of things we would have to check back with [The Head of the Programme]. I think that's the way she manages really, which I think some of us find quite different probably from previously. Because I mean we're all at a certain level and we've all, I suppose if you translate our level into an organisation, you know, I've been managing staff of three hundred and fifty people and a budget of several million and I just had to be responsible for it, yet here I don't manage anyone, I have no real budget. I have a small, you know, I'm told what my budget is and what I can spend against but what it comes down to, I don't really think I have the way forward to say yes or no, I tend to have to keep checking back with [The Head of the Programme]. So there's an awful lot of crosschecking. So we might make a decision but [The Head of the Programme] has the casting vote really. (N11)

Such centralized and asymmetrical agency further reinforces physical barriers and inhibits knowledge exchanges in several ways. First, and most immediately, the very limited physical presence and proximity of the Head of the Programme affect the timely enactment of knowledge exchanges. Second, it also affects the scope of such knowledge exchanges, as when discussions actually occur between S8 and her project leaders they are usually very brief. Third, it erodes the motivation to share knowledge outside the dyadic relationship between Head of the Programme and each associate.

And what I think is difficult with the remote working, and I think it's worsened by the hot desks, is a lot of decisions, the final person who has the say is [The Head of the Programme], and sometimes you can work on something, check back, check back, check back, work on something and check back, and then at the last moment oh no, we're not doing that now. And that's very frustrating. (N12)

...it can restrict people so much that they become deskilled (...). Because I think at the level we work at now, the money we're paid, the experience that most of us have, we should feel that we are leaders within our own rights and should be able to employ our own staff, manage them and make decisions about projects but know when, you know, the line of accountability stops there. (S6)

As the above quotations allude to, the overall situation appears not only to reduce the likelihood of and motivation for knowledge exchanges between team members, but also undermines the general status of the team as a collective in which such knowledge might be

shared. Moreover, in the same way as members of *CommGroup*, team members at *SaferGroup* tend to exculpate such situations under a similar justificatory statement: the fragility and high level of political exposure of the quango and its programmes explain the asymmetrical agency when making decision even at the project level.

... I feel I have to ask permission rather than inform. So it's getting used to a different way of working, but I think probably a lot of it is because we are a national body, [which means] that we are so accountable to so many people, it's, you know, that we have to be seen to be doing the right thing, we have to please, you know, the Department of Health and, you know, so politically it's a very, you know, it's a minefield really. (N11)

Practice	Main Characteristics	Knowledge Barriers	Resolution
Decision-making	Centralized process of decision-making around Head of the Programme figure. Team level decisions are solely made by the Head of the Programme. As for Project level decision, project leaders can endorse alternatives but final approval depends on the Head of the Programme.	Physical aspects: 1) Limited physical proximity of team members, and physical absence of head of the Programme limits and delay knowledge exchanges. 2) Low level of awareness of decisions across projects.	N/A

Table 5.9: Exemplars of Physical Barriers

Therefore, as Table 5.9 summarizes, the lack of physical proximity among team members and the physical absence of the Head of the Programme inhibit knowledge exchanges at the group level. Moreover, these physical characteristics in conjunction with an asymmetrical agency of this practice (characterized by a very centralized decision-making process around the Head of the Programme) only reinforce such knowledge barriers. Yet, very much in contrast to *CommGroup* where some boundary technologies were launched in order to minimize physical barriers, in *SaferGroup* the use of such boundary spanning objects is rather limited.

5.3.2.2 Cognitive barriers

In the previous chapter cognitive barriers were defined as barriers that inhibit knowledge sharing in cross-occupational groups that are related to processes of cognition but not specifically connected to a particular social-epistemology. For the two exploitative groups (*AcuGroup* and *MedGroup*), these cognitive barriers were found to be profoundly affected by both organizational and informational ambiguity. In the case of the first explorative group analysed (*CommGroup*), cognitive barriers were found to be conditioned by political, organizational, and informational uncertainty and vagueness. *SaferCare* is significantly different to the previous three cases. And so the stringency of the cognitive barriers, as it will be analysed below.

On the one hand, having a low number of clearly identified external stakeholders and more closely aligned priorities helps to reduce the semantic indeterminacy found in the exploitative groups. On the other hand, having both more concrete guidance from the DoH and the Institute for Healthcare Improvement (IHI) in the USA⁸¹ (an external organization that serves as a model and inspiration for many concrete team projects) helps to reduce the *de re* indeterminacy found in the *CommGroup*. Furthermore, the fact that safer care is perceived as a high priority in the NHS political agenda reinforces the certainty about the future of the programme, its projects and goals. These characteristics seem to reduce the overall stringency of cognitive barriers, both in terms of ambiguity and uncertainty.

⁸¹ The IHI is an independent not-for-profit organization helping to lead the improvement of health care internationally. Founded in 1991 and based in Cambridge, Massachusetts (US), the IHI's goals are "to accelerate improvement by building the will for change, cultivating promising concepts for improving patient care, and helping health care systems put those ideas into action." (IHI, 2010)

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So then the Department of Health in Patient Safety First came out with a couple of other recommendations and we were specifically charged with doing those. And that's around working with Royal Colleges so to get the capacity and capability, and taking part in this campaign. So they're the kind of two big things. And then [The Head of the Programme] worked out possibly with others, I wasn't here then, you'd have to ask her, she then worked out what it would take to get us a big step towards that. (O2)

However, cognitive barriers were found in *SaferGroup* related to the way practices were enacted. In the remaining part of this section one practice, *Priority-setting*, will be analysed as exemplar of the consequential nature of the distribution of agency in practice on cognitive barriers.

Cognitive barriers in priority-setting: As the above quotation highlights, priorities are externally driven by a few clearly identified stakeholders. In contrast to exploitative teams, there are fewer priorities, and these are more compatible. Moreover, rather than multiple, competing, and non-dominating frame of references, *SaferGroup* has a more unified frame of reference, which is fruit of its close affiliation with (and hence accountability to) the DoH. In addition, and contrary to the previous explorative case, the policies and guidance which emanated from the DoH are much more concrete and less removed from clinical practice.

Initially the presence of these three overall priority characteristics (low number, internal consistency, and more concrete nature) would seem to indicate a lower stringency of cognitive barriers in *SaferGroup* vis-à-vis the previous analysed cases. However, uncertainty persists across *SaferGroup* members:

[Priorities are set by the Head of the Programme], and I have no idea how, I don't know. I suppose... ideally they're probably... I mean my assumption is [that] she makes the decision on the whole but I'm assuming that actually they've got to align to, you know, the government things, the priorities for

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the [quango], and then now those very much will align with the Strategic Health Authorities and, as I say, ultimately sort of our clients almost. You know, we've got to match sort of government and almost what they want because there is no point us doing things if no one wants it, so we've got to very much align with the people who are going to be using the tools. (N11)

There's no formal way of the priorities being set, we don't have a programme plan, a project plan, we don't have regular review meetings or feedback. We tend to, it's whatever's being shouted around us at the time. [...] I mean [the Head of the Programme] is the project manager for the team and her personality type is introverted so a lot of it's in her head and, you know, but that's just her style. (B1)

Like in the previous case, in *SaferGroup* only the Head of the Programme has access to key external stakeholders (usually power elite in the NHS), and thus she is the only individual able to negotiate priorities. While such a pronounced asymmetry in levels of agency is a feature which is common with the previous case, the almost nonexistent communication between the Head of the Programme and the other team members on the results of such exchanges is a unique characteristic of this group. While still esoteric, in *CommGroup* the accounts provided by the Head of the Programme on his contacts with the power elite at least enable team members vicarious participation in this practice. In contrast, in *SaferGroup* the lack of communication about the nature of this practice deprives team members with such political information. At the acting level, this pronounced asymmetry forces team members to remain as non-agents. At the knowing level, it forces them to remain non-cognizant.

Accordingly, this pronounced esoterism seems to be possible due to the Head of the Programme' habit of regarding knowledge of the political and ruling elite as of her own domain. The little participation of the rest of the team is nonetheless an accepted, although not always agreed upon, aspect of this practice. Such a particular enactment has important consequences in terms of knowledge exchanges at the group level. First, although the

ultimate purpose and lasting priorities of the team are known by all team members, there remains uncertainty around operational priorities. Consequently, this situation increases the overall dependence of the team on the Head of the Programme and, by the same token, reduces the motivation to exchange knowledge among the rest of the team members. This situation is further exacerbated by the compartmentalized organization of projects. Second, it affects the anticipation of the value of knowledge exchanges, as the haphazard communication between the Head of the Programme and the rest of the team members makes anticipation difficult.

Practice	Main Characteristics	Knowledge Barriers	Resolution
Priority Setting	Priorities are externally driven by a small number of stakeholders. There are few priorities, and they are internally consistent. Key role for the Head of the Programme in negotiating more operational priorities. No agency for the rest of the team.	Cognitive aspects: 1) Uncertainty due to the esoteric character of priorities and the lack of communication from the Head of the Programme. 2) Reduce motivation to share knowledge across team members.	N/A

Table 5.10: Exemplars of Cognitive Barriers

As is summarized in Table 5.10, cognitive barriers primarily emerge from the high degree of uncertainty on team operational priorities. Both the content and process of negotiating priorities are esoteric for the entire group with the exception of the Head of the Programme. This situation further increases dependency of each team member on the Head of the Programme, and reduces motivation for sharing knowledge between them.

5.3.2.3 Social-epistemic barriers

Social-epistemic barriers in *SaferGroup* are notably influenced both by the aforementioned characteristics of the quango (namely, that it is removed from common NHS practices and has distinctive recruitment policies) and by a tenuous professional demarcation. This unique combination makes the case rather different to the previous explorative team. On the one hand, it is a common perception of team members that the quango, and so the team, is rather unique in that it is normatively less constrained by professional regulation. Moreover, hierarchies, roles and accountabilities, as traditionally experienced in the NHS by the team members, are blurred or inexistent in the quango. An example is that of *Managing Conflict*. At the same time as members deem the sharing of conflicting knowledge as negative, they perceived that there is more room than in other NHS settings to verbalize such conflict and disagreement.

And the team, the type of team is quite unusual actually in that they do tend to articulate those [values and beliefs] very readily, more readily than you might in many other teams. So there's not, there's not quite the same sense of, what's the word, deference and some sort of social norming, there isn't quite the same sort of social norming that there might be in a work environment, particularly where there were patients around or something like that. So it's less constrained, people feel less constrained and more able to articulate. (O2)

On the other hand, team members drawing on their past professional affiliation mimic “hospital” stratification and asymmetrical professional statuses. An example is that of *Communication*. As this practice will be analysed hereafter, it is sufficient to note here that *SaferGroup* presents internal “pecking orders” that affect knowledge exchanges in several

ways. In particular, these “pecking orders” guide the assessment of the epistemic legitimacy of team members’ knowledge based on past professional affiliation.

So I think that on one level you're better thought of if you're from a medical background, and second of all I think there's probably snobbery within each of those that, you know, a Matron is better than a nurse but maybe a nurse isn't as good as a pharmacist and, you know, maybe a pharmacist isn't as good as a doctor. So I think that there's this... “are you medical?” and then “what kind of medical are you?” (C1)

Social-epistemic barriers in communication: *SaferGroup* members mostly rely on informal contacts for communication, and the preferred channels are both electronic communication and informal meetings during on-calls days. In addition, team members are aware of the differences that exist between them when enacting this practice. Though they seem to fail to identify the origin of these differences (for instance, whether they are attributable to professional affiliation and rooted in communal practices, or related to personal characteristics). Physical barriers were also found to be affecting communication, as the lack of propinquity reduces the chances of direct interaction across team members. However, team members agree on the beneficial influence on communication of having a clear thematic and conceptual point of convergence among them and their different projects. Improving patient safety not only acts as such a point of convergence, but also provides both a common frame of reference and a motivational aspiration that helps to partially overcome communication conundrums.

As in the previous three analysed cases, the most immediately noticeable difference in communication for team members was the syntactic one. In other words, team members primarily perceive variation in terms of language. However such variation is not necessarily

related back to any specific social-epistemic ascription. Similarly to *CommGroup*, *SaferGroup* is embedded in an organizational context of blurred professional demarcation and hazy boundaries, and so team members are conscious that traditional NHS categorization is somewhat problematic. And while they might keep a loose identification with a corpus of professional knowledge, the team's placement in a new and different organisational context (that is, the quango) makes inferring a distinct identity challenging. As in *CommGroup*, this awareness seems to make team members more attentive to differences.

...we're all fish out of water [...] We have all had to reset our, you know, our measures of what's around us and who's around us and what their knowledge base is. So we've all had to reset, and so as a result of that there are sometimes just where we might use different language or different words that we don't understand, but I'd say we're quite an open team so if people don't understand something quite often they'll ask. (O2)

I think because even though we're all using our professional experience, we're all, I don't know why it's different, I just feel it's probably different because we're outside of a hospital setting, I suspect. (S7)

However to some extent, as the above quotations suggest, traditional social-epistemic boundaries are not entirely blurred in *SaferGroup*. Rather they seem to persist although re-embedded and relocated in a new and different organizational context. The fact that team members recognized that the context of communicating was detached from traditional NHS jurisdictions is not the same as saying that such jurisdictional boundaries do not exist. Strikingly, and in stark contrast to *CommGroup*, team members mimic stratification by drawing on dominance hierarchies of professions borrowed from other settings (that is hospitals). This *adopted order* can be partially explained by the close interaction that *SaferGroup* members have with professionals in traditional NHS arenas. As a result some

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team members seem to enjoy higher status than others (cf. Abbott, 1998), and this differentiated status seem to be based on previous professional affiliation.

But there's a, there is a power issue there. [...] I feel quite comfortable talking to doctors, I don't feel particularly intimidated by them. Whereas I know some of my colleagues, perhaps because of their previous experience working with the doctors in the hospital and their position in the team, sort of are not as comfortable. So for example some of the doctors always answer [The Head of the Programme's] emails, sometimes answer mine and never answer some of the others coming from other people in the team. (02)

The stratification considered so far affects communication and knowledge exchanges across team members in several ways. First, as describe above, it affects knowledge exchanges, as it guides the assessment of epistemic legitimacy of team members' knowledge based on past professional affiliation. Second, it clearly affects the access to other's members of the Programme (especially the doctors that works for Safety Improvement Faculty) for sharing information. Third, the combination of the previous two characteristics seems to affect motivations for sharing knowledge as it further discourages exchanges between particular team members. Finally, it affects the distribution of information across team members and limits the development of a set of common knowledge.

Practice	Main Characteristics	Knowledge Barriers	Resolution
Communication	Communication is perceived as appropriated. Multiple channel of communication are used. Difference are perceived but not clearly rooted within any specific schemata or personal trait. Yet past affiliation affect practice enactment.	Social-epistemic aspects: 1) Past professional affiliation main criteria for epistemic legitimacy assessment. 2) Past affiliation limits access to different sources and channels of communication.	N/A

Table 5.11: Exemplars of Social-epistemic Barriers

In sum, as laid out in Table 5.11, social-epistemic barriers inhibit knowledge exchanges in *SaferGroup* by guiding the assessment of epistemic legitimacy in communication, and limiting access to certain members of the team. Interesting, and differently to the exploitative cases, this assessment and stratification are not based on current social-epistemic affiliations, but rather on past ones.

5.3.2.4 Pragmatic barriers

Multiple organizational and task characteristics seem to reduce pragmatic barriers in *SaferGroup* as the practical consequences of *knowledge-in-practice* are not easily and immediately identifiable. This initially low indexicality, which is a common feature with *CommGroup*, is partially explained by the quango's removal from traditional NHS regimens of accountability. It is also a reflection of the innovative nature of the tasks the team undertakes – many projects are rather unique which in turn make comparability difficult. However, the asymmetry of agency and power between the Head of the Programme and the rest of team members found in many group practices has a clear impact at the pragmatic level. In other words, team members are aware of the consequential character of knowledge and information embedded in *SaferGroup* practices not with respect to either the group or their original occupational community, but rather to their own relationship with the Head of the Programme. In the remaining part of this section, two practices in which pragmatic barriers inhibit knowledge exchanges, *Monitoring Progress* and *Decision-Making*, will be analysed.

Pragmatic barriers in monitoring progress: Analysis of interviewees' narratives and observations of team meetings depict a similar practice to that of *CommGroup*. The programme in general, and each project in particular, has a small number of self-set goals and metrics. Moreover, the measurement and collection of progress information for projects and programmes is performed by *SaferGroup* member themselves. Under these general conditions of enactment, accountability is perceived as limited and consequentiality as low. This general understanding permeates most of the activities related to the practice. Externally, team members only provide very general information on the overall progress of the programme and its projects to the quango executive board through a series of self-defined metrics.

...and those are measures that we define ourselves at the beginning of the year to get measured on to see how effective we've been at the end of the year. Now if you know you're going to be measured on something and if you're going to get told off, not, you know, but if it's not going to not look great if you haven't achieved those objectives, you're obviously not going to make them very stretching, are you? So the ones that we set, we've usually achieved them after the first four weeks of the year or something, you know, they're, for me they're not stretching, they're not a challenge, some things. (B1)

In terms of monitoring, I don't think we have a strict enough, sort of a robust enough kind of way of monitoring how we're progressing. Each of us takes accountability of our own things, so I know whether something has slipped and has taken longer to deliver than I expect (O2)

As the quotations above indicate, such external aspects of the practice are considered as lacking rigor and forcibility. Initially, and under such general conditions, the enactment of the practice seems only to be guided by the self-control and self-regulation that being a professional, in its more general sense, entails (Scott, 1982). However, and in contrast to *CommGroup*, the pronounced asymmetry of agency and power between the Head of the Programme and team members replaces and reinforces what otherwise would have been characterized as low pragmatic barriers in the team. As described in previous sections, the

interference of the Head of the Programme in most of the team members' decisions and activities and her demands of continuous information draw the boundaries of accountability not at the collective level (as in the exploitative teams) nor at the individual level (as was the case for *CommGroup*) but at the dyadic level (that is, around the relationship between the Head of the Programme and each particular member of the team). This deep-centred exercise of power and demand for information is experienced by many team members as a sort of dyadic form of panoptism (cf. Foucault, 1980)⁸² which not only increases the consequential character of knowledge but also affects the very enactment of many practices.

We have weekly team meetings [..., and] if [The Head of the Programme] is there then I would say we tend to monitor progress, we go round and look at each project with each piece of work and how, and just give a briefing really on where we're up to with things. [... But] if [The Head of the Programme] isn't there then it's more about what team, other team members feel that they'd like to put on the agenda, which isn't always about progress on particular pieces of work, it may be something that's really upsetting them ... (S6)

Such an asymmetry between the Head of the Programmes and the rest of the team members does affect knowledge exchanges at *SaferGroup* at the pragmatic level. First, as accountability is perceived to be primarily related to the Head of the Programme, information sharing and knowledge exchanges across team member are not encouraged. Consequently, visibility and awareness of other knowledge and expertise is also reduced. Second, the dependence toward the Head of the Programme and the need for continuous reporting to her seem to increase the perception of interpersonal risk and consequences of openly speaking up (Edmondson, 2000). These open exchanges make the threat of the Head of the Programme's evaluation especially salient.

⁸² I acknowledge that in this context the understanding of panoptism is rather individualistic, which clearly contrasts with Foucault's historical and societal understanding of this concept.

Pragmatic barriers in decision-making: As was described in § 5.3.2.1, decision-making is a centralized practice with pronounced asymmetries in agency. Programme and team level decisions are solely made by the Head of the Programme. Project level decisions are endorsed by projects leaders but they need finally approval from the Head of the Programme. These characteristics of the practice increase the awareness of team members of the potential consequences of decisions, further reducing team members' willingness to make "un-consulted" ones. However, continuously referring back to the Head of the Programme is unattainable both because of the limited physical presence of the Head the Programme and her limited capacity to cope with numerous demands from every team member. As a result, as the quotations below suggest, team members struggle in defining internal rules on when to escalate decisions, based on this perceived consequentiality.

I think we all... I would say that I walk a fine line. I think because of my seniority, you know, and my experience, I feel that there is a reasonable expectation that I should be able to make decisions and work on a project in the way I, my piece of work, as I see best. But at the same time I think [The Head of the Programme] finds it hard..., if she doesn't know exactly what's going on, and so,...because [The Head of the Programme] is so busy you don't want to be bothering her with all the small things, but then every now and again you might get sort of tackled by [The Head of the Programme] about why don't I know about this, why wasn't I told about this or what's going on, and wanting to know all the minutiae. (N11)

We have got a bit of an internal rule, if it's going to go outside or it goes to somebody senior, we always make sure [The Head of the Programme] is happy with it. But quite often that she has to have signoff on small detailed things as well. (B1)

Consequently, knowledge-sharing across *SaferGroup* members is affected as continuous referrals to the Head of the Programme discourage communication between team members. Moreover, it increases the perception of an unsafe environment as un-consulted decisions can be penalized by the Head of the Programme. Furthermore, this perceived high

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consequentiality, together with the compartmentalized task structure, increases the seclusion of each associate within her/his own project.

Practice	Main Characteristics	Knowledge Barriers	Resolution
Monitoring progress	Very small number of self-set metrics. Limited external formal accountability and forcibility. However high internal accountability with the Head of the Programme.	Pragmatic aspects: 1) High accountability with the Head of the Programme does not encourage information-sharing across projects. 2) Perception of interpersonal risk reduces the willingness of sharing conflicting or critical knowledge.	N/A
Decision Making	Centralized process of decision-making around Head of the Programme. Team level decisions are solely made by the Head of the Programme. Project level decisions are endorsed by project leaders but need final approval from the Head of the Programme.	Pragmatic aspects: 1) Increased perception of unsafe internal environment 2) Increased seclusion within each project	N/A

Table 5.12: Exemplars of Pragmatic Barriers

Therefore, as shown in Table 5.12, high dependence and accountability towards the Head of the Programme increase the perception of group activities as not conducive to taking interpersonal risk (cf. Edmondson, 2002), especially for exchanges that can lead to the attention of and evaluation by S8. This situation further increases the seclusion of team members on their own projects and discourages knowledge exchanges across team members and projects.

5.3.2.5 Structural barriers

In the previous sections the analysis has found some commonalities in terms of knowledge barriers between the two explorative teams, which can be partially explained by the fact that the two teams are embedded in common structural conditions. However, in *SaferGroup* a different type of leadership and a more stabilized content of task have affected in different ways the enactment of some of the practices, and the knowledge exchanges embedded and located within them. These differences in degree are noticeable in the case of two structural conditions: organizational fragility and asymmetrical access to ruling power elites. As for the former, although the quango and its programmes have a precarious condition within the NHS, the content of *SaferGroup* projects – which are considered high in the DoH political agenda – reduces the perceived fragility of the programme. As for the latter, and unlike in *CommGroup*, asymmetrical access to NHS elites has been further exacerbated by a highly centralized and secluded type of leadership. As a result, political knowledge becomes extremely esoteric for all the team members with the exception of the Head of the Programme. In the rest of this section, an example of these different responses when facing similar structural conditions will be analysed for the case of *Using Information* within *SaferGroup*.

Structural barriers in using information: Information used by *SaferGroup* members comes from different channels and sources. Unlike *CommGroup* members, who seem to have a very “inward-focus” (O1), *SaferGroup* associates are exposed to a larger number of external sources of information. As many projects are already in the delivery phase, team

members frequently interact with the doctors, nurses and managers who attend their educational and training initiatives. Moreover, they frequently receive information from other external sources such as the IHI, and consulting firms (which are generally commissioned with particular studies or literature reviews). Consequently, most of the information received is qualitative (“anecdotal feedback”) and *project-related*.

I think we've had a lot of qualitative information about the impact of the work that we deliver, particularly in the acute sector. (S6)

Because we work so closely with the NHS staff, we really are very much guided by what they want, so everything that we produce goes through a testing process of some kind. So, for example, while I'm at the campaign now, every document that I produce, I send it out to a number of people actually in hospitals who are the target audience to say this is aimed at your group, can you tell me what you think, you know, and then they will feed back to me about what they like about it or why they think it won't be appropriate for that audience or what they think needs changing. (S7)

However, similarly to *CommGroup*, *project-related* information can be re-signified or negated by information that is *political-related*. And while *project-related* information is distributed among team members, *political-related* information is primarily held by the Head of the Programme, who is the only one with access to NHS elites (mainly DoH, Royal Colleges, and quango executive boards). This structural condition – namely, the restricted access to and knowledge of more senior decision-making levels – makes *political-related* information esoteric and opaque in *SaferGroup*. Furthermore, the lack of institutionalized opportunities for sharing such knowledge and information, which exist in the *CommGroup* team, further reinforce two-level membership as a structural characteristic of the team. It is only through personal encounters with the Head of the Programme that team members become aware of both the content and potential consequences of such information for their own projects.

This asymmetrical access to information has some consequences for the integration and sharing of knowledge at the individual and group levels. At the individual level, it deprives *SaferGroup* members of contextual information, increasing uncertainty around some aspects of their projects (a similar point can be found in § 5.3.2.2). At the group level, it inhibits the development of a common understanding of and appreciation for the programme’s context, as *project-related* information is mostly specific to each project and *political-related* information is communicated by the Head of the Programme on an individual basis. Overall, and echoing many scholars’ conclusions (for instance Boisot, 1995; Boland & Tenkasi, 1995), the lack of such a sharing context inhibits both meaningful communication and knowledge-sharing between these diverse parties (Nahapiet and Ghoshal, 1998).

Practice	Main Characteristics	Knowledge Barriers	Resolution
Using information	Information is conceptual and aggregated, yet it usually entails clear guidance. Multiple external sources. Typically, it is centred around two themes: <i>project-related</i> and <i>political-related</i> . The latter information is primarily held by the Head of the Programme.	Structural aspects: 1) Asymmetrical distribution of information among team members. 2) Increases “siloeed” approaches and inhibits the development of sharing understandings and contexts.	N/A

Table 5.13: Exemplars of Structural Barriers

In sum, as Table 5.13 lays out, and similarly to the previous explorative group, structural barriers are related to the existence of two levels of membership. In *SaferGroup* the Head of the Programme not only has access to and command of *project-related* information (like the rest of the team) but also has unique access to *political-related* information. The lack of

institutionalized forms for sharing this more esoteric knowledge increases the uneven distribution of information among team members. It also inhibits the development of common understandings at a group level.

5.3.3 Conclusions

The study of *SaferGroup* practices has depicted a number of commonalities with the previous explorative team in terms of knowledge exchanges. However a more pronounced asymmetry of agency in some practices, certain tasks features, and some identity characteristics of team members have affected the stringency of knowledge barriers at the group level differently. In the case of physical barriers, the dispersion of the physical placement and the absence of the Head of the Programme have affected the time for, scope of and degree of integration between knowledge exchanges. For cognitive barriers, the asymmetrical access to information has influenced the appearance of uncertainty and instability in group exchanges. With regards to social-epistemic barriers, the partial adoption of social-epistemologies and professions stratification have influenced epistemic judgment concerning the knowledge of others and the limited access to certain sources and channels of communication. In terms of pragmatic barriers, high asymmetry and accountability toward the Head of the Programme have increased the perception of group activities as potentially unsafe and further discouraged knowledge exchanges between team members. Finally, with respect to structural barriers, the existence of a double-membership in terms of access to power elites has influenced the uneven distribution of information among team members.

Finally, the analysis of *SaferGroup* practices highlights some common spatial and temporal isotopies (Greimas and Courtes, 1982) with the previous group. Spatially speaking, practices are not clearly identified with any specific placement as the quango only functions as an interactional space. This diffuse displacement, similarly to *CommGroup*, is more pronounced for practices with highly asymmetrical agency (*Purpose Definition, Priority-Setting, Decision-Making*). In these latter cases, practices' locales are predominantly characterized as external and vague. This vagueness is also a common *topos* in terms of the temporal dimension for many practices. However, at the individual level, team members perceived the enactment of certain practices as a continuum punctuated by the interaction with the Head of the Programme. Finally, with reference to the deontic dimension, team members perceived the Programme and its projects as well placed and bound to the ultimate purpose of the team: to help reduce unintentional harm to all patients of the NHS. Unlike the previous case, this very clear purpose – which is perceived as a sort of *crusade* for many team members – seems to provide justification for what is perceived as unusual behaviours, activities and even practices at the team level.

5.4 Chapter Conclusions

In the current chapter I study two explorative cross-occupational teams: *CommGroup* and *SaferGroup*. These teams are in charged of the ideation and fostering of innovation across the NHS to respectively improve commissioning skills and safety for patients. Together with this similarity, and consistent with the replication sampling approach followed, these

two cases are also comparable in their embeddedness in the outer and inner context (Pettigrew, 1987), in the way they organize their work, and in their team composition. Consequently, the analysis of both teams' practice enactment depicts a large number of parallels. But also it depicts some differences in degree in terms of knowledge barriers attributable to differences in the asymmetry of agency in some practices, and certain task and members' identity characteristics. As the cross-case analysis is going to be undertaken in the next chapter, in these concluding paragraphs only some of the most salient findings will be highlighted.

There are two structural factors present at both *CommGroup* and *SaferGroup* that are clearly important for the enactment of practices, and the knowledge exchanges that occur in them. First, these teams inhabit spaces somewhat removed from traditional NHS regimes of accountability, jurisdictional boundaries, and professions' scripts. This contrasting low stringency of structural conditions, vis-à-vis exploitative teams, seems to explain the existence of fewer constraints for individual and team initiatives. But this low stringency also explains the haziness of this setting, characterized by its limited knowledge, vagueness, and the indistinct meaning of the boundaries of interaction. Second, the asymmetry between the Head of the Programme and the rest of the team members in terms of command of resources and access to social capital results in, structurally speaking, two levels of membership at both *CommGroup* and *SaferGroup*. Such characteristics harden cognitive barriers in both teams by increasing uncertainty.

Another salient finding is related to team members' identity. The unusual position of the quango vis-à-vis traditional NHS settings, and its recruitment practices, reinforces the haziness of social epistemologies. In contrast to exploitative teams, where different corpora of professional knowledge provide clear frames of reference, in the quango professional demarcation becomes blurred, and social epistemologies hazy. Paradoxically, such findings seem to suggest that while members remain professionals, they have either a loose or even no identification with any specific profession. Such loose or null membership creates a seemingly odd identity configuration: one of professionals without professions.

This latter finding also sheds light on the diffuse nature of the deontic imperatives across team members. Different than in exploitative teams, such duties and obligations are not linked with any specific collective or occupational group, but rather with a general sense of *being professional*. This explains also why there is no differentiated character between knowledge and information, as knowledge is not engrained (or loosely engrained) in professional schemata.

6. Cross-case analysis

Multiple cases are used in this thesis to increase understanding of knowledge barriers in cross-occupational groups and how knowledge exchanges are qualified by contextual and task conditions. In the previous two chapters, a detailed analysis of the four cases was presented in order to help understand and preserve the identity and characteristics of each case without confounding it with other cases or data (de Vaus, 2001; Yin, 1994). In contrast, in this chapter I will present the results of a cross-case analysis.

By systematically examining similarities and differences across the explorative and exploitative groups, I intend to deepen the conceptual approach of the thesis and the theory that is developed accordingly (Glaser & Strauss, 1967). In order to get meaningful inferences from the four cases, in this chapter I will follow mixed analytical strategies (Miles & Huberman, 1994). Initially I will pursue a case-oriented analysis in order to preserve the configuration of the cases. Different case-ordered matrices will be used as a starting point to enhancing the development of more sophisticated descriptions and to deepen understanding of the antecedents to and consequences of the knowledge barriers that have been identified. In that way I try to reconcile the need to preserve the cases' uniqueness with that of developing "general understanding of the generic processes that occur across cases" (Miles & Huberman, 1994:173).

Secondly, I will complement this with following a more concept-oriented approach by searching and analysing patterns (Gibbs, 2002) and the presence or absence of certain

attributes in three conceptual areas that emerge as relevant across the four cases: nature of information, knowledge and knowing; types of indeterminacies across cases; and differences between knowledge boundaries and barriers. This inquiry will also focus on deviant examples (as in the case of *SaferGroup* and adopted orders) to enrich the understanding of the underlying phenomena. Overall, the conclusions of this chapter will contribute to strengthening the precision and stability of the findings (Eisenhardt, 1989), drawing evidence-based conclusions for the next chapter and furthering the understanding of their relevance and applicability across settings.

6.1 Comparative Overview

The previous chapters' detailed account of barriers, which emerge *from* and *amid* the particular enactment of team practices, suggest that knowledge-sharing in cross-occupational groups is cumbersome. Different sets of conditions operating at multiple levels seem to be influencing it. Based on this evidence, in the current sub-section I will summarize the main findings for each knowledge barrier and begin to draw the contrasts between those found in explorative and exploitative teams.

6.1.1 Cognitive barriers

The first common class of knowledge barriers identified in the four groups has been loosely labelled as cognitive barriers and is more immediately related to different types of indeterminacies from the inner and outer context of embeddedness. These different types of indeterminacies are not an immediate consequence of the epistemic diversity natural to cross-occupational teams. Instead, they are closely related to the characteristics of the

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organization, information, and task. Figure 6.1 provides a summary of the differences found in exploitative and explorative cross-occupational groups. In exploitative groups there is an overload of externally driven information and demands, within competing frames of reference (multiple stakeholders and the Hospital). While this overload generates the cognitive challenge for simplification (Fiss, 2011), its incompatibility generates the challenge for negotiation and, perhaps most importantly, compromise. In contrast, in explorative groups the informational space can be characterized as incomplete and uncertain due to the newness of the task and the fragile and loosely couple nature of the *quango* within the overall structure of the NHS. Such a high level of uncertainty generates a different type of cognitive challenge for group members: one of elaboration (Fiss, 2011). In this context, elaboration involves, first and foremost, defining both which problems must be tackled and which frameworks and theories might be useful for structuring such problems. It also involves defining methods for problem solving and the criteria that must be used to judge problem solving.

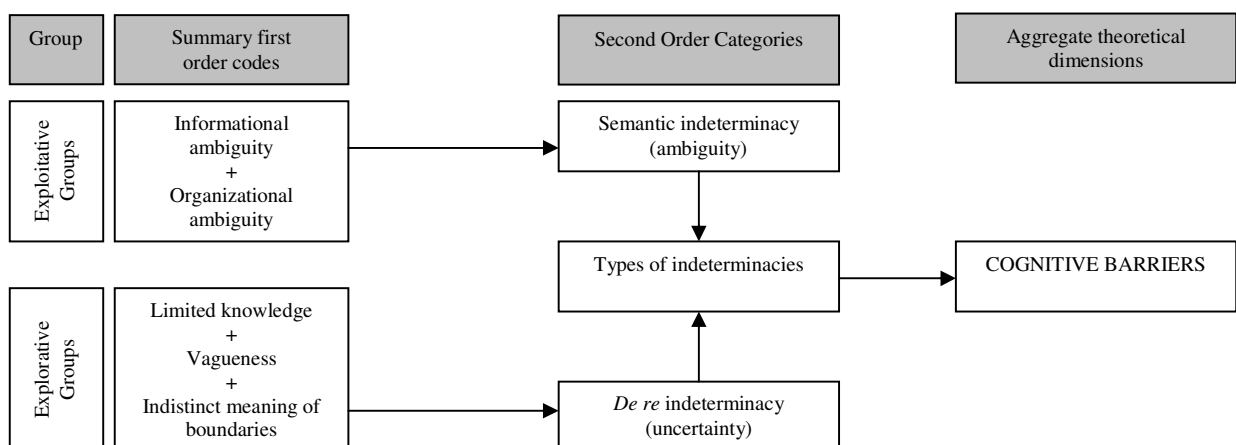


Figure 6.1: Cognitive barriers in exploitative and explorative groups

6.1.2 Social-epistemic barriers

The different types of indeterminacies summarized above characterize the informational, symbolic and normative space where groups' practices are embedded and pose certain strains in terms of knowledge-sharing between group members. Social-epistemic barriers further these challenges by fostering divergent interpretations among group members, which are based on different epistemic (what is known and believed) and doxastic (what is taken for granted) states. To put it simply, social-epistemic barriers are the consequence of the epistemic diversity natural to cross-occupational teams. Yet, as summarized in Figure 6.2, such epistemic diversity is rooted in different factors in exploitative and explorative groups. While for the former, it is deeply ingrained in professional schemata and collective identity, for the latter it is based on personal trajectory and experience, and not immediately related to any specific and defined occupation. Figure 6.2 conceptually depicts these two situations, where epistemic diversity is primarily rooted either in *collective* social-epistemologies or in *sui generis*⁸³ ones. In a following section (§6.3), the concrete consequences on knowledge-sharing across the four groups will be analysed.

⁸³ The use of the term *sui generis* in this context seems to be advisable for multiple reasons. First, it is grounded in the data and closely related to the language of interviewees. Many explorative group members referred in their narratives to how classical professional demarcation and practices did not apply in the *quango*. Many used the term *peculiar* (a direct synonym of *sui generis*) to describe this situation. Second, the term reflects the more individualistic understanding of the professional identity displayed by team members in the *quango*, one of its own kind.

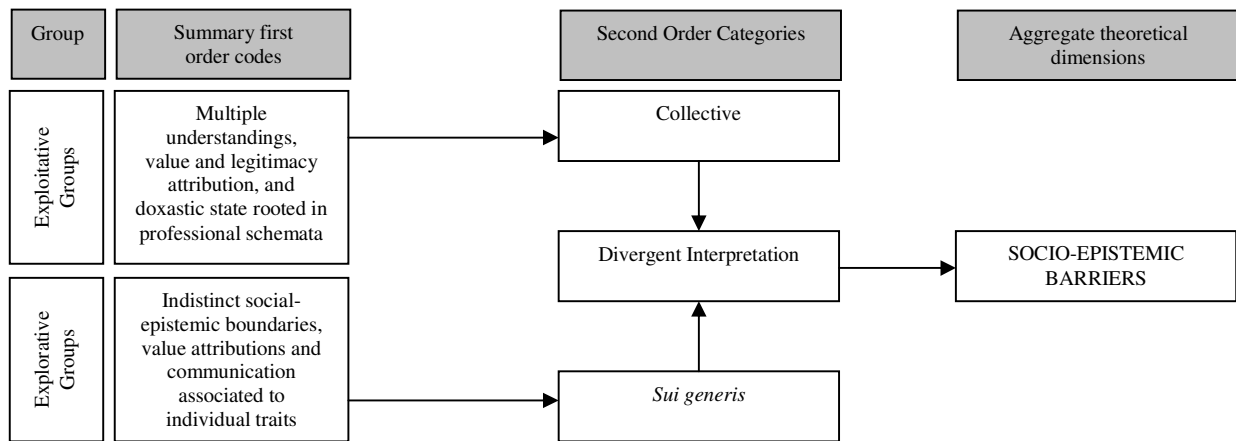


Figure 6.2: Social-epistemic barriers in exploitative and explorative groups

6.1.3 Pragmatic barriers

In turn, pragmatic barriers are most immediately related to the perceived consequentiality of information and knowledge embedded in group practices. As summarized in Figure 6.3, in the exploitative cases the awareness of potential consequences is high among group members, affecting knowledge-sharing processes by fostering divergent consequence identification, limiting certain interactions, and amplifying ambiguity. This high awareness becomes evident in the amount of time spent in meetings and get-togethers discussing potential consequences for team members and their respective professional communities. As analysed below, different characteristics explain the emergence of pragmatic barriers: exploitative groups work ‘within’ the norms and routines of the NHS, with relatively more public scrutiny, procedural formalism and ‘thick’ professional norms. Moreover the very exploitative nature of the task makes CD practices and outcomes highly visible and comparable with that of ‘equivalent’

collectives. In contrast, the perceived consequentiality of actions and information in explorative groups is surprisingly low. Both the status of the *quango* – somehow removed from the NHS’ traditional regimes of accountability – and the newness of the task – that makes any comparison with others programmes or projects difficult – reduce the overall perceived consequentiality and limit accountability to a self-reporting individual exercise.

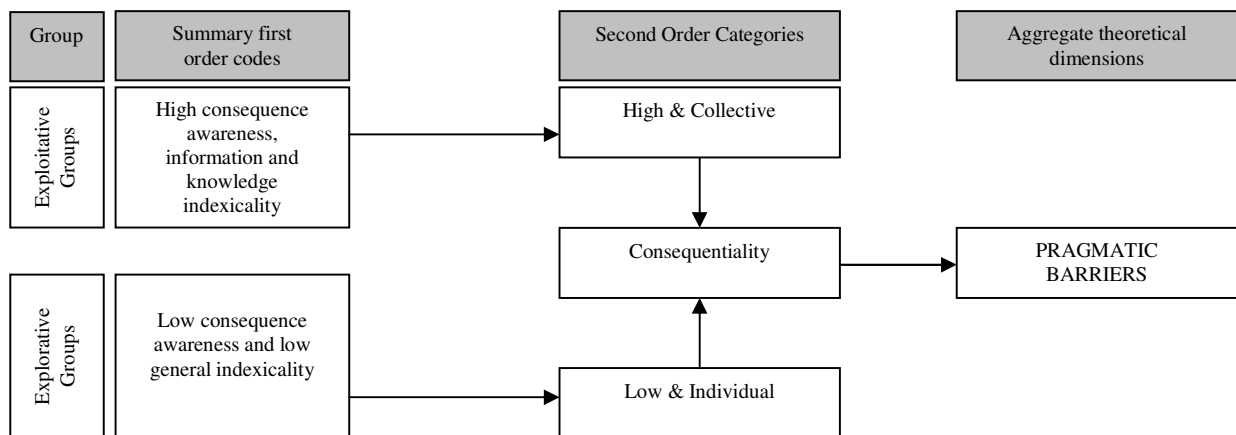


Figure 6.3: Pragmatic barriers in exploitative and explorative groups

6.1.4 Structural barriers

Structural barriers emerge as a consequence of the structural conditions of embeddedness of each group (see Fig. 6.4). Exploitative teams are embedded in more tightly coupled organizations (Weick, 1976), initially characterized by relatively more connections and lower autonomy (cf. Hansen, 1999). The two main connections identified in exploitative teams were the bureaucratic / hierarchical one (i.e. the group *per se*, and the formal Hospital structure) and the professional one (i.e. each professional network). To the extent that some professional networks provide better access to informational and

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symbolic resources, but such access is mostly limited by membership, horizontal asymmetry of access arises between team members with different occupational affiliations. This situation has also an impact on the distribution of these different resources among team members. Quite the opposite occurs in explorative teams, where the inner context of embeddedness can be characterized as relatively more loosely coupled (Weick, 1976). This is evident at the group level, where members have more autonomy but fewer connections (cf. Hansen, 1999). This second situation helps to explain in these groups the existence of two level memberships that replicates the vertical hierarchy: the Head of each group has unique access to informational and symbolic resources, while the rest of the team members depend on her/him to access such resources vicariously. Overall, structural barriers help to explain not only asymmetries in levels of access to certain symbolic resources between team members, but also the topography of the distribution of information (and its complement, ignorance) across them.

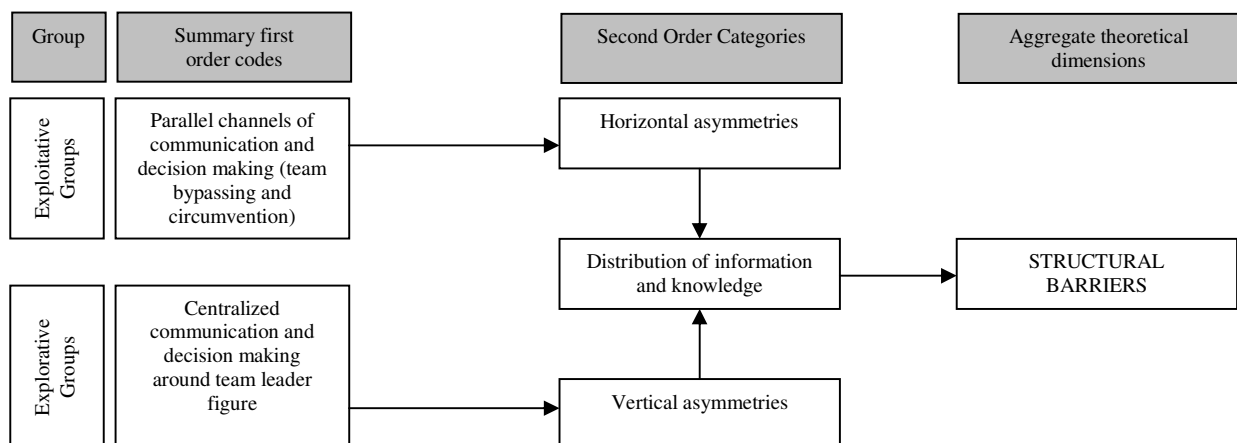


Figure 6.4: Structural barriers in exploitative and explorative groups

Finally, physical barriers were found as conditioning knowledge-sharing in explorative teams. As Fig. 6.5 describes, dispersed placement defined by the lack of co-location, hot-desking and home working between team members affects knowledge-sharing at the group level by reducing the likelihood of interaction. Physical barriers will be treated in this chapter as part of structural barriers, inasmuch as they are part of the context of embeddedness and they have similar effects for knowledge-sharing (a point elaborated below). Its incorporation as another aspect of structural barriers is also advisable in this cross-case comparison chapter as physical barriers primarily affect explorative teams.

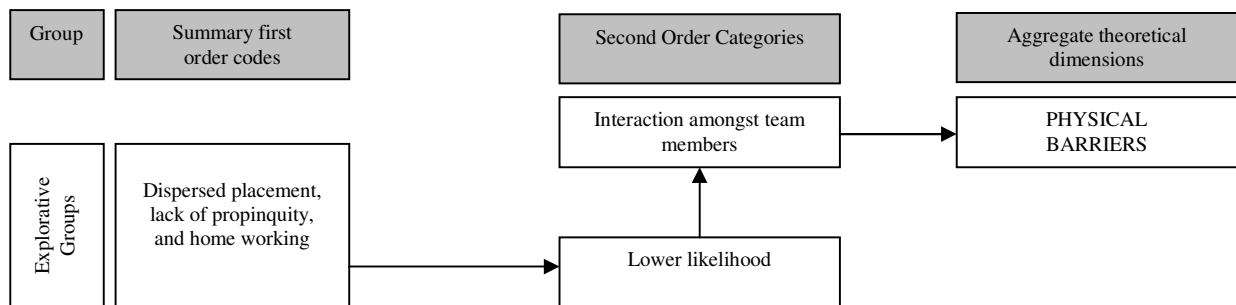


Figure 6.5: Physical barriers in explorative groups

6.2 Antecedents of knowledge barriers

Both in the previous two chapters and in the introduction of the current one, antecedent conditions of knowledge barriers were empirically identified. It is the purpose of this subsection to more formally analyse such initial conditions across the set of cases while at the same time maintaining the local case configurations. In order to extend the analysis, I will focus on the different antecedents that seem to be at work in inducing the emergence of knowledge barriers across the four cases (Miles and Huberman, 1994:233). In grounded theory, this process is very much related to the identification of the set of

conditions influencing the action/interactions (Glaser & Strauss, 1967). In sum, in this part of this section, I will analyse the empirical antecedent conditions that help to explain the emergence of each class of knowledge barriers in each individual case⁸⁴.

6.2.1 Antecedents of cognitive barriers

The emergence of cognitive barriers is most immediately influenced by the overall contextual indeterminacies in the four groups studied. As depicted in Table 6.1, the case of exploitative groups is particularly affected by the high degree of ambiguity that characterizes both the inner and the outer context. Thus, in both exploitative cases ambiguity seems to be externally driven and characterized by the existence of an overload of information and competing demands from the Hospital and the broader NHS – and its different stakeholders. Moreover, at the group level, I found that in a situation of multiple, non-dominating and competing understandings – fostered by this external ambiguity – the degree of interdependence among team members also plays a role in the emergence of cognitive barriers. More specifically, higher levels of interdependence among team members seem to be fostering higher degrees of conflict and defensive cognitive positions that do not facilitate knowledge integration (cf. West, 2002). In *AcuGroup*, where the level of operational interdependence among team members and their respective CUs is comparatively higher, the management of competing perspectives is more challenging. On the other hand, in *MedGroup* the level of conflict seems to be alleviated by the limited degree of interdependence between CUs.

⁸⁴ In the current and following sections I will be analyzing both antecedent conditions and effects of the identified knowledge barriers. In doing so, I am following recommendations of both Miles and Huberman (1994) and, partly, Glaser and Strauss (1967). Due to the resemblance of these concepts with the terminology of quantitative research, it is important to remind that I am summarizing observed relationships in a small group of cases rather than speaking about tested statistical relationships.

As in the previous cases, cognitive barriers in explorative groups are also influenced by externally-driven contextual conditions. But what is different is that the indeterminacies are characterized by limited and vague knowledge, and demands both from the *quango* and its narrow number of external stakeholders (mostly from the DoH). This uncertainty seems to be rooted not only in the general condition of embeddedness but also in the very nature of the task (i.e. newness). Thus, in contrast to exploitative teams, in *CommGroup* and *SaferGroup* indeterminacy seems to be influenced by the contextual, organizational, and group task uncertainties. Moreover, group interdependence also plays a role in the emergence of cognitive barriers, as its relatively low level seems to ease the potential conflict in the context of higher degree of uncertainty. That said, the case of *SaferGroup* seems to present a different configuration of conditions that initially might have indicated the lowest level of cognitive barriers across the four cases. It has a relatively moderate level of newness of the task and similarly moderate levels of uncertainty at the inner and outer context, and low levels of interdependence. However, the degree of perceived uncertainty is even higher than in *CommGroup*. This surprising finding seems to be explained by the type of leadership which the group has. The last column of Table 6.1 shows how the secluded, centralized and somehow controlling type of leadership adds higher levels of uncertainty to what otherwise would have been a moderate cognitive barrier.

Cases	Task		Inner Context		Outer Context		Leadership
	Novelty of task	Degree of interdependence	Ambiguity	Uncertainty	Ambiguity	Uncertainty	
*AcuGroup	Low	High	High	--	High	--	Controlling, consensus
*MedGroup	Low	Low	High	--	High	--	Consultative, consensus
+CommGroup	High	Mod	--	High	--	High	Consultative, centralized
+SaferGroup	Mod	Low	--	Mod	--	Mod	Controlling, centralized

1) ‘*’ indicates exploitative groups, ‘+’ indicates explorative groups

2) Bolded text indicates strong influence of the antecedent on the analysed barrier

Table 6.1: Antecedents matrix for Cognitive barriers

6.2.2 Antecedents of social-epistemic barriers

In contrast to the previous sub-section, the most immediate conditions affecting social-epistemic barriers seems to pertain to the group level and they are primarily related to the diverse professional ethoi and schemata held by group members. As Table 6.2 shows below, in exploitative groups professional identity, and hence identification, is apparent. While contextual characteristics seem to exert some remote influence, by amplifying informational and normative ambiguity, professional identity fosters diverse interpretations, expectations, and legitimacy attributions among team members. In other words, doctors and nurses, and to some extent managers – as members of different epistemic communities – bear diverse set of epistemic and doxastic beliefs (cf. Polanyi, 1966). Moreover, the evidence from these groups shows that the conflict of perspectives is augmented by the degree of interdependence. Higher levels of interdependence, as in the case of *AcuGroup*, seem to lead to more defensive and stalemate interpretive

positions. On the contrary, lower levels of interdependence, as in the case of *MedGroup*, seem to alleviate such conflicts of interpretations⁸⁵.

In the case of explorative teams, the remote effects of task and contextual uncertainty to knowledge-sharing seem to be further augmented by the overall vagueness of professional identity and affiliation. This seems to be particularly the case in *CommGroup*. The indistinctness of group members' professional identity limits the awareness of each others' knowledge and, in the context of producing communication, generates both misunderstandings and confusion among group members. As for the case of *SaferGroup*, the moderate level of novelty of task (i.e. closer to clinical practice), together with moderate levels of both professional identity and access to professional communities help to explain certain unusual conditions at the social-epistemic level. Members of *SaferGroup* seem to rely on past professional affiliation and former identity to produce internal group stratification and to assess the epistemic legitimacy of colleagues' comments and knowledge. I have labelled this practice as *adopted order* (see §5.3.2.3). This concept is meant to suggest how under limited conditions, for professional stratification and identification to occur in the *quango*, *SaferGroup* mimics by proxy some of the conditions of interactions found in exploitative teams.

⁸⁵ One possible explanation to this situation is that potential conflicts become less visible and resolutions less vital for group task completion.

Chapter 6. Cross-case analysis

Cases	Task		Inner Context		Outer Context		Professional Identity	
	Novelty of task	Degree of interdependence	Ambiguity	Uncertainty	Ambiguity	Uncertainty	Clear	Access to profess. networks
*AcuGroup	Low	High	<u>High</u>	--	<u>High</u>	--	High	High
*MedGroup	Low	Low	<u>High</u>	--	<u>High</u>	--	High	High
+CommGroup	<u>High</u>	Mod	--	<u>High</u>	--	<u>High</u>	Low	Low
+SaferGroup	<u>Mod</u>	Low	--	Mod	--	Mod	Mod	Mod

- 1) ‘*’ indicates exploitative groups, ‘+’ indicates explorative groups
- 2) Bolded text indicates strong influence of the antecedent on the analysed barrier
- 3) Underlined text indicates moderate influence of the antecedent on the analysed barrier

Table 6.2: Antecedents matrix for social-epistemic barriers

6.2.3 Antecedents of pragmatic barriers

In the introduction of the present chapter, I briefly summarized the main characteristics of pragmatic barriers and some aspects that help explain their appearance in the four groups studied. The effect of pragmatic barriers on knowledge-sharing primarily concerns the extent of consequences perceived by the group members in the information and knowledge embedded in group practices (Carlile, 2002). When consequentiality is perceived to be high, as in the case of exploitative groups, team members tend to engage in constant comparison and defensive use of information that limits knowledge-sharing (cf. Edmondson, 2002, West 2002). As shown in Table 6.3, pragmatic barriers are more immediately influenced by the high level of external public scrutiny to what these exploitative groups are exposed to. They are held accountable not only to the Hospital but also to different external organizations in the NHS. In addition to this more bureaucratic accountability team members show a high awareness of their accountability toward their professional community. Some other conditions exert a more remote influence at this pragmatic level. On the one hand, the exploitative and concrete nature of the clinical task seems to facilitate the external scrutiny and consequence identification. But on the other

hand, the overall ambiguity of the inner and outer context seems to ease the stringencies of the NHS' pervading regime of accountability.

In the case of explorative teams, consequentiality is perceived to be low. The quango is distinctly removed from the NHS' regimes of accountability and, at the organizational level, there are only a few and mostly self-referential control practices. Moreover the nature of the task, with relatively higher level of novelty and uniqueness, exerts a more remote influence by further reducing the stringency of pragmatic barriers. In the case of *CommGroup*, the limited and diffuse occupational affiliation of its members presupposes the lack of professional accountability in communal or collective terms. Instead, the sense of accountability is imbued in their own individual understanding of being professional (i.e. someone that can be held accountable). In the case of *SaferGroup*, although similar conditions influence knowledge-sharing at the pragmatic level, the group has much higher awareness of potential consequences and, as a result, they are less open to share information and knowledge between projects. This situation is most easily explained by the type of centralized and authoritarian leadership the group has.

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Cases	Task		Inner Context			Outer Context			Professional identity		Leadership
	Novelty of task	Ambiguity	Uncertainty	Scrutiny	Ambiguity	Uncertainty	Scrutiny	Clear	Access to professional networks		
*AcuGroup	<u>Low</u>	<u>High</u>		High	<u>High</u>		High	High	High	Controlling, consensus Consultative, consensus Consultative, centralized Controlling, centralized	
*MedGroup	<u>Low</u>	<u>High</u>		High	<u>High</u>		High	High	High		
+CommGroup	<u>High</u>		High	Low		High	Low	<u>Low</u>	<u>Low</u>		
+SaferGroup	<u>Mod</u>		Mod	Low		Mod	Low	Mod	Mod		

- 1) ‘*’ indicates exploitative groups, ‘+’ indicates explorative groups
- 2) Bolded text indicates strong influence of the antecedent on the analysed barrier
- 3) Underlined text indicates moderate influence of the antecedent on the analysed barrier

Table 6.3: Antecedents matrix for pragmatic barriers

6.2.4 Antecedents of structural barriers

Structural barriers seem to be more directly influenced by the overall conditions of group embeddedness, which in all the cases studied closely follows the conditions of organisational embeddedness in the broader NHS system. Accordingly, in the previous sub-section the Hospital and the *quango* were respectively conceptualized as *tightly* and *loosely* coupled organizations (Weick, 1976). To the extent that frequent, formal, repetitive and well established interdependence on the NHS and its different constitutive elements exist, the Hospital can be comparatively treated as a more tightly coupled organization. This is observable at group level. Team members are relatively much more connected both through hierarchical and professional networks vis-à-vis group members in the *quango*. However, to the extent that a) hierarchical and professional structures are not always aligned, and b) some professional networks are more efficient than others for communication and decision-making, then asymmetries of knowledge and access to resources arise between group members with different occupational affiliations. As synthesized in Table 6.4, this situation is eased in the case of *MedGroup* both by the type

of leadership (one that enforces openness and group consultation, and discourages influencing decisions and obtaining resources through professional structures without consultation) and CD size (which make bypassing and circumvention much more evident than in larger CDs (such as the case of *AcuGroup*)).

In contrast, the quango can be described as a loosely coupled organization to the extent that weakly, informal, and minimal interdependence exist with the outer NHS context. As a visible consequence, team members are relatively more autonomous but less connected. Lacking a clear and collective professional ascription, explorative group members heavily rely upon the figure of the Head of the Programme to receive sensible information and to negotiate resources both in the inner and outer context. Thus, the role of the leader and the type of leadership exert great influence on the emergence and strength of structural barriers. In the quango, each Head of the Programme is expected to act as a boundary spanner, scanning and interpreting the group's environment and then passing the information to the rest of the team members (cf. Hansen, 2002; Katz & Tushman, 1979). As a result, the Head of the Programme has a greater command of resources and access to social capital (in this case, power elites) which results in an asymmetrical distribution of political-related information around the team, which in turn increases instability and haziness of meanings of more project-related information. This situation, common to both explorative groups, is further exacerbated in *SaferGroup* as the secluded and centralized type of leadership increases the unevenness in the distribution of information between the Head of the Programme and the rest of the team members.

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Cases	Inner Context		Outer Context	Professional Identity		Total unit size	Leadership
	Uncertainty	Type of coupling	Uncertainty	Clear	Access to profess. networks		
*AcuGroup		Tight		<u>High</u>	High	<u>Big</u>	Controlling, consensus Consultative, consensus Consultative, centralized controlling, centralized
*MedGroup		Tight		<u>High</u>	High	<u>Medium</u>	
+CommGroup	<u>High</u>	Loosely	<u>High</u>	Low	<u>Low</u>	Small	
+SaferGroup	Mod	Loosely	<u>High</u>	Mod	<u>Low</u>	Small	

1) ‘*’ indicates exploitative groups, ‘+’ indicates explorative groups

2) Bolded text indicates strong influence of the antecedent on the analysed barrier

3) Underlined text indicates moderate influence of the antecedent on the analysed barrier

Table 6.4: Antecedents matrix for structural barriers

6.3 Effects of barriers on knowledge-sharing

The within-case analysis conducted in the previous two chapters shows the diverse negative effects on knowledge-sharing for each class of barriers in the different groups. The approach in those previous chapters has been one of analytically depicting such complexity. In contrast, when engaging in cross-case comparison, a clustering or categorizing effect is advisable in order to aid understanding, and to produce a grounded set of explanations (Miles & Huberman, 1994). Following this methodological advice, I initially listed all the negative direct and indirect effects for sharing knowledge, sorted by barrier and group, as described in Chapters 4 and 5. The variety of effects found in this early analysis seems to suggest that sharing knowledge is an overarching practice that is likely to consist of multiple phases (cf. Eisenhardt & Santos, 2002). Consequently, drawing on the case data, I generated a set of categorised effects, which influence four knowledge-sharing phases: access, recognition, understanding, and integration (cf. Cohen & Levinthal, 1990). These will be elaborated below.

First, I shall consider the negative effects related to access. Different conditions were found to most immediately affect access to information, knowledge and other symbolic resources amongst all the group members. Effects such as increased occupational closure (e.g. § 4.2.2.3), asymmetrical access to certain professional networks (e.g. § 4.2.2.4) or groups, (e.g. §5.3.2.5), or decision-making fora (e.g. §§ 4.2.2.4, 5.2.2.5), among others, were hence categorized as affecting this first phase.

Analysis of these listed effects also suggests a second phase of knowledge-sharing: that of recognition. Even given that all the group members might have similar access to the different symbolic resources listed above, some members might have difficulties in recognising the knowledge and information held by other members, or the knowledge and information which others have access to. For instance, this was the case when some team members were not aware of the expertise of others (e.g. § 5.2.1), or when they failed to anticipate the value of future knowledge-sharing between team members (e.g. § 5.2.2.3).

A third group of effects were found to affect the understanding between group members. These were most immediately associated with problems in clearly apprehending other's ideas and contributions, or the significance of them. These effects were due to a lack of understanding between members (e.g. §§ 4.2.2.1, 5.3.2.5), misunderstandings (e.g. § 5.2.2.3), or a conflict of interpretations (e.g. § 4.2.2.1). To a lesser extent, these effects can be also related to the hermeneutical asymmetries found in the pilot case study (e.g. § 3.2).

Finally, a group of effects were found affecting the integration of diverse knowledge (cf. Carlile, 2002). Even when understanding occurred between members, I found that in some cases they were reluctant to integrate their disparate perspectives. Different legitimacy or value attribution (e.g. §§ 4.2.2.2, 5.3.2.3), defensive use of information (e.g. § 4.2.2.3), or the vested interest of members / communities, (e.g. §§ 4.2.2.3, 4.3.2.3), affect this latter phase.

Once the effects were coded in these four categories, I integrated them in Table 6.5 below. I did this by noting the number of effects encountered in each phase for each barrier. For example, in the cognitive barrier in *AcuGroup* (top left hand cell in the table), was found to be: no negative effect in the phase of access, one negative effect in the phase of recognition (i.e. latent conflict of interpretation), four negative effects in the phase of understanding (e.g. lack of shared understanding on team main purpose), and finally four negative effects for knowledge sharing in the phase of integration (e.g. different value attributed to priorities which in turn makes difficult the integration). This analytical step might have limited theoretical importance if the effects influencing knowledge-sharing were identical between the two types of group studied. However, as I will elaborate below, it was found that some of the barriers affected the sharing of knowledge in different ways.

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		AcuGroup (exploitative)	MedGroup (exploitative)	CommGroup (explorative)	SaferGroup (explorative)
Cognitive	A	0	0	2	1
	R	1	0	0	2
	U	4	4	4	0
	I	4	4	2	1
Social-epistemic	A	0	0	0	1
	R	1	0	5	2
	U	2	0	4	0
	I	2	3	0	1
Pragmatic	A	3	2	0	1
	R	0	0	3	5
	U	2	1	3	2
	I	6	8	0	0
Structural	A	2	2	3	3
	R	0	0	0	0
	U	0	0	2	3
	I	1	1	0	0
Physical	A	0	0	2	2
	R	0	0	1	2
	U	0	0	0	0
	I	0	0	0	0

- 1) A= indicates “access”, R= indicates “recognition”, U= indicates “understanding”, and I = indicates “integration”
- 2) Bolded text indicates strongest effects

Table 6.5: Effect matrix for knowledge barriers

This is the case for cognitive barriers, which affect knowledge sharing differently in exploitative and explorative teams. As shown in Table 6.5, cognitive barriers seem to affect understanding and integration equally in exploitative teams. The ambiguity concerning what these groups are exposed to, makes both understanding (because of the excess of diverse information, and in some cases its poor quality) and integration difficult (because of conflicting information, demands, and interests). In the case of explorative groups, uncertainty certainly affects understanding among *CommGroup* members (due to the limited knowledge of the main task and each individual projects, and the overall

political uncertainty of the *quango*). These findings however are not conclusive for the case of *SaferGroup*, as uncertainty seems to affect different phases of knowledge sharing.

Social-epistemic barriers primarily challenge integration of knowledge among exploitative group members. This finding echoes that of Fleck (1979) and Dougherty (1992b) on the "inherent tenacity" of the thought worlds or professional schemata. The clear professional identity and ascription presuppose the adherence to certain corpora of collective knowledge, values, and beliefs that enforce certain understandings (cf. also Barley, 1986), and make it more difficult to accept the perspectives of others, especially when there is no *epistemic affinity*. In *AcuGroup*, social-epistemic barriers also affect understanding (a situation that can be explained by the presence of doxastic states which influence mutual stereotyping and limit understanding). In contrast, in explorative teams, diffused professional identity seems to challenge recognition, as group members struggle to identify the knowledge and backgrounds of others. This additional barrier has an impact on understandings between *CommGroup* members, but not in *SaferGroup*. This might be explained by the higher degree of task novelty for *CommGroup*, which adds more instability of meanings, and increases confusion across group members.

As for the case of pragmatic barriers, clearly different patterns of effects were identified between exploitative and explorative teams. The high degree of consequence-awareness seemed to challenge integration in both *AcuGroup* and *MedGroup*. This situation is explained by the defensive position of team members in relation to their own CUs, and the clear awareness of future consequences of adopting, or accepting, others

recommendations. Instead, in the case of explorative groups, relatively lower scrutiny from the quango and the NHS generates few incentives for team members to share their knowledge and project-specific information between each other. This lack of incentives challenges both recognition (as team members have little knowledge and awareness of the activities and expertise of others), and common understanding between team members.

Structural barriers pose challenges in terms of access in all the cases studied. The structural conditions seem to affect the most elemental phase of knowledge sharing by establishing the initial conditions (and rights) of *access* for team members. In the case of exploitative teams, the asymmetries of access were found to be rooted in professional affiliation, whereas in explorative teams they were found to be rooted in bureaucratic hierarchies (i.e. organisational position). Finally, physical barriers affect knowledge-sharing by having similar effects on access for explorative groups members.

6.4 Integrating antecedents and effects across knowledge barriers: mechanisms and forms of professionalism

In the integration of antecedents and effects of knowledge barriers, the analytical work of suggesting possible mechanisms needs to be done, if a more thorough understanding of the studied phenomena is to be achieved (Elster, 2007). In its simplest form, mechanisms can be understood analytically, as an effort to transcend initial descriptive approaches, and to elaborate on grounded explanations of the processes that bring about the

phenomenon and its consequences⁸⁶. This analytical step is consistent with my attempt to produce a theoretical contribution of the *middle range* (as described in § 3.1). As Hedström and Ylikoski have recently suggested, the mechanism approach has much in common with Merton's idea of sociological theories of the middle ground, in that it seeks "to highlight the heart of the story by isolating a few explanatory factors that explain important but delimited aspects of the outcomes to be explained" (2010:61).

6.4.1 Mechanisms

In Chapters 4 and 5, I started to delineate the elements that explain the emergence of the four knowledge barriers and their consequences. From the analysis of group practices enactments, two different mechanisms seem to be most relevant with regards to cognitive barriers in exploitative and explorative groups: the challenge of simplification under highly ambiguous situations in the case of exploitative groups, and the challenge of elaboration under highly uncertain situations in the case of explorative groups. As analysed above (e.g. § 4.2.2.1), contextual ambiguity, both at the inner and outer level, affects understanding and knowledge integration among exploitative team members. Paradoxically, the overload of information and demands (cf. Nicolini et al., 2008) – which are not always compatible – leads to poorly understood group situations, as inconsistencies among the various external inputs preclude the construction of a coherent understanding at a group level (cf. Almirall & Casadesus-Masanell, 2010). As a result, both *AcuGroup* and *MedGroup* members have difficulty in cognitively integrating the amount and variety of information and demands received.

⁸⁶ In similar way, Schelling (1998:07) sustains that a mechanism can be seen "as a systematic set of statements that provide a plausible account of how I [input] and O [output] are linked to one another".

Under the cognitive challenge for simplification (cf. Schwenk, 1984), exploitative team members further rely on professional categories of understanding to reduce such informational and normative complexity. However, as the enactment of the practice of purpose definition seems to indicate (see §§ 4.2.2.1 and 4.3.2.1), the use of these professional categories seems to promote cognitive inertia which further limits knowledge integration among teams members. This finding echoes with that of the Cognitive Strategy Literature (Abrahamson & Fombrun, 1994; Huff, 1990; Reger & Huff, 1993) on the role of typologies in fulfilling the cognitive need for simplification under conditions of informational overload. In sum, as described by Fiss (2011:396), “typologies are likely to promote cognitive inertia, a process that has been shown by cognitive researchers to prevent decision makers from acquiring new knowledge and exploring alternatives (e.g., Reger & Palmer, 1996)”.

In the case of explorative teams, high contextual, organizational, and task uncertainty (which I have labelled as *de re indeterminacy*) primarily leads to problems of understandings across team members. In line with Szulanski’s findings (1996), knowledge-sharing seems to be hampered by a high degree of irreducible uncertainty. In this context, and facing incomplete information, knowledge and demands, each group member needs to engage in an elaboration process for her/his own task (i.e. filling the gaps of the demands and knowledge) (cf. Reger & Huff, 1993). If we add to this the highly compartmentalized structure of group task around individual projects, it becomes apparent that elaboration turns out to be an individual exercise, and understanding across team members becomes difficult, as individual rationales cannot be clearly anticipated.

Moreover, the continuous negotiation and reconfiguration of projects further limits the emergence of common grounds for understanding.

In the case of social-epistemic barriers, again two different mechanisms seem to explain the divergent consequences for knowledge-sharing, found in exploitative and explorative cross-occupational groups. For the former, professional identity and affiliation foster diverse interpretations and value attributions across team members. What is interesting to note is that such diversity primarily affects knowledge integration across team members. Initially, the relatively stable nature of task, and of the boundary-work across occupational groups, seems to alleviate problems of understanding across team members. However, integration of knowledge proves to be much more difficult to the extent that group members favour their particular understanding and values, generally rooted in their professional schemata. As mentioned above, this finding echoes that of Fleck (1979) and Dougherty (1992a) on the inherent tenacity of thought worlds. This finding is also supported in many works of the Sociology of the Professions. These studies show how the professional knowledge system provides a set of categories to classify problems, and interpret and value information. Generally, professional schemata provide the definition of normality (“the normal case” and/or “the normal problem”) on which diagnostics and treatments are based on (Abbott, 1988; Hughes, 1980). In addition to their cognitive aspects, these types of scripts pose normative demands over professional actions, acting analogously to behavioural grammars (Allen, 2000; Barley, 1986).

Conversely, in the case of explorative teams the vagueness of a professional identity, career line, and expertise of their members, seems to affect the recognition, and

awareness of others' knowledge. I have described the sort of social epistemology found across explorative group members as *sui-generis*; as one that reflects the lack of classical professional demarcations, the syncretic use of information and knowledge (this point will be further discussed below), and the individual nature of professional trajectories (as opposed to collectively defined career lines in classic professions (cf. Freidson, 2001)). Under a lack of a definition for normality, team members' actions and knowledge, becomes difficult to typify, making behaviours less understandable and predictable (cf. March & Simon, 1958; Nelson & Winter, 1982). This situation is clearly illustrated by the practice of communication where the frames of references are difficult to infer, and, consequently, misunderstandings and confusion occur between team members.

In the case of pragmatic barriers, knowledge sharing seems to be primarily affected in its phase of integration amongst exploitative group members. This is the case to the extent that CDs are exposed to high levels of both bureaucratic and professional accountabilities. As a result, group members have a high awareness of the potential consequences of the information and knowledge embedded in group practices. This triggers defensive use of information and limit knowledge integration, particularly in areas where consequentiality is perceived high. The underlying mechanism bears a resemblance to that analysed in the Social Psychology literature for the case of psychological safety: the withholding or limiting of knowledge sharing because one anticipates negative consequences for the self (Edmondson, 2000). However there is an important difference; while social psychology theory has primarily focused on "defensive silence" (Kish-Gephart, Detert, Treviño, & Edmondson, 2009), the evidence of both

AcuGroup and *MedGroup* indicates that members do share and discuss knowledge and information. Despite this, they are reluctant to integrate others' ideas into their own decisions and practices, as they seem not to be willing to alter their knowledge in practice, aware of the possible negative consequences that this could bring both to them and the professional communities they represent. Hence, as suggested by Carlile (2002), the pragmatic barriers found in exploitative teams seem to emerge when conditions of difference (between professionals and between CU) and (inter) dependence are both present. Finally, and paradoxically, the same elements that explained the emergence of cognitive barriers in these groups (i.e. high level of ambiguity) seem to attenuate the stringency of pragmatic barriers. This point will be elaborated in the next chapter.

As for the case of explorative groups, pragmatic barriers seem to be affecting earlier stages of knowledge sharing, as in the case of recognition and understanding across team members. The externally driven pressures for accountability (both bureaucratic and professional) that seem to be at work in the hospital are not present, or if they are, then they are significantly eased, in the *quango*. Furthermore, the explorative and novel nature of the task makes any external control somehow difficult. Under these circumstances, the perceived consequentiality is low and accountability is reduced to a self-reporting individual exercise. Consequently, there are limited incentives to share knowledge about each individual project amongst group members at the team level. Accountability is therefore an individual exercise between each group member and the Head of the Programme, and is ultimately driven by each individual's understanding of being professional (i.e. of who can be held accountable). In parallel to this, and only for the

case of *SaferGroup*, the evidence shows that the centralized and controlling type of leadership the group has, triggers a similar mechanism to that explained in the previous paragraph; by increasing the sense of limited psychological safety across team members.

Finally, structural barriers have similar consequences in both exploitative and explorative cross-occupational groups as they restrict the access to information and knowledge to some members in each studied group. Yet the internal configuration of antecedent elements does vary between exploitative and explorative teams. In the former cases, asymmetry of access both to knowledge and other resources is determined by the sort of occupational affiliation one holds. As different occupational groups have different degrees of power and capacity for collective action, group members with different affiliation have different and uneven access to certain symbolic resources. In the latter cases, asymmetries of access both to knowledge and other resources are determined by position in the quango. Simply put, it is the group leader who has access to contextual knowledge and external resources through her/his professional contacts. The rest of the group members only have vicarious access to them. Finally, this uneven level of access of knowledge and resources brings instability of meaning and makes it difficult to develop congruent views of the group and goals, thereby contributing to miscommunication.

6.4.2 The underlying forms of professionalism

I discussed in previous points some of the key interdependent conditions that explain (directly or in conjunction) the emergence and characteristics of the identified knowledge barriers. In view of that, it is the purpose of this section to provide a high level summary of these conditions for the two types of cross-occupational group studied. The advantage of this synthetic exercise is three-fold. First, it allows for further data reduction while preserving the case configurations. Second, it permits to compare the network of conditions at work between exploitative and explorative groups (Miles and Huberman, 1994). Third, it facilitates the analysis of the constitutive elements that explain professional practices and interactions across professionals in exploitative and explorative groups respectively. As the Table 6.6 summarizes below, significant conditions influencing group practices, and the knowledge embedded in these practices, are: the nature of tasks, the type of both professional identity and membership within a professional community, the nature of accountabilities that permeate the professional practice, the sort of indeterminacies the groups face, and finally – at the inner level (Pettigrew, 1987) – the characteristics of embeddedness of each organization in the broader NHS (i.e. Hospital and *quango*).

The evidence from the case studies clearly indicates neither that the all six elements are at work in each barrier nor that the ones that have been found present exert the same degree of influence. Following Fiss' distinction (2011), in the previous points I have analysed how there are some elements that exert a more immediate influence on the emergence of

some barriers, and there are others that play a more peripheral role. Yet the exercise of listing them is analytically fruitful to the extent that it allows to transcend the analysis of each individual barrier, and to focus on understanding across-type similarities and dissimilarities. In line with this, the analysis seems to indicate that there are two different forms of professionalism at work between explorative and exploitative teams. These will be introductorily elaborated below.

6.4.2.1 Established forms of professionalism

In this ecology of expert knowledge across occupational boundaries, the group task nature seems to play a preponderant role in explaining the nature of both the knowledge challenges across members and the inter-occupational logic that permeates such interactions. This is not to say that tasks are a barrier for sharing knowledge, nor that as an antecedent it can explain the emergence of such barriers per se. Rather what I am highlighting here, in line with Abbott's suggestion (1988), is the constitutive nature of work and task both for the internal dynamics of professions and for inter-professional interaction. In exploitative teams, task is first and foremost an established and stabilizing factor. As the analysis of the task allocation practice depicts, tasks in CDs are well defined and recognized. Tasks are hence established to the extent that they seem to be the fruit of longstanding boundary-work across occupational communities (e.g. § 4.2.2.5). However, tasks are also stabilizing factors, to the extent that the interaction across communities somehow is informed and bounded by the same tasks and its jurisdictional limits.

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General Conditions	Exploitative Groups	Explorative Groups*
Type of task	Well defined and established group tasks which, due to their operational nature, are assumed to correspond naturally with each occupational group's responsibility (reflecting a longstanding boundary-work across occupational communities) and to be grounded in different bodies of expert knowledge.	Novel and evolving group tasks ; with some of the task still in the ideation phase; the innovative and less defined nature of the task makes any "logical and straightforward" (P2, Head of the Programme) task allocation somewhat difficult. <i>A priori</i> there seems to be no clear knowledge and expertises bases which better fit the task demands.
Professional identity	Clear professional identity and affiliation, especially in the case of doctors and nurses whose professional trajectories clearly follow classical career-lines, as understood in each respective occupational community. Managers also have a clear identity and affiliation, with the managerial cadre in the hospital, though career-paths are more idiosyncratic.	Diffused professional identity and lack of clear social-epistemic ascription; while many group members had an initial clear occupational affiliation, their career lines do not follow classical professional ones, making identification across team members more difficult.
Professional community	The existence of visible professional communities of reference . Doctors and nurses are part of defined and articulated professional groups, which might even include the membership into formal professional associations (cf. Friedson, 2001). Managers are also part of a more immediate community, though a more attenuated and transient one. These different occupational communities have their own vested interest, and their members, to a certain extent, act as their defendant.	No visible professional communities of reference.
Accountability	High levels of accountability (both bureaucratic and professional) as exploitative groups work 'within' the norms and routines of the NHS, with high public scrutiny, procedural formalism, and 'thick' professional norms.	Low levels of accountability as explorative groups work is removed from the NHS' classical professional jurisdictional structures and regimes of accountability.
Indeterminacies	High levels of ambiguity , as concrete, multiple, and competing demands and understanding are being posed over exploitative groups by external constituencies.	High levels of contextual uncertainty , characterized by the limited knowledge and vagueness of the demands posed over the group, and the indistinct meaning of the boundaries of interaction.
Conditions of embeddedness	A relationship between the inner and outer context of embeddedness which can be characterized as tightly coupled (Weick, 1976) with frequent, formal, repetitive and established interdependences within the broader NHS.	A relationship between the inner and outer context of embeddedness that can be characterized as loosely coupled (Weick, 1976); as weak, informal, and minimal interdependence exist with the outer NHS context.

*Primarily based on *CommGroup* evidence

Table 6.6: Summary of influencing conditions in exploitative and explorative groups

Interestingly, similar stable attributes to that of the task can be found in the other five interdependent elements: defined professional identities and communities of references, established relationships, and accountabilities with external constituencies. Even indeterminacies, in the form of ambiguity, emerge from multiple yet concrete and defined information and demands. Simply put, all these interdependent elements depict clear boundaries and a high degree of reification. They also coincide with the fundamental elements that explain interaction across professions, as theorized in the classics of the Sociology of the Professions (especially in Abbott, 1988, and Freidson, 2001). In summary, the elements that explain both interaction and knowledge conundrums in exploitative cross-occupational groups bear a close resemblance with those invoked in the seminal works of the Sociology of the Professions when explaining inter- and intra-professional dynamics.

First, the fact that tasks are concrete, well defined, and established facilitates the claim to having expertise over them. This claim is, in the context of CD Boards, “the ability to make authoritative judgments and to solve problems based on disciplinary training” (Brint, 1994:40). This is clearly the case for doctors and nurses. Group members recognized each other’s jurisdiction (to the point of seeing them as natural or logical), and also that they each possess the knowledge and training necessary to deal with those problems. But it is also the case of managers in both *AcuGroup* and *MedGroup*. Reflecting broader movements for professionalization of public managers (Noordegraaf, 2007), both CD managers become managers by finishing university-based masters’ programs. The results

of this close link between task and disciplinary training, is that a clear professional identity is reinforced, together with a sense of being part of a collective.

Second, in comparison with explorative groups, the concreteness of task seems to facilitate the close monitoring of exploitative groups' activities. This is not to say however, that this task characteristic triggers the high level of control found in the groups, and in turn the emergence of pragmatic barriers. The high accountability of *AcuGroup* and *MedGroup* primarily reflect the historical evolution of the NHS toward a combined form of both bureaucratic and professional control, and follows similar trends in others health care environments (Marnoch, McKee, & Dinnie, 2000; Noordegraaf, 2007). Rather, what the evidence suggests is that the concrete and typified nature of tasks makes this mix-up type of control easier (Clarke & Newman, 1997).

Finally, the links and interactions between team members and the external stakeholders (both from the inner and outer context) are also well established, and the interdependence well defined. Many of these relationships are formalized and usually materialized in concrete reports, presentations, papers, cases, dashboards, etc. It is the sheer amount of these external bodies, the conflicting demands posed by them, and the different value attributed to them by group members which fosters the high degree of ambiguity in exploitative cross-occupational groups.

6.4.2.2 Transient forms of professionalism

Similarly to the previous point, group task characteristics seem to play a constitutive role in the interactions amongst members of explorative groups. However, tasks in *CommGroup*, and to certain extent also in *SaferGroup*, are novel, ill-defined and evolving. Add to this the vague and changing recommendations from the DoH and some other critical stakeholders. It then becomes apparent that persistent uncertainties and confusion permeate the enactment of group tasks (Karreman, Sveningsson, & Alvesson, 2002). In this situation, not only the definition of problems, but also the selection of criteria used to judge problem-solving are at stake (Noordegraaf & Abma, 2003).

Similar ill-defined and transient characteristics are to be found in the other five interdependent elements listed above. These are: hazy professional identity, lacking a clear affiliation to any visible professional community; imprecise accountabilities and weak relationships with external constituencies; and finally, high levels of contextual uncertainty characterized by indistinctive meanings and boundaries of interaction. These characteristics stand in stark contrast not only to explorative groups, but also to theories on classic professions and professionals (e.g. Abbott, 1988; Freidson, 2001). In some respects, they echo the description provided by Schön (1983:17) in that the “awareness of uncertainty, complexity, instability, uniqueness and value conflict has led to the emergence of professional pluralism”.

Such professional pluralism seems to be expressed first and foremost by a hazy and *sui-generis* type professional identity. These identities are preceded by an individualistic self-understanding, rather than a collective one, and they are based on personal trajectories and experience (Kunda & Barley, 2004), and not immediately related to any specific and defined occupation. In the interviews, both *CommGroup* and *SaferGroup* members emphasize that being professionals is not related to any formal affiliation, but rather to showing professionalism, having a professional ethic, or putting on a professional performance (cf. Hodgson, 2005; Noordegraaf 2007). Finally, as described in previous chapters, this professionalism does not draw on collective social-epistemologies but rather in *sui-generis* ones. Schön (1983:49) describes this as a “new epistemology of practice”, one that is about “intuitive processes which some practitioners do bring to situations of uncertainty, instability, uniqueness and value conflict”.

It is the same uniqueness and uncertainty of the task that partially explains the low level of organizational and professional accountability found both in *CommGroup* and *SaferGroup*. First, many projects are rather unique which in turn makes comparability difficult. Second, in these loosely ordered knowledge groups, the institutionalization of any form of control becomes difficult (Noordegraaf, 2007). As a consequence institutional powers are destabilized, and boundaries are shifting (Fournier, 2000:67).

Finally, the links to the outside NHS context are weak and informal. Moreover, these links remain esoteric for most of *CommGroup* and *SaferGroup* members. Lacking a clear and collective professional ascription, hence access to professional networks, explorative group

members need to rely upon each group leader to receive sensible information and to negotiate resources. In summary, it is not only the ill-defined nature of these links and relationships, but also that of the contextual requirements which further the uncertainties and instabilities that permeates group practices.

6.5 Informational spaces and professional knowledge

In Chapter 3 I described how the pilot findings provide support for the idea that knowledge becomes almost inextricably linked with practices, to the extent that there is a mutual constitution between knowledge and practice. In keeping with Bourdieu's (1977), Lave's (1988), and Carlile's (2002) findings, the analysis of previous chapters depicts different forms in which knowledge is invested, located, and embedded in group practices. In addition, the cases studied reveal that different informational spaces permeate, and forms of knowing exist in, exploitative and explorative cross-occupational groups. This section hence addresses, in a comparative fashion, the characteristics of informational spaces, knowledge, and knowing across the two types of cases.

The exploitative groups studied inhabit informational spaces that can be characterized by the overload of externally driven information. This information is first and foremost indexical in so far as it "describes" and "constates" concrete group situations and activities. It usually consists of collections of decontextualized representations of the groups' processes and outcomes, alongside the data from "equivalent" collectives, in the form of quasi-"*league tables*". The informational space aims to be both *comprehensive* in its

coverage of activities and *disaggregate* in its level of detail and concreteness. Furthermore, the degree of accuracy of this informational space is highly contested amongst group members, and information sources are differently valued and invested across professions.

My observations of the discussions and exchanges across *AcuGroup* and *MedGroup* members provide grounded support for a non-conflated understanding of information and knowledge in exploitative teams (cf. Boisot & Canals, 2004). Two situations illustrate this distinction in practice. First, group members tend to take information in heuristically, as information is granted with certain utility – as potentially serving to find out problems – but not with complete reliability. Second, information only provides a symbolic input for knowing and doing, but never the terms of interpretation and representation. Instead, these terms of interpretations seem to be rooted in each particular professional schema (Abbott, 1988; Freidson, 2001). As these findings seem to suggest, professional knowledge provides the sets of ideas, beliefs, values, and/or world-views (cf. Hughes, 1980) necessary for selection and interpretation of information.

Consequently, professional knowledge appears both in *AcuGroup* and *MedGroup* as the capacity to use information (cf. Alavi & Leidner, 2001). This grounded understanding becomes immediately apparent when we analyse instances of knowing in both groups. First, in the different practices analysed group members with similar professional affiliations tended to demonstrate similar *frames* of understanding. This point is further supported by the doxastic statements from the narratives, as members tend to take for granted that other members' understandings and values are primarily rooted in professional

schemata. Second, as the practice of *priority setting* highlights, this professional schema seems to guide different processes of value attribution. This professional knowledge seems to be influencing also the assessment of legitimacy of the different sources of information. Finally, as the practices of *managing conflict* and *communication* indicates, professional knowledge also appears as scripts (in line with Barley's definition as "outlines of recurrent patterns of interaction" (1986:83)) that guide the concrete enactment of practices and provides in many cases the definition of normality.

In contrast, the informational space in explorative groups can be characterized by a comparatively limited amount of information. Data embedded in explorative group practices is not related to descriptive, but rather normative and performative information. As suggested in the previous chapters, this information is materialized in most of the cases in the form of policies, guidance, regulations, and other type of publications from the DoH, and other stakeholders. A notable example of this performative and 'non-truth valuable' information is the case of the DoH's white papers that have originated both groups. Information is hence *conceptual* and *aggregated*, lacking any concrete reference to specific group practices, or any guidance for their enactment.

Remarkably, the previously clear distinction between information, as a symbolic input, and knowledge, as a capacity of understanding and as a behavioural script, is much more difficult to observe both in *CommGroup* and *SaferGroup*. This is not least due to the fact that information, in particular the normative and performative one, provides some terms of interpretation and representation. This is not the same as to say that such terms are

univocal, complete, or fully articulated. Rather, as general and abstract as this information can be, it usually provides a set of ideas, values, and world-views. Furthermore, explorative groups' members do not clearly ascribe to any particular professional schema. Without the more definitive epistemological collective grounds of their exploitative counterparts, explorative team members rely on more individual, ill-defined, and *sui-generis* epistemologies.

Accordingly, as the observation of different instances of knowing suggest, explorative group members are less limited by the “inherent tenacity” (Fleck, 1979) of *thought worlds* and *professional knowledge systems*. This becomes conspicuous in the group presentations and reports, where members simultaneously draw upon different theories, models, and conceptual schemas. In keeping with Schön's (1983:49) propositions, this epistemology of practice is much related to the intuitive process which members bring to the situations. Also, it is the same *sui-generis* and ill-defined nature of this epistemology which produces fuzzy categories, and makes it difficult for team members to sort things out (cf. Bowker & Star, 1999).

It follows from the above description that there are no substantive differences between the two explorative groups in terms of their informational spaces. Nor are there differences in terms of the more conflated conditions of information and knowledge in these groups that underscore an epistemology not primarily based on collective ideas, beliefs and doxastic states, but rather one based on individual experiences and syncretic use of different knowledge systems. Yet, and in stark contrast to *CommGroup*, *SaferGroup* members mimic

stratification by drawing on dominance hierarchies of professions borrowed from other settings (that is hospitals). This situation, labelled as *adopted-order* in § 5.3.2.3, affects instances of knowing such as assessment of epistemic legitimacy of team members' knowledge, a situation that bears some resemblance with the exploitative teams.

6.6 Types of indeterminacies

With regards to this point, I shall resume the comparative analysis of one of the core emergent concepts across the four cases: the different types and degrees of indeterminacies that permeate cross-occupational groups. Related to the previous points and also to the conditions of embeddedness, two classes of indeterminacies were found in the four case studies. Semantic indeterminacy, or ambiguity, was found to be affecting practices in exploitative teams as they inhabit informational spaces characterized by a wealth of equivocal information, provided by very diverse external and internal stakeholders. In this situation, no single frame of reference dominates the others, and the construction of a coherent understanding at the group level becomes difficult. In contrast, *de re* indeterminacy, or uncertainty, was found to be affecting practices in explorative teams, as they were embedded in political, organizational, and informational contexts, characterized by limited knowledge, vagueness, and the indistinct meaning of their boundaries. This situation primarily leads to problems of understandings across explorative group members. Based on these findings, it is the purpose of the current section to further the analysis on the different knowledge challenges posed by ambiguity and uncertainty.

Indeterminacy is defined as a state of being non-specific (OED, 2010). As I discussed in earlier sections, such indefiniteness has two different informational antecedents across exploitative and explorative groups. As for the formers, it is defined by an overabundance of information which in turn might create, in Simon's terms (1971), a "poverty of attention". When confronted with a wealth of equivocal information, group members face the need for simplification. Consequently, as the interviewees' narratives suggest, group members focus primarily on areas that are related with, or have consequences to, each individual speciality/department, while little attention is paid to the rest of the information. In the follow-up sessions, D10 (CD Director) and M7 (CD Manager) provided further evidence of this practice, by suggesting that the main role of the meetings is to ensure that all the team members are at least aware of all the main topics of the CD agenda, and its related documents. In addition, exploitative group members tend to engage in a simplification process by overvaluing information provided by certain types of sources, and underestimating information provided by so-perceived not respectable sources (e.g. § 4.2.2.3). In both practices group members rely on classifications, and value systems closely related to professional schemata, which in turn reinforce initial values and interpretations (cf. Schwenk, 1984). This is so to the extent that members, under time and attention constraints, can not engage in any meaningful way with all the information received. Moreover, the very existence of multiple and competing external frames of references erodes any prescriptive and disambiguational role of those very frameworks. As a consequence, high ambiguity seems to reinforce in exploitative groups the use of each occupational schemata and guides processes of investing knowledge and knowledge sources with different degree of reliability. Finally, the very cross-departmental and cross-

occupational constitution of the CD Boards poses further challenges in terms of simplification, as members need to cope with the large number of different and non-dominating priorities. They do that, by negotiating, and materializing a situated logic of compromise (§§ 4.2.2.1, 4.3.2.1), which tries to preserve the interests and needs of each clinical unit / occupational group.

As for the case of explorative groups, this indefiniteness is characterized by high levels of informational and contextual indeterminacy, instability, and uniqueness. Group members hence face persistent uncertainty, confusion, and contradiction (cf. Karreman et al., 2002; Noordegraaf, 2007). When confronted with limited informational spaces, and novel and ill-defined tasks, team members face the need for elaboration (cf. Reger & Huff, 1993). Elaboration involves, first and foremost, defining which problems must be tackled. The way this process is enacted, as described in § 5.2.2.2, adds further instability, as it is inscribed in informal and iterative sense-making phases (cf. Weick, 1979) between each Head of the Programme, and key NHS stakeholders, without any participation from the rest of the group. Second, elaboration also involves defining which frameworks and theories might be useful for structuring such problems. Elaboration finally involves defining both methods for problem solving and, as depicted in the practice of monitoring progress (e.g. § 5.2.2.4), the criteria that must be used to judge problem solving (cf. Noordegraaf & Abma, 2003).

In all these practices, elaboration entails filling the gaps when interpreting the demands of the DoH, and other stakeholders. Such a process is not immediately oriented by any

visible professional knowledge system, as problems, which are highly novel, ill-defined, and detached of professional practice, are usually poorly classified under the more stable professional classification (cf. Bowker & Star, 1999). Hence, the subjective modalities of connecting concrete problems with the professional knowledge system (e.g. diagnosis, inference, and treatment in Abbott's theory, 1988) are difficult to materialize in explorative groups. As a consequence, elaboration remains a highly individual activity, with a syncretic use of different theories and frameworks, inscribed in *sui-generis* epistemologies. To sum up, explorative group members facing ill-structured novel problems need to construct solutions by relying on different corpora of knowledge and information rather than on certain principles and beliefs from professional knowledge systems.

6.7 Professional boundaries and barriers

As implied in earlier sections, and in contrast to many previous studies which use the concepts "boundaries" and "barriers" interchangeably, the evidence from the four cases suggest that professional boundaries are not always and necessarily knowledge inhibitors. In some cases talking about boundaries and barriers as similar or matching entities, is conceptually coherent, as in the case of Abbott's theory of professions (1988). If like him, one assumes that conflict is at the heart of the interaction across professions, then boundaries become zones of action, and zones of resistance (Abbott, 1995a). Under similar assumptions, the inextricable relationship between boundaries and barriers also become evident when studying the concrete materialization and embodiment of boundaries. As portrayed in the case of Bechky's ethnographic work on the use of artefacts, these boundary objects are means not only for sharing knowledge but also for constructing and reflecting

“occupational jurisdiction in the workplace” (2003a:746). However, as the evidence of both exploitative and explorative cases seems to suggest, boundaries in cross-occupational groups can in some cases facilitate the recognition, understanding and integration of different expertise and diverse bodies of knowledge.

Traditionally, the concept of a boundary has been intuitively associated with the relatively stable limits of entities with mereological structures. Aristotle precises this by defining the extremity of a thing *x* as “the first thing outside of which no part [of *x*] is to be found, and the first thing inside of which every part [of *x*] is to be found.” (Metaphysics 1022a, in Varzi, 2008). This very intuitive physical definition stands in stark contrast to the underlying idea of boundaries that permeate most of the Sociology of the Professions. For many authors, boundaries are zones of actions, and the result of historical collective endeavours (Kronus, 1976; Gyerin, 1983; Abbott, 1988; Manley, 1995; Allen, 2000; Bechky, 2003). Demarcation (Gyerin, 1983), boundary-work (Allen, 2000; Bechky, 2002), boundary maintenance (Kronus, 1976), and boundary reinforcement (Manley, 1995) are some of the actions that professions as a collective, perform in order to avoid encroachments (Abbott, 1988), and to limit the number of entrants (Kronus, 1976; Manley 1995). In this rather combative perspective, it is hence conceptually coherent to treat boundaries in terms of barriers (and vices versa).

However, based on the cross-case comparison findings, boundaries can be equally conceptualized as zones of knowing. This conceptualization echoes a standard epistemological definition (from Moore 1935 to Gibson 1979, in Varzi 2008); according to

which boundaries play a crucial role in perception. Consequently, it is possible to assert that boundaries can become knowledge barriers but also knowledge enablers. On the one hand, boundaries can become barriers insofar as they protect a professional knowledge system and make more difficult the access of interlopers. Accordingly, boundaries – as barriers – might ensure the esoteric nature of occupational knowledge (Manley, 1995). This is the case for example in relational knowledge (“knowing whom”) as in *AcuGroup* (§ 4.2.2.4). Managers remain ignorant about *who is who* in the informal medical structure in the Hospital, and as a consequence they can exert little influence on them. As zone of knowing, boundaries can also become knowledge barriers when presenting fuzzy characteristics. As depicted in explorative groups, knowledge sharing is negatively affected by the very haziness of their social-epistemic boundaries. The boundaries in both *CommGroup* and *SaferGroup* are vague insofar as there are no clear professional ascriptions, and the expert knowledge held by group members, is highly personal, idiosyncratic, and not entirely related to the task. For this reason, awareness and understanding of others’ knowledge becomes difficult (e.g. § 5.2.1).

On the other hand, the example of task allocation in exploitative teams (§§ 4.2.2.5, 4.3.2.5) shows that: 1) professional boundaries, can be knowledge enablers, and 2) that ontological and gnosiological differences exist between these two entities. The evidence from the case studies suggest that the existence of clear social-epistemic boundaries eases the coordination of diverse knowledge both by facilitating anticipation of the value of expertise held by other members of the group (Nahapiet & Ghoshal, 1998), and by enhancing processes of understanding of each others’ tasks and responsibilities. Boundaries indicate

the limits, whether material or immaterial, of anything (OED, 2010). Such an indication might be useful in that it facilitates the perception and identification of the members / elements that inhabit the “territories” defined by such boundaries. Another example of this facilitation of knowledge exchanges by clear social-epistemic boundaries is that of ‘*Cardiac Arrest*’ teams within the Clinical Directorate presided by the *AcuGroup*. These teams are summoned to all situations where a patient or individual is not breathing. These teams are usually composed of anaesthetists, physicians and nurses who are on-call but dispersed around the hospital. There is usually no communication or contact between team members prior to attending a cardiopulmonary arrest, and within a few minutes they have to arrive into the place, make a diagnosis, coordinate tasks, and perform the resuscitation procedure.

In sum, the evidence from the cases extends previous understanding of professional boundaries as zones of action, by suggesting that boundaries are equally zones of knowing. As zones of knowing, certain characteristics seem to explain how boundaries can become either knowledge inhibitors, or enablers. As for the former case, the example of explorative teams is relevant. The fact that social-epistemic boundaries are blurry hinders knowledge-sharing across team members, by limiting the awareness and understanding of others’ expertise and knowledge. As for the former, the example of task allocation might indicate that established and recognized barriers may help to identify other knowledge, as such boundaries might signal concrete expertise and knowledge across team members. Though empirically limited, these findings seems to be a relevant area for theoretical elaboration in

the next chapter, especially concerning the relationship between boundaries and barriers, and the conditions under which boundaries become knowledge barriers.

6.8 Chapter conclusions

In organizing the current cross-case examination, I followed the recommendation of Miles and Huberman (1994) who endorse the use of two complementary methods of inquiry: a *case-oriented* and a *variable-oriented* analysis. In the first part of this chapter, a *case-oriented* strategy was followed enabling each case to be considered as a whole and paying particular attention to the different configurations of antecedents, mechanisms, and effects of the four knowledge barriers across the cases. The findings of this comparative examination help to explain the empirical differences across the explorative and exploitative cross-functional groups. These differences can be traced to the antecedent conditions of embeddedness, the nature of the group task and characteristics related to the professional identity of group members. Less evident, but no less important, the detailed analysis of the antecedents underscores two different forms of professionalism at work across the exploitative and explorative groups. While the theoretical implications of these findings will be elaborated in the next chapter, suffice here to say that these two forms engender very different knowledge sharing conundrums amongst group members.

In the second part of this chapter, a *variable-oriented* analysis was followed considering key themes that emerged across the cases (Miles and Huberman, 1994). I particularly focused on three conceptual areas: nature of information, knowledge and knowing; types of

indeterminacies across cases; and differences between knowledge boundaries and barriers. As for the first theme, the analysis suggests that professional knowledge “*works*” differently across exploitative and explorative groups. While in exploitative groups, professional knowledge provides both the terms of interpretation and interactional scripts, in explorative groups professional knowledge is limited, idiosyncratic, and in many cases conflated with information. As for the second theme, the analysis suggests that different types of indeterminacies affect knowledge sharing practices across exploitative and explorative groups, generating different kinds of knowledge conundrums. Finally, the comparison across practices suggests a departure from the classic conceptualization of boundaries as zone of actions (cf. Abbott, 1988). Instead, the analysis of different instances of knowing across occupational boundaries indicates that boundaries can become zones of knowing.

7. Discussion

“So it’s, it’s professional backgrounds but with a small ‘P’, not a kind of clinical as opposed to managerial. But that doesn't stop us confusing each other, I promise you.” (P4).

My research question asked what the factors and barriers are that affect the sharing of knowledge in lasting cross-occupational groups. By analysing two types of these groups, exploitative and explorative, it becomes apparent that two different forms of professionalism permeate the cases. These strikingly different forms, which I termed *established and transient*, provide the empirical and analytical grounds to explain the different knowledge conundrums of the exploitative and explorative group members. In this chapter, I will summarize and elaborate on these findings from previous chapters. This is an important theoretical step, not least because the identification and conceptualization of the different knowledge barriers that pervade these two types of cross-occupational groups is a contribution on its own merits.

However, at a deeper level, these findings also underline the existence of two very different ecologies of (*inter-*) professional knowledge. The first one encompasses more classical forms of professionalism, with their particular knowledge dynamics and struggles, to the extent that professionals with a capital ‘P’ (in the language of one of the interviewees (P4)) populate the exploitative groups. This ecology reflects interactions between more traditional sovereign professions and occupations (medicine, nursing, and, to some extent, managerial). The second one encompasses more transient forms of professionalism, with knowledge dynamics and struggles not primarily based on collectives, but rather on

individuals and *sui-generis* bases. This latter ecology is thus inhabited by professionals with small 'p' (to use the interviewee's distinction again), or what Noordegraaf (2007) has labelled as *hybrid* professionals, who are somehow independent of (or very loosely dependent on) any conventional distinction based on training, certification, or occupational affiliation (Hwang and Powell, 2009). It is hence the purpose of this section to discuss and integrate these findings theoretically.

Following the tradition of qualitative and inductive research, theory building is usually conceived as dialogical process between extant theories and the empirical findings (Langley, 1999). It is within this vein that I have approached both this and previous chapters. Accordingly, the remaining part of this chapter is organized as follows. The first section summarizes the findings of the social-epistemic barriers, and discusses how extant theories in the tradition of the Sociology of the Professions provide the theoretical basis to explain the knowledge dynamics that occur within exploitative teams. However, it is argued, the same theories fall short of explaining the specific conundrums found in the explorative groups. A more nuanced explanation is then provided, one that discusses the different nature and role of professional knowledge between the two proposed professional forms. Similarly, the second section will draw upon the findings of both cognitive and pragmatic knowledge barriers to discuss the differentiated character of the indeterminacies found in explorative and exploitative teams. It will also demonstrate how ambiguity is connected with conditions of *stasis*, and uncertainty with conditions of *transiency*. The third section proposes extending the classical understanding of professional boundaries as zones of action (*à la* Abbott), by treating them as zones of knowing. It is argued that this

conceptual turn can deepen our understanding on the conditions that makes some boundaries become either knowledge barriers or knowledge enablers. To substantiate this, I will draw upon the findings of both structural and social-epistemic barriers. Finally, the last section will summarize the significance of the proposed theoretical contributions. All in all, the diverse knowledge barriers and the underlying professional forms seem to be capturing two contemporary, yet different, knowledge ecologies: one composed of more institutionalized forms of professional practice, and another composed of novel, emergent and hybrid forms of expert practices.

7.1 Professional knowledge

In previous chapters I have analysed how social-epistemic barriers hamper knowledge integration and mutual understanding amongst cross-occupational group members. In the case of exploitative teams, members tend to rely on their communal ethoi and schemata, from which they draw diverse interpretations, expectations, and attributions of legitimacy. Furthermore, it is this reliance on the communal cognitive structures, and the more conspicuous professional affiliation, that seems to make the acceptance and integration of others' understandings and values more difficult (cf. Dougherty, 1992a; Fleck, 1979). For explorative teams, the vagueness of professional identities and the reliance on more *sui-generis* sorts of social-epistemologies seems to affect the recognition and awareness of others' knowledge, and generate confusion over others' expertise, skills, roles, and responsibilities. Most obviously, these findings suggest that the characteristics of the group members' professional identity influence the interactions within cross-occupational groups.

Less obviously, but by no means less importantly, these findings seem to indicate that the nature of the task and the context of embeddedness also help to explain the adherence to different epistemologies.

Consequently, in this first section I will discuss how professional knowledge, and therefore professional knowledge claims, are interwoven with the nature of the task. Theorists in the Sociology of the Professions have provided conceptual (e.g. Freidson, 2001) and empirical (e.g. Abbott, 1988; Bechky, 2003) explanations of how occupational groups try to define, bound, and normalize certain problems, so as to be able to claim expert knowledge on them. Through my theoretical sampling, I have analysed not only those situations (as in the case of exploitative groups), but also situations where the degree of task novelty and uncertainty precludes such stabilizing, bounding, and normalizing of professional practices (as in the case of explorative groups). It is the aim of this first section to contribute to the debate on present-day forms of professionalism, by discussing how professional knowledge plays out differently across these two types of groups. I will do this by providing a theoretically informed understanding of the specific knowledge barriers that emerge when professional knowledge becomes de-centred, and expertise claims, based on substantive knowledge, are significantly weakened.

7.1.1 Extant theories and the underlying conditions of stability

The Sociology of the Professions has paid particular attention to the internal occupational processes that explain the formation and acquisition of occupational beliefs (see § 2.1.1).

This is a central theoretical and analytical endeavour in so far as it responds to one of the critical questions posed by this theory – i.e. how experts within an occupation create and acquire knowledge. Due to the central role that professional knowledge plays in these different approaches, the answer to this question becomes critical. From a logical perspective, Freidson (2001) describes how ideal-typical professions, which represent an exemplary form of discretionary specialization, require the employment of knowledge that is gained by special training (usually and primarily through vocational schooling, but also via on-the-job training). It is through this special training, and socialization, that professionals acquire the occupational beliefs and values (cf. Abbott, 1988) that become part of their cognitive and cultural repertoires (Gieryn, 1983), and suffuse their professional practice.

At the more macro level, the insights from these studies allow us to explain how epistemic systems vary between occupational communities. At the more micro level, it helps to explain how these cognitive and cultural repertoires equip professionals with programs of action and interpretation that guide practice enactment (Barley, 1986; Knorr Cetina, 1999). Central to the latter point is the process of categorization, understood as the epistemic process that professionals use to clarify and simplify incomplete and complex information (adapted from Kahl, 2007:07). Through their training, practitioners acquired a set of categories that are used in the classification of problems (cf. Bowker & Star, 1999) and in the actions taken in response to them (Abbott, 1988). Hence, the underlying epistemic relationship between professional knowledge, professional categories and problems presupposes relatively high levels of stability and/or stabilization. If a classification schema

is unstable or imprecise, it may lose the integrity and authority needed to influence professional practice (Kahl, 2007, cf. also Meyer & Rowan, 1977). Additionally, if the nature of the task is particularly novel or unique (Schön, 1983), it will impede or seriously limit its classification into known professional problems (cf. Abbott, 1988). It is thus under relatively greater levels of stability that both the professional classification schema and the task that the modalities of professional actions (i.e. diagnostic, inference, and treatment), as described by Abbott (1988), can occur.

However, while important, the epistemological analysis above can not fully explain the normative power and inherent tenacity of these occupational epistemic systems, or *thought collectives*⁸⁷ (Fleck, 1979), under conditions of stability. Answering this question necessitates consideration of the following sociological arguments. First and foremost, since this substantive professional knowledge is both historically and epistemologically connected with the task, it provides professionals with functional interpretative schemes that help them to understand many aspects of their work and the basis for taking action. Even though the actual occupational practice implies the discretionary acts of interpolation (cf. Brown & Duguid, 1991) and inference (Abbott, 1988) between abstract principles and situated demands, still there is some sort of objective validity that provides initial justification for the use of professional beliefs, values, and categories. Second, this professional knowledge is a hard-won outcome (cf. Bourdieu & Wacquant 1992; Carlile

⁸⁷ As pointed out by Orlikowski (2000:176), a variety of concepts have been used to describe these communal cognitive structures, including “cognitive maps” (Bougon et al., 1977; Eden 1992), “frames” (Goffman, 1974), “interpretive frames” (Bartunek & Moth, 1987), “interpretative schemes” (Giddens, 1984), “mental models” (Argyris & Schön, 1978; Shutz, 1970), “paradigms” (Kuhn, 1970), “scripts” (Abelson, 1981; Gioia, 1986), and “thought worlds” (Dougherty, 1992).

2002) obtained usually after lengthy periods of schooling and on-the-job training. As a consequence, professionals might favour its use; and be protective in cases where such professional knowledge is put at risk. Third, insofar as professionals are part of an occupational community, the meaning of the professional categories is influenced and shaped by frequent interaction with peers. While this situation does not necessarily preclude unorthodox understandings and use of the professional knowledge principles, it evidently explains “the restrictions the existing institutionalized system has in accepting these potential changes” (Kahl, 2007:13). Finally, over time, the reliance on professional cognitive schemes allows for some of these beliefs, values, and categories to be taken for granted, and operate at a doxastic level. Ultimately, some sort of practical confirmation of validity, a high degree of personal investment in acquiring professional knowledge, a stability of membership, and its prolonged use, all explain the strength of the established occupational beliefs (cf. Fleck, 1979).

When working across occupational boundaries, professionals are confronted not only with different knowledge systems but also with their own knowledge system. This is so to the extent that many beliefs, values and categories that “operate in the background” (Orlikowski, 2000) are somehow re-illuminated, as assumptions which are usually taken for granted are opened to questioning by the presence of a professional with a different knowledge system. At a work-practice level this means that professionals from different occupational groups draw upon different categories to classify information and problems. Moreover, they also might rely on different processes of inference and problem-solving (cf. Knorr-Cetina, 1999, see also Kuhn, 1962). Under situations like the one described above –

i.e. stability of task, stability of knowledge systems, and stability of professional membership – knowledge-sharing might become cumbersome across professional boundaries. The normative power of each respective professional knowledge system may not necessarily lead to a lack of understanding⁸⁸ between members with different professional affiliations, but rather to clashes, and stalemate positions, because of diverse interpretations, value attributions, and preferred modes of practice enactment. This might particularly be the case when there are strong contrasts in the beliefs, values, and categories of the different team members. In this situation, the integration of others understandings, perspectives, and modes of practice becomes problematic not only because of the sheer differences in thought, but also because of the lack of consistency within their own professional schemata.

7.1.2 Findings and identified gaps

The above conceptualization, which describes the case of interactions between sovereign and established professions, provides conceptual grounds for explaining the empirical findings of the exploitative case studies. Members of both *AcuGroup* and *MedGroup* rely on their professional schemata from which they derive understandings, value, and attributions of legitimacy. As bearers of different sets of epistemic and doxastic beliefs, group members with different professional affiliations, tend to favour certain

⁸⁸ On this point I depart from the received wisdom of the literature about the high degree of esotericism found in occupational groups. When analysed from a micro perspective, the lasting and frequent interactions that occur between professionals with different occupational memberships highlights how the many elements of each particular knowledge systems become visible to the “outsiders”, as such cognitive structure emerge through enactment (Orlikowski, 2000)

understandings, and value differently certain types of information (and its sources). Based on these findings I proposed, in a previous chapter, to label this predisposition as *epistemic affinity*. This echoes with Kalh's (2007) idea of the need for consistency between new beliefs, values, and categories, and the ones already borne. The evidence from the cases suggests that without such epistemic affinity, group members tend to disregard and be actively inattentive of information, sources, and interpretations that are not aligned with – or even are opposed to – their professional knowledge. This was found, for example, in two group practices: *priority-setting* and *team progress monitoring* (e.g. § 4.2.2.2). What the evidence of these practices shows is that different team members hold different views on the value to be attributed to priorities, information, and even external sources of information. Consequently, these different elements are clothed or endowed with different attributes and qualities (cf. Bourdieu, 1977) that are ingrained in, and in consonance with, each particular professional schema.

The above epistemic dynamic, which explains the emergence of the social-epistemic barriers in exploitative teams, also provides the conceptual grounds for explaining two further characteristics identified both in *AcuGroup* and *MedGroup*. First, it explains the differentiated character of information and knowledge (cf. Boisot & Canals, 2004). As described in the previous chapter, professional knowledge provides the set of beliefs, values and categories that helps to organize and sort information. Under conditions of high levels of stability, both of professional classification schema and task content, professional knowledge therefore distinctively appears as a capacity to classify and use information. If we add to this the very concrete, referential, and disaggregate nature of the information the

CDs have, it then becomes apparent that information (as a symbolic input) and professional knowledge (as a capacity of classification and value) are not conflated in exploitative group practices⁸⁹.

Second, professional knowledge provides the basis not only for the classification of information, but also for the actions that might follow, guiding in many cases the enactment of practices (see e.g. §§ 4.2.2.3, 4.3.2.3). This finding is close to Abbott's conceptualization of the modalities of professional actions. In the interaction which he depicted between professional knowledge and problems "amenable to expert service" (1988:35), there are two differentiated instances: one of knowing (through the actions of diagnosis and inference), and one of acting (through the action of treatment). The latter instance is the action of bringing instructions back out from the professional knowledge system (Abbott, 1988:40). Yet, such instructions are not related solely with cognitive aspects, but also with communal and normative ones. In other words, the repertoire of possible actions and enactments, which professional knowledge informs, is not only evaluated in light of a rational choice, but also in light of its coherency with the existing conventional actions and appropriated behaviours that each occupational community has.

While the conceptualization of classic professions, and inter-professional dynamics, provides the theoretical scaffold to understand the empirical findings of exploitative cases, it falls short of explaining the evidence from the explorative cases. What is perhaps most

⁸⁹ This is clear also to the extent that the struggles between team members are not settled by collecting additional information (cf. Pauly, 2001).

striking about these latter cases is that professional knowledge appears in a different form, and works differently, than in the exploitative cases. Members of *CommGroup*, and to some extent also the ones of *SaferGroup*, experience difficulties in relying on their original professional schemata to derive understandings and values. This is explained not only by the particular hybrid trajectories some of the team members have, but also by the instability and uniqueness of both the task and the context of practice enactment. Rather than drawing on clear and defined collective social-epistemologies, group members seem to develop more *sui-generis* types of epistemologies to draw situated interpretations and value attributions. This is a more intuitive epistemic practice that lacks the clear boundaries and the more definite contents of their exploitative counterparts. As a consequence, traditional professional knowledge systems seem to lose their *epistemic grip* and tenacity, as they are inadequate in classifying problems and tasks that are removed from professional practice, novel, ill-defined, and somehow unique. This situation also seems to relax the need for consistency between new beliefs, and any prior collective beliefs. Furthermore, these conditions of instability conspicuously limit the cognitive and cultural repertoires needed for the construction and deployment of classic professional identity (cf. Gieryn, 1983). Consequently, indistinctiveness of professional knowledge, classification schemata, and professional identity generate a different arrangement of social-epistemic barriers in explorative groups. Knowledge-sharing across boundaries is hence affected in its early phases, as team members struggle to categorize and recognize the knowledge and practices of others, leading to further misunderstandings and uncertainty.

The indistinctiveness of the social-epistemic boundaries, rooted in more individual, ill-defined, and *sui-generis* elements, departs from the collective grounds that are the cornerstones of many theories in the Sociology of the Professions, and helps to explain two further epistemic elements that were found somewhat surprising. First, there seems to be no sharp distinction between information and knowledge across explorative group members. As the professional knowledge and classification scheme loses its epistemic grip, explorative group members draw more syncretically upon different sources, information, and knowledge systems in their attempt to classify and act upon such novel problems. Consequently, the theories-in-use seem to be the intuitive and ad-hoc result of a conflation of multiple symbolic elements. Second, and as a consequence, group members experience difficulties in promptly deriving actions, and informing practices, from such *sui-generis* epistemologies. This is to such an extent that the primary relationship between professional knowledge and problems is not clear or already typified. Consequently, group members need to create such a relationship in a novel and figurative way.

7.1.3 Theoretical contributions: knowledge in new forms professionalism

At a basic level, the empirical findings from the explorative cases help to extend our understanding of the nature and role of knowledge beyond the classical forms of professionalism. In so doing, this thesis takes a broader definition of professions (following recent works such as Hwang & Powell, 2009; Kunda & Barley, 2004; Noordegraaf, 2007): one that also encompasses expert knowledge workers, with many of them having classical forms of professional training and certifications, facing problems that are novel, unique,

and evolving, and embedded in settings with similarly unstable characteristics. As a result, this thesis adds a more nuanced explanation of the different conditions that affect contemporary ecologies of professional knowledge. I have already argued that much of the work of the Sociology of the Professions has successfully explained how knowledge systems, based on collective epistemic grounds, pervasively influence experts' interpretations and practices in classical forms of professionalism. However, the same work falls short of explaining how professional knowledge works in conditions where there is a lack of task and institutional stability, which are both necessary conditions for allowing professional knowledge to retain its "inherent tenacity" and pervasiveness (cf. Fleck, 1979; and Abbott 1988). To put it simply, in this thesis I argue that professional knowledge works differently across exploitative and explorative group members due to the different characteristics of their tasks and conditions of embeddedness. These findings are not insignificant, as different arrangements of knowledge barriers, and consequences for knowledge-sharing, were empirically found in the two types of cross-occupational groups.

With this in mind, I now wish to sum up, and expand upon, the arguments developed so far by discussing the characteristics of the two distinctive knowledge bases that underlie the professional practice and interaction of classical and more transient forms of professionalism identified (see a summary in Table 7.1 below). So far, two types of social-epistemologies have been discussed (see §§ 4.2.2.2, 4.3.2.2., 5.2.2.2, 5.3.2.2, and 6.2.2): one based on collective grounds and clearly ingrained in professional schemata, and the other based on more individual, ill-defined and *sui-generis* grounds. The former can be described as an epistemology of possession (Cook & Brown, 1999; Currie & Kerrin, 2004),

insofar as the control of occupational beliefs, values, and categories provides the grounds for both the exclusive claims of epistemic authority, and cognitive monopoly over particular codified areas (cf. Whitley, 1989:222; see also Grey,1997). The latter, borrowing from Schön’s definition (1983), can be described as an epistemology of practice, insofar as it is not based on the control of certain substantive knowledge but emerge from the situated interaction with problems and practices (cf. Cook & Brown, 1999). Under the conditions found in the explorative teams in the quango (see §6.4.1), such exclusive claims of epistemic authority and cognitive monopoly are difficult to maintain. Instead, an epistemology of practice seems to prevail, which is more personal, implicit, centred around the practice, and focused on intuitive processes brought to situations of uncertainty, instability, and uniqueness (Schön, 1983:49).

Aspects of professional knowledge	Exploitative groups / Logic of stasis	Explorative groups / Logic of transiency
Epistemology	Collective, epistemology of possession	<i>Sui-generis</i> , epistemology of practice
Content	Substantive, and based on a disciplinary area. Works as interpretative frame and behavioural script	General and situated, and based on syncretic use of different disciplines, theories, and information.
Nature of problems	Stable and categorized	Novel and unique
Main modality of knowing	Inference	Analogy
Normative power	High/Moderate	Moderate/Low

Table 7.1 Knowledge characteristics in classic and transient forms of professionalism

In turn, the nature of tasks and problems also varies from classical to more transient forms of professionalism. In exploitative teams, tasks and problems are relatively stable, and

range within a spectrum of known professional categories. Occupational knowledge is hence substantive, yet still connected with the challenges of medical and managerial practice in the hospital. Consequently, within each occupational group, the ways of accomplishing the task are generally perceived to be clear and direct. Thus, the use of professional knowledge is justified both through its connection with problems and tasks, and through its reference to collectively agreed meanings. However, these preferred internal practices become contested when confronted with the favoured practices of other occupational groups. Conversely, in explorative teams, tasks and problems are novel and unique, with high levels of instability. Thus, there is not a straightforward and easily recognized procedure to be followed for their accomplishment (George & Zhou, 2001:514). This situation somehow brings into question the utility and/or applicability of any canonical use of previous professional knowledge (Noordegraaf & Abma, 2003:867). What this should suggest is that a) such uniqueness renders any previous professional knowledge eccentric, and b) team members need to rely on broader knowledge bases, drawing unconstrainedly on different sources of knowledge and information.

...we're all fish out of water [...]. We have all had to reset our, you know, our measures of what's around us and who's around us and what their knowledge base is. (O2)

Furthermore, the above description reinforces the idea that within more stable forms of professionalism, as in the case studied for exploitative teams, inference – as a process of drawing conclusions from known or assumed facts or statements (OED, 2011) – is an important form of professional practice (cf. Abbott, 1988). Although many scholars have preserved the term *inference* for the pure forms of professionalism (see for e.g. Mintzberg,

2004), my contention is that the higher levels of task stability, and clear boundaries across professions and professionals, allows each occupational group (i.e. medical, nursing and managerial)⁹⁰ to draw upon its particular corpus of beliefs, values, and categories when accomplishing the task. Conversely, in more transient forms of professionalism, like the one in explorative teams, analogy seems to be a vital part of the professional practice, as usually problems fall “outside what are normally considered the boundaries of the professions” (Schön, 1983:184). This is a figurative use of beliefs and categories to the extent that the transferring of meaning is necessary from originally held beliefs and categories, to the novel, and different, problems and contexts. Finally, as described earlier, the normative power of professional knowledge is lower under the more unstable conditions of the explorative teams. Facing new and unique tasks, in a ‘fragile’ and evolving institutional setting, any substantive professional knowledge seems to lose both its epistemic grip, and its normative power.

7.2 Indeterminacies in professional practice

In relation to the differentiated character of professional knowledge between more stable and more transient forms of professionalism, the comparative analysis conducted in this thesis also underscores differences in the types of indeterminacies that permeate the two types of cross-occupational groups. The examination of the cognitive barriers in previous chapters is quite revealing in this respect. On the one hand, the exploitative teams in the hospital face higher levels of ambiguity (*semantic indeterminacy*), as they are exposed to a

⁹⁰ This is not equal to say that these different corpora of professional knowledge have the same degree of abstraction or articulation.

wealth of equivocal information and demands provided by multiple internal and external stakeholders. As described in § 6.2.1 and § 6.7, this hampers the integration and construction of a coherent understanding at a group level, and generates the need for cognitive simplification. On the other hand, the explorative groups in the quango experience higher levels of uncertainty (*de re indeterminacy*); as they are exposed to situations characterized by limited and vague information about and knowledge of tasks and priorities, and indistinct definition of the boundaries of interaction. In turn, this leads to problems of understandings among group members, and creates the cognitive need for elaboration as problems – alongside with methods for problem-solving and criteria to judge those very methods – need to be defined by team members. Uncertainty is further increased in explorative teams due to the characteristics of structural barriers (§§6.2.4, 6.3, 6.4), as only the Head of the Programme has access to the key stakeholders that influence such processes of elaboration.

These findings seem to be both empirically and logically consistent. Under higher levels of task and institutional stability, professional knowledge becomes a more structured and institutionalized schema – and the categorization of problems more encompassing. As some of the classic work in the Sociology of the Professions have rightly pointed out (cf. Elliot, 1972; Freidson, 2001; Larson, 1977; Wilensky, 1964), in order to gain control over a specific set of problems and tasks, and exercise some degree of closure, sovereign professions need to reduce uncertainty and be able to convert uncertain situations into certain ones (De Vries et al., 2009). As a result, the remaining indeterminacies usually become uncategorized residual areas (Abbott, 1988). However, in this thesis I argue that a

transient form of professionalism faces bigger challenges when trying to remove uncertainty, as uncertainty is inherent to the task, problems, and context of practice enactment. Consequently, it is somehow irreducible. In this section, I will draw upon, and extend, insights from the Sociology of Professions to discuss why ambiguity primarily permeates the types of ecologies of (*inter-*) professional knowledge like those found in the hospital, and why uncertainty mainly pervades ecologies of (*inter-*) professional knowledge like those found in the quango.

7.2.1 Extant theories and the reduction of uncertainty

Suggesting that ambiguity primarily affects interactions within classical forms of professionalism does not mean to say that uncertainty does not exist under this more stable professional form. Rather, it simply suggests that uncertainty needs to be reduced if control over particular types of work, and the dominant public definition of the task, is to be achieved (Abbott, 1988:60). At an *intra*-occupational level, as Barley rightly points out when analysing the complexity and novelty brought about by a new technology, high uncertainty loosens the role of the professional cognitive structures by introducing indeterminacies into a world hitherto well understood (1986:106). At an *inter* occupational level, high uncertainty (that usually materialized in the form of large uncategorized residual areas) is “certain to encourage extraprofessional invasion” (Abbott, 1988:56).

As a result of this collective exercise of reducing uncertainty, most of the problems are somehow pre-digested and predefined by a number of colleagues (Abbott, 1981). In this

less uncertain and more institutionalized world, professional schemata provide the definition of normality (“the normal case” and/or “the normal problem”) upon which diagnostics and treatment are based (Abbott, 1988; Hughes, 1980). In cognitive terms, professional knowledge aims to circumscribe, categorize and normalize problems. In more political and social terms, such exercises of demarcation between what is known and relevant, and what is not, are first and foremost exercises of professional control. “As content and control reinforce each other, classic professionalism is a matter of controlled content that sets professional work apart from nonprofessional work” (Noordegraaf, 2007:766).

Despite such attempts to reduce uncertainty, other forms of indeterminacies (i.e. ambiguity) arise when working across occupational boundaries in classical forms of professionalism. Under the conditions of stability already described, professionals with diverse affiliations classify and value problems and information differently. As the number of multiple interpretations and frames of reference increase, professionals face larger interpretative spaces (Noordegraaf & Abma, 2003), and increasing levels of ambiguity (cf. Gioia & Thomas, 1996). This is a challenge for professionals not least because ambiguity becomes a source of alternate meanings (Orzano, McInerney, Scharf, Tallia, & Crabtree, 2008:493). In other words, when professionals with different affiliations work together, they bring into their interactions different sets of classification schemes. As these schemes are usually deeply embedded in professions’ infrastructures, they are potent, albeit somehow invisible, in practice (Bowker & Star, 1999:235). However, they become particularly evident upon breakdown or confrontation, which is exactly what occurs when different professionals

interact. This opens up what has been hitherto relatively stable meanings and attributions to new competing understandings and values, generating equivocal interpretative and evaluative situations.

This is not strange in the case of public sectors, where different professions, multiple stakeholders, and different forms of control (i.e. bureaucratic and professional), have long coexisted and competed (Clarke & Newman, 1997; Scott, 1982). As a result, domains such as “welfare, policing, housing, and defence, have become contested domains” (Noordegraaf 2007:769). Accordingly, professional practice occurs amidst multiple interpretations and frames of reference, many of them in situations of incompatibility. Furthermore, the challenge posed by having multiple and competing understandings and priorities across occupational groups is further augmented by the scarcity of resources and rationalization of services, that makes it difficult to attend to these different perspectives and goals all at once. Consequently, one finds in public domains a paradoxical situation wherein multiple enforced understandings and mixed-up forms of control are in place. On the one hand, these characteristics seem to delineate highly bureaucratic and strongly ruled environments, subjected to great public scrutiny, procedural rigidity, and professional norms. On the other hand, the ambiguity that emerges from such multiplicity limits these very forms of categorization and control (as the analysis of pragmatic barriers in §§ 4.2.2.3 and 4.3.2.3 suggests).

7.2.2 Findings and identified gaps

The insights above not only fit the well-known picture of the public sector, but also are particularly relevant for conceptualizing the findings of the exploitative cross-occupational teams studied in the healthcare context. Both *AcuGroup* and *MedGroup* members were found to be inhabiting highly ambivalent settings, as their practices were substantially embedded in high organizational and informational ambiguity. Such ambiguity materialized in the form of an overload of externally driven information and demands, within competing frames of reference (multiple stakeholders and the hospital). This situation not only opens up interpretative spaces (in Noordegraaf and Abma's terms (2003)) over group purposes and priorities, but also generates the need for simplification (Fiss, 2011). In general, simplification seems to occur through the reliance on professional categories of understanding and value attribution that team members apply to reduce the informational and normative complexity which they face. Furthermore, due to the heterogeneous constitution of CDs (composed of multiple professionals representing different CUs and departments), simplification needs to occur through some sort of negotiation, and, perhaps most importantly, compromise. This is particularly the case for areas where interdependence was found to be higher (see e.g. § 4.2.2.1). It is finally noteworthy that uncertainty (understood as the cognitive condition that emerges in situations of very limited, vague, and indistinctive knowledge) plays a very minor role, if it plays one at all, in exploitative group interaction. On the contrary, it is the fact that *AcuGroup* and *MedGroup* face an immense amount of remarkably concrete, albeit competing, information and demands on a broad range of subjects immediately related to their CD practices (Mitton,

Adair, McKenzie, Patten, & Perry, 2007:739) that explains the emergence of equivocal situations.

Under the more stable forms of professionalism like the one found in the exploitative teams, it seems empirically and logically consistent to conclude that ambiguity is the primary antecedent condition of cognitive barriers. Nevertheless, the above conceptualization does not immediately apply to the findings from explorative teams, where there seems to be a larger proportion of irreducible uncertainty (cf. Szulanski, 1996). In these sorts of transient ecologies, uncertainty is not something to be removed if claims of expertise over certain types of tasks are to be made (cf. Alvesson, 1993). This is simply because uncertainty is a constitutive part of the problems, practices, and contexts of embeddedness (cf. Schön, 1983). It is revealing that, in their narratives, the interviewees from the *quango* frequently refer to feelings of confusion, an excess of freedom, and a lack of guidance. As the quotation below indicates, uncertainty is experienced, first and foremost, as under-determination:

So you actually end up, your head's swimming around with lots of different ideas, lots of different theories and you're thinking help, you know, what do I do? And if that direction isn't necessarily there it's even worse because you have all of these thoughts, all of these ideas, you're pressured for time, you're looking for direction at the organization and it isn't necessarily there, that you have to go on and make the decision anyway. (S3)

Consequently, group members need to engage in elaboration processes to define problems, methods, practices, and even criteria for evaluation. Add to this the large variety of projects, and the dispersed conditions of practice enactment (i.e. many practices are spatially-temporally displaced, as they are located and occurring in outer networks and locales). It

then becomes apparent that knowledge-sharing is hampered, leading to problems of understanding between team members, as elaboration becomes a highly individual and *sui-generis* endeavour. In the remaining part of this section, I will further discuss how conditions of task and institutional (in) stability explain the emergence of different types of indeterminacies across the two ecologies of (inter-) professional knowledge studied.

7.2.3 Theoretical contributions: indeterminacies in transient forms of professionalism

Similarly to the findings of the previous section, the comparison between exploitative and explorative groups unveils another striking epistemic difference. The main indeterminacies seem to appear in diverse forms, and affect knowledge-sharing differently, between more stable and more transient forms of professionalism (see Table 7.2 below). It is in this vein that in chapters 4, 5, and 6 I empirically and conceptually contrasted the differences that exist between ambiguity (more formally defined as *semantic* indeterminacy) and uncertainty (more formally defined as *de re* indeterminacy). In terming these two types of indeterminacies, I followed conventional definitions that associate ambiguity with situations in which several possible meanings coexist (OED 2011, Noordegraaf & Abma, 2003; Weick, 1995), while reserving the concept of uncertainty to situations in which things are only limitedly and vaguely known (Abbott, 1988; OED, 2011).⁹¹ Accordingly, I have discussed earlier how ambiguity plays an important role in the emergence of cognitive barriers in exploitative teams, and how it is closely related to more stable conditions of

⁹¹ I acknowledge that some authors, such as Alvesson (1993:1002), prefer to define the concept of ambiguity in similar terms to those used in my definition of uncertainty (as those situations “involving uncertainty, contradictions that can not be resolved or reconciled, absence on agreement on boundaries, clear principles or solutions”), whereas others prefer to use them somewhat interchangeably (cf. Seidel, 2005).

practice enactment. Conversely, uncertainty plays an important role in the emergence of cognitive barriers in explorative teams, and it is closely related to more novel, evolving, and somewhat unique conditions of practice enactment.

Analysing the preponderant role of each type of indeterminacy does not negate the idea that uncertainty is still present, though significantly reduced, in more stable forms of professionalism, nor that ambiguity is also present in more transient forms of professionalism. Simply, I have proposed how it is empirically grounded and conceptually coherent to ascribe to them different degrees of prevalence. The analysis of the practices enacted by exploitative and explorative groups to cope with either ambiguity or uncertainty provides further evidence of each respective preponderance. In exploitative groups, the mechanisms enacted by team members aim at reducing equivocality, either by relying on their own professional categories from which to anchor the multiple meanings and attributions of value, or by negotiating them among team members (see for e.g. § 4.2.2.1 and § 4.3.2.1). Conversely, in explorative groups the processes enforced across the quango aim at equipping group members with broad analytical and shared categories to integrate and make sense of uncertain situations (this is through the so-called *work-process methodology*, which was conceived as a method of problem-solving and inspired by the design industry) (see for e.g. § 5.2.2.2 and § 5.3.2.2).

Characteristics of the indeterminacies	Exploitative groups / Logic of stasis	Explorative groups / Logic of transiency
Preponderant type of indeterminacy	Ambiguity (<i>semantic</i> indeterminacy)	Uncertainty (<i>de re</i> indeterminacy)
Characteristics	Equivocality that emerge from having multiple and competing understandings and frameworks of reference.	Indeterminacy that emerge from facing novel, unique and ill-defined problems and contexts of practice enactment.
Consequences for knowledge sharing	Affect both understanding and integration across group members	Primarily affect understanding across group members
Coping mechanisms	Anchoring equivocality by: reliance on professional categories or/and negotiation of meanings and values across communities.	Developing general categories and processes to account and integrate uncertainty, as a constitutive, and inherent, to the nature of the task

Table 7.2 Indeterminacy characteristics in classical and transient forms of professionalism

Analysed in this manner, indeterminacies can be logically thought of as a complement to the type of professional knowledge held. Under more stable task and institutional conditions, collective and substantive types of professional knowledge exert far greater influence, and so do the professional categories. What is left uncategorized, and hence vague and ill-defined, is usually what is not immediately relevant for each occupation. Uncertainty thus plays a peripheral role. However, these more stable categories and meanings are brought into question by the presence of members with competing understandings and values from other occupational groups, which in turn explains the emergence and role of ambiguity in these more traditional ecologies. In the more transient forms of professionalism, uncertainty is instead inherent in the tasks, problems, and contexts of practice enactment. Thus, as an intrinsic and important part of the content of

work and practice, uncertainty can neither be reduced nor be treated as a residual aspect, but instead needs to be integrated into practice (Schön, 1983). Uncertainty consequently plays a more central role; and is all the more somewhat irreducible.

Finally, the different types of indeterminacies also help explain the dissimilar configuration and impact of pragmatic barriers across the cases. Pragmatic barriers were found to most immediately related to the perceived consequentiality of information and knowledge embedded in group practices. In exploitative teams, lower levels of task and institutional uncertainty logically emerged as necessary conditions (cf. Noodergraaf & Abma, 2003) for the high levels of mixed-up control (described in terms of public scrutiny, procedural formalism and ‘thick’ professional norms). Under these more stable situations, practices and outcomes can be more easily categorized, coded, and externally monitored (Clarke & Newman, 1997). However the effects of pragmatic barriers, and the perceived high consequentiality, are eased by the presence of high levels of ambiguity (as the existence of multiple and competing demands necessarily limits accountabilities). These findings are in line with that of the broader analysis conducted by Pollitt and Bouckaert (2000) on public management reforms. They describe how public domains, such as the healthcare sector, are “inherently beset with dilemmas” (2000:150). These authors have also drawn attention to the way in which multiple cognitive and normative trade-offs and contradictions might limit bureaucratic attempts at control and, possibly, also affect performance. In contrast, in explorative teams, high levels of task and institutional uncertainty explain the difficulty in formalising categories of control, as even the criteria that must be used to judge problem-solving are not immediately clear (cf. Noordegraaf & Abma, 2003). As problems and tasks

lie outside more stable professional and bureaucratic categories, then practices of monitoring and controlling are seriously hampered, or solely reduced to economic and financial terms (i.e. budgetary forms of control).

7.3 On boundaries and barriers

In the previous two sections I have integrated and discussed the empirical findings in the light of extant theories within the Sociology of the Professions. By doing so, it has become apparent not only that different configurations of barriers affect the sharing of knowledge in exploitative and explorative cross-occupational groups, but also that two strikingly different ecologies of professional knowledge suffuse the overall professional practice. I would like to extend this theoretical discussion by further elaborating on some findings that suggest both the distinctiveness of professional boundaries and knowledge barriers, and the possibility of boundaries becoming knowledge enablers. As the evidence from the cases studied suggests, professional boundaries in cross-occupational groups may in some instances facilitate the recognition, understanding, and integration of different forms of professional expertise.

As suggested in §6.6, most studies of classical forms of professionalism describe professional boundaries as zones of action (e.g. Abbott, 1995; Allen, 2000; Bechky, 2003a; Kronus, 1976). Boundaries are zones of action insofar as they are the result of historically collective endeavours aiming to avoid encroachment and to limit the number of entrants. While this conceptualization does not initially preclude a treatment of professional

boundaries as knowledge enablers, it is the central role assigned by these studies to conflict (Abbott, 1988) that seriously hampers such a treatment. Professions need to engage in collective boundary work (Gieryn, 1983) as part of their attempt to ensure social closure and the exercise of jurisdictional control (Abbott, 1988; Larson, 1977; Freidson, 2001). Consequently, from a cognitive perspective, boundaries need to preserve the esoteric character of professional knowledge (Barley, 1986) and a certain degree of mystery, which might be “deliberately used as a tactical device, a mean of building prestige and power” (Wilensky, 1964:149). From a political perspective, professions and professionals need to deploy different strategies of exclusion to avoid encroachments from competing occupational groups, to build exclusivity and authority, and ultimately to ensure their success in any turf wars (cf. Fournier, 2000). However, as I will argue in this section, this emphasis on conflict and exclusion when theorizing about professional boundaries, while valuable, overlooks the positive epistemic role that boundaries might play in signaling and coordinating diverse expertise. I will conclude the discussion by suggesting a possible re-conceptualization of boundaries as zones of knowing.

7.3.1 Extant theories and boundaries as zones of action

In previous chapters I have analysed how many seminal works on professions have used the concept of boundary and barrier interchangeably. Such usage is for both empirical and conceptual reasons. On the one hand, many studies have found empirical evidence of the negative effects that professional boundaries exert on the process of knowledge transfer and diffusion between different occupational groups (Carlile, 2002, 2004; Currie et al., 2007;

Ferlie et al., 2005). Furthermore, many of the findings of this thesis are to some extent further evidence of this tradition, inasmuch as they provide empirical evidence of the conditions under which boundaries across different professionals become knowledge barriers. On the other hand, many studies have theorized both the exclusive nature of jurisdiction (see particularly Abbott, 1988) and, consequently, the confrontational and conflicting nature of the competition that such exclusivity fosters among rival occupational groups. Boundaries, in their different materializations, hence provide the necessary “shelter” to develop the collective project with a relatively high level of discretion, and without the excessive intromission of interlopers, whether these are competing professional groups, market forces, or bureaucracies (Freidson, 2001). Boundaries as defensive strategies and as shelters are thus conceptually very close to common definitions of barriers. I shall now explore some of the implications that arise from these extant understandings.

Professional boundaries are most classically conceptualized as zones of action. This is so to the extent that a profession needs to “construct” a social boundary so as to distinguish it from competing occupational groups and to protect against political interference (Abbott, 1988; Freidson, 2001; Gieryn, 1983). This understanding rests on two basic assumptions. First, professions inhabit competitive ecologies. They compete against each other for symbolic as well as material resources (such as claims of authority over specific problems, and funding or remuneration respectively). The implication of this assumption for my analysis of boundaries and barriers is quite straightforward. Boundaries becomes barriers to the extent that, paraphrasing the OED (2011) definition of barrier, they are meant to stop

hostile advance and defend occupation from external attack (cf. Gieryn, 1983), to prevent exchanges or unions (or the preservation of purity, in Abbott's terms (1988)), and to keep apart (or the labour of division in Fournier's terms (2000)). Consequently, boundaries are treated as zones of actions because they are zones of conflict. In this context, to act at boundaries ultimately means to fight at barriers.

The second assumption is that such boundary-work is some sort of collective action. This is not to say that it is a single collective action but rather, following Coleman (1990), a stream of actions over time performed by the members of a profession. While this fact "establishes partial divisibility of collective actions over time" (Coleman 1990:372) and explains how boundaries change over time and are sometimes ambiguous (Gieryn, 1983:781), it also indicates how this construction involves a great community effort of sealing off, which in turn reinforces group identity (Ferlie et al., 2005:129). Consequently, professional boundaries become social barriers when analysed from the perspective of interaction between occupations.

Finally, boundaries as zones of actions, and inter-professional conflict, can be located, following Abbott's conceptualization, in three arenas. "One is the legal system, which can confer formal control of work. Another is the related arena of public opinion, where professions build images that pressure the legal system. An equally important, but less studied, arena is the workplace" (1988:59-60). In these different arenas, occupations try to enact boundaries, which might be drawn and redrawn in flexible ways (Gieryn, 1983), but also need to be stable enough to ensure social closure and identification. The concrete

actions deployed in establishing and maintaining boundaries range, as summarized by Fournier (2000), from credentialism to discursive strategies, and to legalistic actions (see also Larson, 1977). In summary, the above discussion highlights two constitutive elements in the classic conceptualization of boundaries: its acting and contested nature.

7.3.2 Findings and identified gaps

Many of the empirical findings of this thesis have been interpreted in light of what has been discussed above. Boundaries in the workplace are certainly areas of actions and areas of inter-professional conflict. The analysis of structural barriers in exploitative teams clearly highlights this. Exploitative teams are embedded in more tightly coupled contexts, where multiple networks exist. However, the evidence demonstrates that to some extent professional networks provide better access to informational and symbolic resources, although such access is mostly limited by membership, and that horizontal asymmetry of access arises between team members with different occupational affiliations. This situation consequently has an impact on the distribution of these different resources among team members. In other words, professional boundaries seriously limit the access of outsiders to key resources and persons within each occupation, making evident the sealed-off nature of those very boundaries.

Nonetheless, the analysis of one concrete practice (i.e. task allocation) indicates that under certain conditions professional boundaries are not always and necessarily knowledge inhibitors. What is perhaps most striking about all four cases is that at the micro-level, the

collective and long-lasting acts of demarcation and boundary work can actually facilitate the identification of others' expertise, and increase the anticipation of the value of the knowledge exchanges that occur across team members. What is more, professional boundaries seem to enhance the understanding of others' tasks and responsibilities, which in turn facilitates the coordination of expertise in group tasks in both *AcuGroup* and *MedGroup*. On the contrary, the very haziness of social-epistemic boundaries in explorative teams affects both task allocation and identifying expertise, as the idiosyncratic and *sui-generis* nature of professional boundaries limits both awareness and understanding of others' knowledge and expertise.

7.3.3 Theoretical contributions: reconceptualising boundaries as zones of knowing

As analysed above, conceptualizing professional boundaries as zones of actions, conflict, and social closure has significantly enhanced our understanding of why knowledge is more easily shared within professional boundaries than between them. However, it treats boundaries almost interchangeably with barriers, and thus provides an inadequate account of instances when boundaries might actually become knowledge enablers. In light of the empirical findings from the task allocation practice, I would like to conceptualize the notion of professional boundaries as zones of knowing. What I have argued so far is that treating boundaries as zone of knowing allows for an understanding of boundaries not only as knowledge barriers but also as enablers. In the remaining part of this section I will first set out how boundaries – as knowledge enablers – allow identification and coordination of knowledge across occupational groups under more relaxed assumptions of inter-

professional conflict and competition. I will illustrate this discussion by drawing upon some cognitive psychology studies about heuristics and transactive memory systems. Secondly, I will discuss the impact and negative effects of vague professional boundaries on knowledge-sharing across occupational groups. Finally I will discuss how my proposed conceptualization of boundaries as zones of knowing relates to more classical accounts of boundaries as zones of actions.

The narrative of the interviewees and my observations of interactions in both *AcuGroup* and *MedGroup* suggests that task allocation is considered a non-problematic practice (§4.2.2.5). This is so to the extent that a clear demarcation of responsibilities and apparent awareness of other backgrounds and expertise seem to be shared by most of the group members. Consequently the allocation of tasks is perceived as logical and straightforward, not least because it draws on defined and visible social-epistemic boundaries. At a micro-level, social-epistemic boundaries in more stable forms of professionalism become ostensible in at least three ways: embodiment, articulation, and materialization. First, boundaries are embodied in concrete professionals, who not only hold a more clear identity but also show this identity through putting on a professional performance (Hodgson, 2005). Secondly, and relatedly, social-epistemic boundaries are manifestly articulated in concrete languages, concepts, and discourses. Finally, they are materialized in concrete objects that symbolize boundaries and memberships (for instance, in exploitative groups: badges, clothes, areas of the hospital, etc.).

Embodiment, articulation, and materialization allows, in the words of some group members (e.g. S2, C2), “pigeon-holing” of team members, which is in more technical terms a process of categorization, as defined in §7.1.1. Analysed in this way, boundaries can be thought of as zones of knowing, and inter-professional knowledge enablers, as they facilitate the perception and identification of someone – or something – as part of a particular occupational group. I am hence proposing that under higher levels of stability, social-epistemic boundaries have a similar cognitive role as that played by heuristics. The more stable conditions and interactions that occur between professions allow group members to develop mental representations of a “typical” member, and their trajectories, expertise, and skills. Boundaries consequently provide the basic cognitive clues that allow an intuitive judgement whether someone – or something – belongs to a particular group based on their resemblance to a typical member (Myers, 2008:90).⁹²

In other words, social-epistemic boundaries play a crucial role in perception and identification, as they allow snap judgements about whether someone or something fits a professional category (Myers, 2008:91). Consequently, boundaries as heuristics speed up and simplify processes of identification and coordination of others’ knowledge, skills and roles. The evidence from both task allocation practice, and the *Cardiac Arrest* team within *AcuGroup* CD (§6.6), provides compelling evidence in this respect. This is not to say that each team member understands all the knowledge and skills held by others, rather that they

⁹² Myers (2008) more specifically describes this type of cognitive heuristic as representativeness heuristics, which is the intuitive comparison between something or someone with the mental representation of a category.

understand at least the basic constitutive elements that the members of a specific professional category share in common.

This perceptual conceptualization of boundaries as zones of knowing echoes some findings in the Cognitive Psychology literature. More specifically, and according to the Transactive Memory theory view, “group members know the domain of expertise of other members and are able to access and/or utilize that information for the group’s benefit” (Batt & Doellgast, 2004:143). Put simply, over time, team members learn “who” knows “what” so they can retrieve others’ knowledge (cf. Wegner, Rever, & Raymond, 1991). Whereas Transactive Memory theory accounts for the degree of specialization and distribution of knowledge within groups, it also suggests that this memory system is likely to be formed in close and stable relationships (Wegner et al., 1991).

But conceptualizing boundaries as zones of knowing does not preclude recognition of situations in which these boundaries might inhibit the sharing of knowledge (e.g. Ferlie et al., 2005). The various conditions that might explain the conceptualization of social-epistemic boundaries as knowledge barriers have been extensively discussed in previous chapters (see especially §§ 4.2.2.2, 4.3.2.1, 5.2.2.3, and 5.3.2.3) and will not be reviewed here. However, in order to illustrate this point, I would like to draw on the evidence from the social-epistemic boundaries found in the *quango*. Under the more transient conditions of both *CommGroup* and *SaferGroup*, professional boundaries provide little information about what is being delimited by them, as professional categories and contents are highly individual and unique. Contrary to the economy of perception and understanding associated

with boundaries as heuristics, in explorative teams any mental representation of a collective professional category and its “typical” members is seriously limited and, most importantly, potentially inadequate. Using Schön’s (1983) characterization, many members of these groups (especially within the *CommGroup*) resemble a “universe of one”.

In sum, I have argued throughout the current section that classic understandings of professional boundaries have rested upon the assumption of boundaries as zones of actions, where defensive strategies are deployed in order to place professional activity apart from, and outside of, other activities and groups (Fournier, 2000:73). While cognitive and epistemic aspects have sometimes been included in these conceptualizations, they are still related to the original assumption. Based on the evidence discussed above, I am proposing to bring these cognitive and epistemic aspects to the front by treating boundaries as zone of knowing. This conceptualization still accounts for instances in which boundaries becomes barriers, but also provides an explanation for conditions in which boundaries might actually become knowledge enablers.

7.4 Chapter conclusions

In the above discussion I have theoretically integrated the findings on the different configurations of knowledge barriers with the main epistemic characteristics that defined professional practice in exploitative and explorative teams. By doing so, this thesis attempts to contribute to current discussions on present-day forms of professionalism by identifying a set of task and institutional characteristics that condition the sharing of knowledge in

cross-occupational groups. As for the case of exploitative cross-occupational groups, these characteristics share common features in terms of stability and higher degrees of institutionalization. By contrasting these findings with seminal theories in the Sociology of Professions it becomes apparent that both *AcuGroup* and *MedGroup* practices are informed by the logics of more classical and sovereign forms of professionalism. Consequently, knowledge barriers emerge distinctly where there are stable and stabilized tasks, and pronounced professional identities, embedded in collective professional projects within highly institutionalized contexts. However, the same extant theories fall short of explaining the findings from explorative groups. The professional practice in the *quango* seems to be informed by a more transient form of professionalism to the extent that tasks are unique, ill-defined, and novel, professional identities are diffuse and *sui-generis*, and the very professional practice is embedded in newly and loosely coupled institutional environments. As a result, explorative group members face a completely different set of knowledge conundrums than those of their exploitative counterparts. Hence, the first main contribution of this thesis is to demonstrate how barriers that affect knowledge-sharing significantly vary under different conditions of professional practice enactment within these two professional logics.

It is thus by considering professionalism as a set of workplace practices (Malin, 2000) that this thesis argues not only that knowledge-sharing between professional boundaries is conditioned differently by the characteristics of practice enactment described above, but also that two different professional forms are at work within exploitative and explorative groups (cf. Noordegraaf, 2007). Furthermore, the comparative and inter-occupational

approach taken in this thesis allows for the explanation of other epistemic elements that defined these different professional logics. In consequence, the second main contribution of this thesis is to demonstrate how exploitative and explorative groups embody two very distinct ecologies of (inter-) professional knowledge. The specific theoretical contribution in this area is three-fold. First, it de-reifies the concept of professional knowledge by exploring how the epistemic and normative nature of professional knowledge varies between these two ecologies. Secondly, and complementary to the previous point, this thesis argues that the type of epistemic indeterminacies the groups face varies accordingly to whether forms of professionalism are stable or transient. Finally, this thesis analyses how the contours of professional boundaries (i.e. social-epistemic ones) not only change between exploitative and explorative teams, but also play a vital role in the process of expertise identification and coordination. Consequently, this thesis proposes a re-conceptualization of boundaries as zones of knowing.

8. Conclusions

In current knowledge societies professionals have become pre-eminent institutional and social actors (cf. Scott, 2008). Not only do they currently represent 20% of the labour force in many advanced industrial societies (Abbott, 2005), but also they exert a powerful influence on the division of labour and occupational structure (Hwang & Powell, 2009). However, such a preponderant role is by no means new and, consequently, has historically attracted the interest of many social theorists usually inscribed within the tradition of the Sociology of the Professions (Abbott, 1988; Carr-Saunders & Wilson, 1933; Etzioni, 1969; Evetts, 2006; Freidson, 1970, 1986, 2001; Noordegraaf, 2007; Sciulli, 2005; Wilensky, 1964). More recently, the world of traditional professions and the context of professional practice have undergone important changes (Fournier, 1999, 2000; Grey, 1998; Noordegraaf, 2007), which in turn have problematized many of the classical scholarly understandings. It is in the light of these contemporary changes – which involve the reconfiguration of the context of professional practices, and the related erosion of traditional forms of professionalism and emergence of novel ones- that many scholars have recently called for systematic studies on the different forms of professionalism (see for e.g. Teelken and colleagues at EGOS 2011; Evetts, 2006; Noordegraaf, 2007).

The present comparative investigation of expert knowledge across occupational boundaries stands in direct line with these recent calls for, and efforts to, understand *present-day* professionalism in changing and ambiguous times (see e.g. Evetts, 2006; Hwang & Powell, 2009; Noordegraaf, 2007; Noordegraaf & Van Der Meulen, 2008; Svensson, 2006). This

research aim is addressed through the study of four cross-occupational groups: two composed of more established forms of professionalism and two of more transient ones, within the context of the English National Health Service. The evidence from this comparative analysis depicts a different configuration of knowledge barriers affecting the sharing of knowledge between these two types of groups. At a deeper level, these different configurations underscore different ecologies of professional knowledge, in which knowledge, indeterminacies, and even professional boundaries play out differently. Such contributions speak directly to the complexity of contemporary professionalism in which even the meaning of professionalism, as well as professional practice, is not fixed. The rest of this chapter is organized as follows. I start by summarizing the main contributions of this thesis. Then, I discuss the significance of the proposed theoretical contributions for future research. I then acknowledge the limitations of this study and highlight the significance of the proposed theoretical contributions for future research. Finally, I conclude with a discussion of some practical implications that these insights have for policy and professional practice.

8.1 Contributions to the Sociology of the Professions

Different theorists have argued that a characteristic feature of current advanced industrial societies is that they present many highly professionalized sectors in which collaboration and knowledge sharing across different professional groups are needed in order to accomplish different tasks (Bechky, 2006; Nicolini, Mengis, & Swan, 2011). This is the case, for instance, for health care systems in which the promotion of knowledge sharing

across professional groups has been understood as critical, if a quality service is to be delivered (see e.g. NHS Executive, 1999). Nevertheless, as a collection of research indicates, such collaboration and sharing of professional knowledge across classic disciplinary boundaries is cumbersome and multiple knowledge barriers exist (see for e.g. Currie et al., 2007; Ferlie et al., 2005). This thesis stands in the line with, and extends these studies, by analysing, in a comparative fashion, knowledge barriers not only between more established forms of professionalism, but also between more novel ones. Through the comparative analysis of knowledge and practices, this thesis' initial contribution is the identification of different configurations of knowledge barriers between the *established* and *transient* forms of professionalism, which compose the exploitative and explorative groups respectively. Consequently, while four common classes of knowledge barriers were found across all the cases (i.e. *cognitive*, *social-epistemic*, *pragmatic*, and *structural*), the internal configuration of each barrier (in terms of antecedent conditions and mechanisms) varies between the two types of groups.

Cognitive barriers emerge from contextual and task indeterminacies. In the more established forms of professionalism represented in the *exploitative* groups, these barriers emerge at the group level from the overload of externally driven information and demands (cf. Nicolini, Powell, Conville, & Martinez-Solano, 2008), within competing frames of reference. This ambiguity (both informational and normative) leads to poorly understood group situations, as inconsistencies among the various external inputs and demands preclude the construction of a coherent understanding at a group level, and makes it particularly difficult for group members to cognitively integrate the amount and variety

of information and demands received (cf. Almirall & Casadesus-Masanell, 2010). In contrast, in the more transient forms of professionalism represented in the *explorative* groups, cognitive barriers emerge from the incompleteness and uncertainty that permeate the professional and group practices due to the newness of the task, and the fragile and loosely couple nature of the *quango* within the overall structure of the NHS. Such a high level of uncertainty generates a different type of cognitive challenge for group members: one of elaboration (Fiss, 2011), as group members need to define not only the problem, but also the methods for problem solving, and the criteria to evaluate the overall success of the tasks.

Moreover, the four case studies suggest that the epistemic diversity, natural to cross-occupational groups, fosters divergent interpretations and value attributions among group members, which are based on different epistemic (what is known and believed) and doxastic (what is taken for granted) states. Consequently, I named these barriers as *social-epistemic*. These findings echo that of Ferlie and colleagues (2005), who argue that professions having different cognitive assumptions inhibits the diffusion of knowledge across occupational boundaries. However, the findings of this thesis extend this previous understanding by suggesting that such epistemic diversity is rooted in different factors in exploitative and explorative groups. While for the former, it is deeply ingrained in professional schemata and collective identity (as in the cases explored by Ferlie et al., 2005), for the latter it is based on personal trajectory and experience, and not immediately related to any specific and defined occupation. Consequently, social-epistemic barriers differently affect the sharing of knowledge between exploitative and explorative teams. As

for the former, social-epistemic barriers primarily challenge integration of knowledge among exploitative group members. This finding echoes that of Fleck (1979) and Dougherty (1992b) on the "inherent tenacity" of the thought worlds or professional schemata. The clear professional identity and ascription presuppose the adherence to certain corpora of collective knowledge, values, and beliefs that enforce certain understandings (cf. also Barley, 1986), and make it more difficult to accept the perspectives of others. In contrast, in explorative teams, diffused professional identity seems to challenge recognition and understanding, as group members struggle to identify the knowledge and backgrounds of others.

In turn, *pragmatic barriers* are most immediately related to the perceived consequentiality of information and knowledge embedded in group practices (cf. Carlile, 2002). Members of the exploitative cases present high levels of awareness of potential consequences, which in turn challenges knowledge-sharing. The evidence from these cases suggests that group members tend to adopt more defensive positions when having to integrate others' ideas, practices and/or decisions; especially if the perceived consequences are deemed negative for their respective CUs and professional communities. In contrast, the perceived consequentiality of actions and information in explorative groups is surprisingly low. Both the novel and loosely coupled status of the *quango* – somehow removed from the NHS' traditional regimes of accountability – and the newness of the task – that makes any comparison with others programmes or projects difficult – reduce the overall perceived consequentiality, and limit accountability to a self-reporting individual exercise.

Consequently, there are few incentives for team members to share their knowledge and project-specific information between each other.

Finally, *structural barriers* are most immediately related to the conditions of embeddedness of cross-occupational groups. Hospitals can be considered as relatively more tightly coupled organizations wherein both bureaucratic and professional structures provide alternative means for accessing information, expertise, and other symbolic resources. However, to the extent that some professional networks provide better access to informational and symbolic resources, but such access is mostly limited by membership, horizontal asymmetry of access arises between team members with different occupational affiliations. This situation also has an impact on the distribution of these different resources among team members. In contrast, *quangos* can be considered as relatively more loosely coupled organizations wherein explorative group members primarily relied on each group leader for access to critical information, and symbolic resources, from the board of the quango and the NHS elite. This second situation helps to explain in these groups the existence of two level memberships that replicates the vertical hierarchy between group members and group leader. Overall, structural barriers help to explain not only asymmetries in levels of access to certain symbolic resources between team members, but also the topography of the distribution of information (and its complement, ignorance) across them.

When analysed in a comparative way, the influencing conditions that explain the emergence of the different barriers in the explorative and exploitative teams depict clear patterns. Therefore, this analytical comparative step allows transcending the examination of

each individual barrier, and to focus on understanding across-type similarities and dissimilarities. This indicates that two different forms of professionalism, i.e. established and transient forms, inform the interactions in explorative and exploitative teams respectively. Furthermore, such integrative analysis also underscores profound differences in the ecologies of (inter-) professional knowledge that characterize these two forms of professionalism. Such contributions are relevant as they demonstrate that the meaning of professionalism and professional knowledge is not fixed, but profoundly varies across the different forms. As summarized below, the discussion chapter finally contributes by theoretically elaborating on such epistemic differences, in particular in relation to the diverse nature and role of professional knowledge, of indeterminacies, and of boundaries between established and transient forms of professionalism.

Professional knowledge appears in exploitative groups both as the capacity to use information (cf. Alavi & Leidner, 2001) and as scripts (in line with Barley's definition as "outlines of recurrent patterns of interaction" (1986:83)) that guide the concrete enactment of practices and provides in many cases the definition of normality. Consequently, in the more established forms of professionalism (represented by doctors, nurses and, to some extent, managers) professional knowledge clearly differs from information, as it provides the terms of interpretation and representation. In contrast, the previously clear distinction between information, as a symbolic input, and knowledge, as a capacity of understanding and as a behavioural script, is much more difficult to observe in more transient forms of professionalism such as those studied in the explorative groups. This is so to the extent that explorative groups' members do not either clearly ascribe to any particular professional

community or draw upon more established collective epistemology for their professional practice. Instead, they seem to rely on more individual, ill-defined, and *sui-generis* epistemologies.

This thesis hence contributes by de-reifying the concept of professional knowledge and showing how is both logically and empirically sound to describe two types of knowledge bases: one based on collective grounds and clearly ingrained in professional schemata, and the other based on more individual, ill-defined and *sui-generis* epistemic grounds. The former can be described as an epistemology of possession (in line with Cook & Brown, 1999; Currie & Kerrin, 2004), insofar as the control of occupational beliefs, values, and categories provides the grounds for both the exclusive claims of epistemic authority, and cognitive monopoly over particular codified areas (cf. Whitley 1989:222, see also Grey 1997). The latter, borrowing from Schön's definition (1983), can be described as an epistemology of practice, insofar as it is not based on the control of certain substantive knowledge, but emerge from the situated interaction with problems and practices (cf. also Cook & Brown, 1999).

This thesis further contributes by providing theory-informed explanations on the different types of the indeterminacies found between the two forms of professionalism. On the one hand, the exploitative teams in the hospital face higher levels of ambiguity (*semantic indeterminacy*), as they are exposed to a wealth of equivocal information and demands, provided by multiple internal and external stakeholders. On the other hand, the explorative groups in the quango experience higher levels of uncertainty (*de re indeterminacy*); as they

are exposed to situations characterized by limited and vague information about, and knowledge of, tasks and priorities. Even their roles and the boundaries of interaction are fuzzy and ill-defined. These findings seem to be both empirically and logically consistent. Under higher levels of task and institutional stability, professional knowledge becomes a more structured and institutionalized schema – and the categorization of problems more encompassing. As some of the classic work in the Sociology of the Professions have rightly pointed out (Elliott, 1972; Freidson, 2001; Larson, 1977; Wilensky, 1964), in order to gain control over a specific set of problems and tasks, and exercise some degree of closure, sovereign professions need to reduce uncertainty and be able to convert uncertain situations into certain ones (De Vrie et al., 2009). As a result, the remaining indeterminacies usually become uncategorized residual areas (Abbott, 1988). However, in this thesis I argue that a transient form of professionalism faces bigger challenges when trying to remove uncertainty, as uncertainty is inherent to the task, problems, and context of practice enactment. Consequently, it is somehow irreducible.

Finally, in theoretically elaborating on the findings of different knowledge conundrums between exploitative and explorative teams, this thesis further contributes by reconceptualising professional boundaries as zones of knowledge. Such proposed reconceptualization is based on the evidence from the four cases that suggests that professional boundaries are not always and necessarily knowledge inhibitors. In exploitative groups, clear professional boundaries were found in some cases facilitating the recognition, understanding and integration of different expertise and diverse bodies of knowledge. This proposed perceptual understanding stands in stark contrast to the

underlying idea of boundaries as zones of action that permeate many studies in the Sociology of the Professions (Abbott, 1988; Allen, 2000; Bechky, 2003b; Kronus, 1976; Manley, 1995). This re-conceptualization still accounts for instances in which boundaries becomes barriers, but also provides an explanation for conditions in which boundaries might actually become knowledge enablers

8.2 Generalizability to other contexts

Many reasons lead me to believe that the results of this thesis are not parochial and hence applicable to other non-UK health care services. First, and more generally, the theoretical sampling strategy followed allows the gathering of data from different health care related organizations, occupational groups, and professionals, hence providing a broader and more significant empirical base supporting the key findings. Secondly, and more specifically, the findings from exploitative teams provide support to previous studies that show, for example, how medical doctors increasingly interact with health care managers, in the context of large-scale organizational systems, with high levels of both professional and bureaucratic accountability (for a Dutch case see, for example Noordegraaf, 2007; for a US case see, for example Scott et al., 2000). Third, and in relation to the previous point, it has been described how the diffusion of NPM reforms have exposed traditional health care institutions and actors from different countries to similar businesslike and market-driven trends (e.g. Pollitt & Bouckaert, 2000).

Moreover, some of the explorative case findings concur with studies conducted outside the health care setting. This holds in particular for the identified consequences that emerged under situations where high levels of task novelty and uncertainty preclude any canonical use of more substantive forms of professional knowledge (cf. Schön, 1983), or when professionals need to engage with non-routine, fuzzy, innovative and conflictual problems (Noordegraaf & Abma, 2003:867). Dougherty, for example, has described how product innovators face a similar degree of task instability and novelty as members of quangos, which in turn makes any prior substantive knowledge perishable, to such an extreme that knowledge may even decay as new knowledge is developed (1992:86). Finally, some of the findings related to the professionals in the quango bear a resemblance with that of the “program professionals” described by Wilensky (1964), in that they inhabit different professional settings and are not bounded by more stable ones. However, in contrast to Wilensky’s program professionals, group members in the quango experience not only contextual uncertainties but also task-related ones.

Finally, taken together, the findings from both exploitative and explorative groups speak directly to the complexity of present-day professionalism in which more stable and sovereign professions coexist with the expansion of “diffuse” (Hwang & Powell, 2009), “hybrid” (Noordegraaf, 2007), and “plural” (Schön, 1983) forms of professionalism. These findings also speak to the paradox that of health related professions (including medicine) lack a monolithic nature (e.g. Abbott, 1988; Barley, 1986), and the ability of those very professions and professionals to reconstitute themselves (Fournier, 2000).

8.3 Limitations and future research directions

Daft and Weick (1984), following Thorngate's (1976) principle of commensurate complexity, maintain that a theory of social systems cannot be at the same time general, accurate, and simple. In my study of knowledge barriers in cross-occupational groups, the focus has been on understanding how knowledge-sharing is affected amidst workplace professional practices. For this purpose, and drawing upon the taxonomy proposed by Marks and colleagues (2001), a number of different group practices were studied in order to ensure a rich empirical mix, and to enable theory building (Marshall & Rossman, 1995). A total of ten practices were hence analysed. That said, this study does not explore all the group practices that may potentially be relevant for the understanding of inter-occupational dynamics. More specifically, while analysed indirectly, practices related to motivation and affect management were not formally studied. This opens an interesting avenue for future studies, in relation to examining emotional organization in an enterprise culture – “the extent to which professional attachment is valued and whether it crosses cherished boundaries” (Malin, 2000:4). Consequently, future research can expand on this by purposively analysing the nature and effects of different emotional climates across traditional and more transient forms of professionalism (see e.g. Bolton, 2000).

By construction, this study has focused on two types of group tasks: exploitative and explorative ones. Following the conceptualization of exploration and exploitation as two endpoints of a continuum, and keeping in mind Gupta and colleagues' (2006) suggestions that the appropriate theorization of these two constructs depends on the level of analysis,

the differences between cross-occupational groups were hence polarized. Given the research design adopted, this study is best suited for illustrating cases where high degrees of stability or transiency affect workplace professional practices and occupational interactions. In contrast, mixed situations (for example, instances of more radical forms of innovation – i.e. high novelty and uniqueness – occurring in more stable and institutionalized professional context as in Ferlie et al., 2005) have not been explored. Perhaps, the only exception in my study in this respect has been the case of some practices in *SaferGroup*. While tasks in this group are still explorative in nature, this specific task is closer to clinical practice and, consequently, based on more classical forms of substantive professional knowledge. Add to this the frequent interaction of group members with the nursing and medical community, and it becomes apparent that some professional beliefs, values, and categories regain their epistemic and normative tenacity (a situation I termed as *adopted order*). Future research on the epistemic conditions of different forms of professionalism can explore variance in the degree of (in)stability in tasks, organizations, and contexts – for example, cross-occupational groups facing more exploitative types of tasks, but in less institutionalized and stable organizational context.

The aforementioned proposed research direction might also increase the generalizability of this thesis' findings by exploring epistemic dissonances in cross-occupational groups composed of established and transient forms of professionalism outside of health care systems, and public sectors in general. Particularly in the case of cross-occupational exploitative teams, many of the knowledge conundrums were found to be related to the rigidities, compartmentalisations, and pervasive accountabilities brought to bear by the

highly bureaucratic structures that govern many organizations in the NHS (Nicolini et al., 2008:258). Future micro-level comparative studies located in the private sector are hence required. In parallel, future research might also explore similar epistemic dissonances in more ambiguous conditions of inter-professional practice and expertise coordination, such as those happening in groups composed of members that are not only from distinct professions but also organizations. This seems to have timely relevance, and offer promising opportunities for future research, in a context of growing importance of networks and inter-organizational collaboration more generally. Within the NHS, for example, the intensification of cross-occupational and cross-organizational collaboration is illustrated by a number of recent initiatives such as the creation of Clinical Research Networks, Biomedical Research Centres (BRCs) and Collaborations for Leadership in Applied Health Research and Care (CLAHRCs), among others.

The analysis of the professional boundaries across the four cases also underscores different group attempts to overcome knowledge barriers by the reliance on boundary objects. While the purpose of this thesis, and hence the expected contributions, has been one of analysing knowledge conundrums across different forms of professionalism, some of my observations of group practices suggest that cross-occupational groups adopt different boundary objects depending on the type of knowledge conundrums they face (cf. Carlile, 2002). These findings suggest a fruitful avenue for future research, particularly within the theory of boundary objects (Bechky, 2003a; Boland & Tenkasi, 1995; Carlile, 2002; Star & Griesemer, 1989). By taking a pluralist and contingent approach in the study of these epistemic artefacts (Knorr Cetina, 1997), researchers might want to explore whether the

capacity of these types of objects to support collaboration across professional and disciplinary boundaries, derives from the matching between the nature of boundary object and the nature of the specific knowledge conundrums. This avenue of research would be in line with the recent work of Nicolini and colleagues (2011), who have embraced non-monolithic and plural perspective for the study of boundary objects.

Furthermore, the proposed re-conceptualization of professional boundaries as zones of knowing has emerged from the analysis of a concrete practice (i.e. task allocation) across the four cases. While this conceptualization echoes a standard epistemological definition (from Moore 1935 to Gibson 1979, in Varzi 2008), according to which boundaries play a crucial role in perception, the empirical base is still limited if a more comprehensive account on conditions explaining boundaries as knowledge enablers is to be produced. Future research can expand on these initial findings by analysing those very conditions. This is both practical and theoretically appealing. On the one hand, the identification of those situations might increase our understanding of the conditions that facilitate collaboration across occupational groups (collaboration defined in terms of understanding and integrating different types of expertise). On the other hand, these situations might extend our theoretical understanding of ecologies of (inter-) professional knowledge under more relaxed assumptions of conflict and seclusion than that of more traditional accounts.

Finally, from the analysis of the influencing conditions of the four knowledge barriers it becomes apparent that leadership characteristics and the degree of interdependence between team members are critical contingencies in cross-occupational groups. While a systematic

exploration of these factors was not the immediate purpose of this thesis, such findings offer promising opportunities for future research. In order to address these questions it seems worthwhile to follow both a theoretical and methodological pluralism. All the more, this pair of variables remains under-investigated and is somewhat foreign to traditional accounts within the Sociology of the Professions. In the case of leadership, for example, previous research on the area of innovative teams has highlighted the importance of the project leader for explorative group success (Elkins & Keller, 2004; Norrgren & Schaller, 1999; Prabhakar, 2005). Accordingly, future researchers might want to more systematically explore what kind of leader characteristics are helpful in overcoming some of the knowledge conundrums of cross-occupational groups, and whether these characteristic might vary from established and transient forms of professionalism.

8.4 Practical Implications

I would like to conclude this thesis by noting some policy and managerial implications for the organization of cross-occupational groups. At a policy level, the identified nuances of knowledge between more established and transient forms of professionalism suggest that a broad and generic framework to foster knowledge sharing and application across NHS staff (see for example NHS Knowledge and Skills Framework, 2004), might be of limited applicability. This is so to such an extent that the nature of information, knowledge and knowing varies across professional groups, type of task, and context of professional practices. This might initially suggest that even if the classical dualism between professionals-managers is taken into account in policies that promote knowledge-sharing,

this might be of limited relevance in contexts where hybrid and plural forms of professionalism are preeminent. Furthermore, in relation to the different types of indeterminacies identified, these findings suggest that traditional policy emphasis on increasing the amount of available information through knowledge management techniques and IT infrastructures might be counterproductive in informational spaces characterized for overload of information (as in settings such as secondary care).

There are several managerial implications that emerge from this study. A primary implication for cross-occupational group leaders is that team composition matters and such composition should be carefully thought through in relation to the main characteristics of the group (e.g. type of task, context of embeddedness, type of professional affiliation, etc.). Although shaping the composition of teams in this way is not always feasible, the evidence from the case studies suggest that where possible group leaders should consider specific members' characteristics. More specifically, the results suggest that compared with exploitative groups, teams facing novel and ill-defined tasks (such as the case of explorative groups) have to deal with higher levels of uncertainty and unpredictability. In such situations, some group members' traits are more relevant for the completion of the task than others. Specifically, based on the narratives of *CommGroup* members, openness to experience (cf. LePine, 2003) is critical to enable team members to depart from their substantive professional knowledge and expertise and to adopt non-canonical ways to face such novel problems. In addition, the evidence of both *AcuGroup* and *MedGroup* suggests that teams composed of more established forms of professionalism need a more even

representation of the different professional communities (both in terms of number of members per profession, and in terms of tenure) if power imbalances are to be avoided.

Moreover, the evidence from the cases studies indicates that cross-occupational groups composed of established or transient forms of professionalism are exposed to very different configuration of knowledge barriers as they are embedded in different ecologies of professional knowledge. Consequently, it is expected that different approaches need to be taken if knowledge conundrums are to be alleviated and cross-boundary collaboration to succeed. Most specifically, and in line with Nicolini and colleagues' findings (2011), cross-occupational members might benefit from relying on different types of boundary objects. This brings a more plural perspective to the type of epistemic artefacts members can use to alleviate specific and diverse knowledge conundrums across professional boundaries. In this thesis, for example, I noted that when the cognitive challenge is one of simplification (as in the case of exploitative teams facing overabundance of information and competing demands), boundary objects that facilitate integration and negotiation are better suited in response to this type of specific challenge. Accordingly, as in the case of *MedGroup*, synthetic artefacts such as Balance Scorecard provides both the occasion for group members to negotiate priorities, and key sources of information, and later to simplify and integrate such complex informational and normative demands.

In contrast, when the cognitive challenge is one of elaboration (as in the case of explorative teams facing limited amount of information and knowledge on the problems to be addressed and even on the problem solving methods to be used), boundary objects that

provide heuristics and processes to navigate uncertainties seem to be better suited in overcoming some barriers. Consequently, as in the case of *CommGroup* and *SaferGroup*, analytical artefacts such as the so-called “work-process” in the quango allows coping with the uncertainty and to “systematize” the rationales for making decisions at a project and team level. This is a structured artefact that tries to help quango members generate, test, and implement innovative ideas making visible to others some of the stages which can be followed for problem-solving. More generally, these findings suggest that any use of boundary objects that does not actively recognize and addresses each specific knowledge complexity, might fail in its attempt to span boundaries.

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Appendices

Annexe 1: Team Practices

Team practices (adapted from Marks et al. 2001)

Type	Initial definition
Mission formulation	Interpretation and evaluation of the team's mission, including identification of its main tasks as well as the operative environmental conditions and team resources available for mission execution
Goal specification	Identification and prioritization of goals and subgoals for mission accomplishment
Strategy formulation	Development of alternative courses of action for mission accomplishment
Monitoring progress toward goals	Tracking task and progress toward mission accomplishment, interpreting system information in terms of what needs to be accomplished for goal attainment, and transmitting progress to team members
System monitoring	Tracking team resources and environmental conditions as they relate to mission accomplishment, which involves (1) internal systems monitoring (tracking team resources such as personnel, equipment, and other information that is generated or contained within the team), and (2) environmental monitoring (tracking the environmental conditions relevant to the team)
Decision Making	Collective cognitive processes that might result in the selection of a course of action among several alternatives
Communication	The transmission or exchange of information, knowledge, or ideas
Coordination	Orchestrating the sequence and timing of interdependent actions
Conflict management	Pre-emptive conflict management involves establishing conditions to prevent, control, or guide team conflict before it occurs. Reactive conflict management involves working through task and interpersonal disagreements among team members
Team monitoring	Assisting team members to perform their tasks. Assistance may occur by (1) providing a teammate verbal feedback or coaching, (2) helping a teammate behaviorally in carrying out actions, or (3) assuming and completing a task for a teammate

Appendices.

Annexe 2: Initial Questionnaire

Thank you
Purpose of this study
Ethic clearance
Confidentiality
Consent to tape

PERSONAL DETAILS

NAME:

POSITION HELD / ORGANIZATION:

EMAIL ADDRESS:

SEX:

AGE:

YEARS IN THIS GROUP:

OTHER JOB / TRAINING:

1. Why did you join the group?
2. Tell me about the purpose of the team? How is the purpose agreed upon?
3. Who set the priorities for the group? How does it happen?
4. How do different tasks / work aspects get assigned in the team?
5. How do you routinely monitor team progress? How do you define success? Is any divergence across team members on success definition?
6. What external resources and people do you draw upon when monitoring progress? Are there differences between colleagues in this respect?
7. What type of evidence / information does the group draw on to make / justify decisions? Explore potential differences.
8. How does decision making occur in this group? If problems → what are the common problems? How do you overcome these problems?

Appendices.

9. How do you characterize the communication in the group? (If there are problems ask for concrete examples).
10. Do you often have disagreements? (If yes → what is the nature of them? What are the most common reasons?)
11. What surprises you about working in this team? What is different in comparison with other teams you belonged to? (if positive answer: How have you adjusted to these new circumstances?)
12. What can be done in the short term to make things better in the group?

Emergent questions:

- 1.
- 2.
- 3.
- 4.

Appendices.

Annexe 3: Sample of small group interaction record

Member	Topic	Type of participation
Directorate Manager	Introduction to main guest's talk	Presenting information
Main guest	Explanation of new system of transcription of voice-record letters	Presenting information
Lead Clinician	Question to Main Guest	Seeking clarification
Guest	Answer	Presenting information
Lead Clinician	Question to Main Guest	Seeking clarification
Doctor 1 (Guest)	Answer	Proposing ideas
Doctor 1 (Guest)	Question to Main Guest	Seeking clarification
Main guest	Final explanation	Giving clarifications
Directorate Manager	Intro and quick review of the meeting agenda. Ask Modern Matron to start	Presenting information
Modern Matron CD	Info about MRSA and intra-hospital infection policy and measures	Presenting information
Directorate Manager	Question about implementation	Seeking clarification
Modern Matron CD	Answer	Giving clarification
Lead Clinician	Answer	Giving clarification
Modern Matron CD	Comment about one specific case in the ward – Ask the Renal Lead Clinician's advice	Giving clarification
Lead Clinician	Answer (conclusive)	Proposing idea
Finance responsible	Info financial report	Presenting information
Lead Clinician	Complaining against the NHS – the finance policy	Critics
Lead Clinician	Complaining against the NHS – the finance policy	Critics
Lead Clinician	Complaining against the NHS – the finance policy	Critics
Finance responsible	Remind NHS policy and goal: gain savings every year	Giving clarification
Lead Clinician	Complain (“No logic”)	Critics
Acting Deputy Directorate Manager	“18 week” plan info	Presenting information

Lead clinicians left the room without the mediation of any comment		
Directorate Manager	End meeting	

Annexe 4: Coding List

1. Practices

- 1.1. Acquisition
- 1.2. Knowledge
 - 1.2.1. Located
 - 1.2.2. Embedded
 - 1.2.3. Invested
 - 1.2.4. Distributed
 - 1.2.4.1. Expertise distribution
 - 1.2.4.2. Ignorance distribution
 - 1.2.5. Type
 - 1.2.5.1. Understanding
 - 1.2.5.2. Knowing how
 - 1.2.5.3. Ways of wanting
 - 1.2.5.4. Ways of feeling
 - 1.2.5.5. Information
- 1.3. Material mediation
 - 1.3.1. Objects involved
 - 1.3.2. Body
 - 1.3.2.1. Doings
 - 1.3.2.2. Saying
- 1.4. Performance
 - 1.4.1. Shared skills
 - 1.4.2. Categorically boundness
 - 1.4.2.1. Categorically bound
 - 1.4.2.2. Categorically open
 - 1.4.2.3. Indistinct
 - 1.4.3. Misrecognition (*méconnaissance*)
- 1.5. Rules and norms
- 1.6. Teloffectivity
 - 1.6.1. Goals / Object
 - 1.6.2. Motivations
- 1.7. Actantial roles
 - 1.7.1. Subject
 - 1.7.2. Object
 - 1.7.3. Sender
 - 1.7.4. Receiver
 - 1.7.5. Helper
 - 1.7.6. Opponent

2. Team members (individual level)

- 2.1. Current identity
 - 2.1.1. The same of origin
 - 2.1.2. Different than origin
 - 2.1.3. Hybrid
 - 2.1.4. Clear
 - 2.1.5. Diffuse
- 2.2. Roles

3. Team

Appendices.

- 3.1. Ideal of success
 - 3.2. Motivational aspects
 - 3.2.1. For joining
 - 3.2.2. For staying
 - 3.2.3. For leaving
 - 3.3. Group synergies
 - 3.3.1. Increase / Reduction of process losses
 - 3.3.2. Create / Destroy synergistic process gain
 - 3.4. Interdependence
 - 3.5. Effectiveness
 - 3.5.1. Performance Indicators
 - 3.5.1.1. Nature (name, recurrence, etc.)
 - 3.5.1.2. Number
 - 3.5.1.3. Adherence
 - 3.5.1.4. Team perception of indicators
 - 3.5.1.5. Examiners
 - 3.5.1.6. Process of presentation
 - 3.5.2. Task output acceptable to those who receive it
 - 3.5.3. Capability of members to work together in future is maintained or strengthened
 - 3.5.4. Members' needs are more satisfied than frustrated by the group experience
 - 3.5.5. Group norms about performance processes
-
- 4. Task
 - 4.1. Nature of task (complex / simple / exploration and exploitation)
 - 4.2. Amount of knowledge and skills applied to task work
 - 4.3. Structure of the task
 - 4.4. Level of effort brought to bear on the group task
-
- 5. Context of reference
 - 5.1. Outer
 - 5.1.1. Ambiguity
 - 5.1.2. Uncertainties
 - 5.1.3. Changes
 - 5.2. Inner (organizational context)
 - 5.2.1. Ambiguity
 - 5.2.2. Uncertainties
 - 5.2.3. Changes
 - 5.2.4. Reward system
 - 5.2.5. Information systems
 - 5.2.6. Economic conditions
 - 5.2.7. Social conditions
-
- 6. Tension
 - 6.1. Cognitive tensions
 - 6.2. Political tensions
 - 6.3. Material tensions
 - 6.4. Identity tensions
 - 6.5. Interpersonal tensions
-
- 7. Knowledge boundaries
 - 7.1. Epistemic boundaries
 - 7.2. Cognitive boundaries
 - 7.2.1. Asymmetries in understanding
 - 7.2.2. Actual knowledge
 - 7.2.3. Previous knowledge
 - 7.2.4. Norms
 - 7.2.5. Cognitive frames

Appendices.

- 7.3. Political boundaries
 - 7.4. Language boundaries
 - 7.5. Temporality
 - 7.6. Structural boundaries
-

8. Knowledge mediators

- 8.1. Individuals mediators
 - 8.1.1. Individual characteristics and type of actions
 - 8.2. Material mediators
 - 8.2.1. Boundary objects
 - 8.3. Trading zones
-

9. Surprises

- 9.1. Surprises
- 9.2. Puzzles

Annexe 5: Balance Scorecard

SpecMed Scorecard

Quality & Outcomes	
28 Day Re-Admissions	Green
C2C Referrals	Yellow
Cdifficile Incidence	Green
DayCase Rate	Green
OPFA:OPFU Ratio	Green
Lavender Statements	Green
LoS > 30 Days	Green
Medicines Management	Green
Mixed Sex Accomodation	Green
MRSA/MSSA Incidence	Green
MRSA Screening	Green
Multiple Bed Moves	Green
NPSA Alerts	Yellow
Patient Falls	Green
PROMs	White
Tuberculosis	Green
Diabetes (NSF)	Green
Target not achieved/ Action Required	Red
Area of Concern	Yellow
On Target	Green
Dataset under development	White

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Access	
13 Week OP Wait	Green
18 Week RTT (Admitted)	Green
18 Week RTT (Non-Admitted)	Green
21 Week IP Wait	Green
6 Week Diagnostic Wait	Green
Cancelled Procedures	Green
Cancer 2WW	Green
GP Referrals	Red
OP DNAs	Yellow

Staff Experience	
Absence	Yellow
Overtime & Agency Spend	Yellow
Turnover	Green
Vacancies	Green
Workforce Plan	Green
Appraisals	White
Statutory/Mandatory Training	White

Finance	
Activity vs SLA (Non County)	Red
Activity vs SLA (County)	Red
Coding	Green
Control Total Variance	Red
PRCIP vs Plan	Green
Private Patient Income	Green
Market Share - Non County	White
Market Share - County	White

Governance	
Bed Occupancy	Yellow
Clinical Audits	Green
Complaints	Green
Ethnic Coding	Yellow
M&M	Yellow
NICE	Green
SUIs	Red