How Do Projects Decouple from Coercive Pressures? A Study of Decoupling in Construction Projects

Abstract

Purpose

How organisations interact with and respond to environmental pressures has been a long-term interest of organisational scholars. Still, it remains an under-theorised phenomenon from a project perspective. So far, there is limited understanding of how projects, which are composed by a constellation of organisations, 'respond' to institutional pressures that are exerted on them. This research takes the perspective of projects as adopters/implementers of institutional pressures and analyses how they interact with, and respond to, such pressures. More specifically, this research explores how construction projects respond to the pressure of a Building Information Modelling (BIM) mandate.

Design/methodology/approach

Multiple in-depth case studies were conducted to explore the practical implementation of a BIM mandate in the UK and understand how the construction projects responded to the coercive pressures to implement a new policy mandate for process digitalisation. Multiple sources were employed for data collection and the data was analysed inductively. The findings identify a hybrid response comprising four distinct ways that projects might respond to an institutional pressure.

Findings

We find that projects decouple both from the content and from the intended purpose of a policy, i.e., there are two variance of a policy-practice decoupling phenomenon in projects. The findings also reveal the underlying conditions leading to decoupling.

Originality

We advance decoupling literature so that it better applies to the temporary, distributed, and interdependent work conducted via projects. Second, we define decoupling in projects as a provisional and fragmented process of wayfinding through heterogeneous institutional spaces, and discuss the potential policy-practice assemblages in projects, influenced by how, if, and when project members' activities decouple from the many and often contradicting institutional pressures they face. Third, we discuss how the qualitatively different forms of decoupling that we identified in our work may act as part of a legitimation process in ambiguous situations whereby projects might share a resemblance of conformity with institutional pressures when they are de facto only partially conforming to them.

Keywords: institutional pressures; policy-practice decoupling; project organisation; institutional theory.

Introduction

How organisations interact with and respond to institutional pressures has been a long-term interest of organisational scholars. Institutional pressures refer to the various forces exerted on organisations by the norms, values, rules, and expectations within their institutional environments. These pressures shape the behaviour of organisations, influencing them to conform to socially accepted standards and practices. Scholars have investigated why and how

organisations ‘decouple’ from institutional pressures, including those of a coercive nature, mandated by government (e.g., Oliver, 1991; Westphal & Zajac, 2001; Bromley et al., 2012; Crilly et al., 2012). Decoupling can be considered as a ‘gap’ between policy and practice, i.e. a gap between policy imposed and what organisations do in practice (Bromley et al., 2012). Still, decoupling remains an under-theorised phenomenon from a project or inter-organisational perspective (Söderlund and Sydow 2019; Hetemi et al. 2020; Bertello et al., 2022; Maddaloni & Sabini, 2022). So far, there is limited understanding of how projects, which are composed by a constellation of organisations, ‘respond’ to institutional pressures that are exerted on them (Söderlund and Sydow 2019). The context of project activity has a multi-organisational nature, meaning that the responses to institutional pressures employed by projects organisations when engaging in a project are shaped by this multi-contextual issue, which is distinct from how individual organisations respond to institutional pressures. Decoupling responses identified by previous research are mostly focused on single actors’ responses (Crilly et al., 2012).

The motivation to explore in more detail how project organisations respond to institutional pressures and ‘decouple’ from institutional pressures has also emerged from observations that projects have varied in their responses to a coercive pressure (a policy mandate) that aimed to transform the construction sector in the UK. Consequently, the coercive pressure has not achieved its intended goals as initially envisaged by institutional designers. Thus, through the theoretical lenses of institutional theory, we ask: *How do projects decouple from coercive institutional pressures?*

To address this question, we investigate how construction projects in the UK responded to a government’s mandate to digitalise its processes and implement the so-called Building Information Modelling policy (BIM Level 2 mandate, henceforth). The BIM Level 2 mandate is

required in projects in the UK since 2016 and it involves interacting processes and digital technologies aiming to enhance coordination between various project stakeholders and facilitate the digital capture of required information throughout the project life cycle (Sacks et al., 2010). The main objectives of this mandate were to improve efficiency, reduce costs, and enhance collaboration in the construction industry by leveraging digital technologies. BIM Level 2 requires stakeholders in construction projects to work collaboratively, sharing information in a digital environment. The mandate was underpinned by a suite of standards and guidelines, particularly the PAS 1192 series, which set out the processes for implementing the policy and managing digital models. The BIM Level 2 mandate was a step towards digitising the construction industry in the UK, aiming at better efficiency, cost savings, and a reduction in the carbon footprint of construction projects. It set a precedent for other countries considering similar digital transformations in their construction sectors.

We looked at the construction industry as a relevant setting for our investigation because scholars have identified that policy frameworks for tansformation of project-based industries as construction have neither produced the envisaged change nor progressed at the expected pace (Eadie et al., 2015; Aksenova et al., 2019). We thus conducted longitudinal case studies of eight large construction projects responding to the BIM level 2 policy mandate in the UK. We looked at how projects responded to the institutional pressures to implement the BIM Level 2 policy and identifyed a decoupling phenomenon.

Juxtaposing our findings with extant literature (Bromley & Powell, 2012; Wijen, 2014; Battard et al., 2017), we first advance literature on decoupling, so that it better applies to an increasingly ubiquitous form of work, that of the temporary, distributed, and interdependent work conducted via projects (Bresnen, 2017; Volker, 2019). Second, we define decoupling in projects as a

provisional and fragmented process of wayfinding towards complying with the imposed institutional pressure (Chia & Holt, 2001; Bouty et al., 2019) through heterogeneous institutional spaces (Ferraro et al., 2015; Etzion et al., 2017) and discuss the potential policy-practice assemblages in projects, influenced by how, if, and when project members' activities decouple from the many institutional pressures they face. Third, we discuss how the qualitatively different forms of decoupling that we identified in our work may act as part of a legitimation process (Vaara et al., 2006; Suddaby et al., 2017; Pache & Santos, 2012), whereby projects might share a resemblance of conformity with multiple institutional pressures when they are de facto only partially conforming to them.

Theoretical Background

Organisational decoupling

Organisations tend to conform to rationalised societal ideals about what constitutes a 'proper' organisation (Boxenbaum & Jonsson, 2008; DiMaggio & Powell, 1983); however, they are not passive receptors of environmental pressures. They often 'decouple' institutional pressures from ongoing practices to buffer internal routines from external uncertainties (Meyer & Rowan, 1977; Westphal & Zajac, 2001). A considerable body of research has been built around the argument that, when subjected to similar institutional pressure, some organisations decouple while others do not (Oliver, 1991; Bromley et al., 2012; Wijen, 2014; Boxenbaum & Jonsson, 2017). This observation prompted scholars to investigate why organisations in the same organisational field respond differently to the same pressures and how these responses vary (Dick, 2015; Battard et al., 2017).

Bromley and Powell's (2012) argue that there are two primary forms of 'decoupling': symbolic adoption and symbolic implementation. Symbolic adoption arises when practices do not result in practical implementation, creating a 'gap' between policy and practice. In this type of decoupling, policies are adopted as a 'ceremonial window dressing' or implemented and evaluated inadequately, not altering the de facto work routines. The other decoupling form, named 'means-end' or symbolic implementation, consists of situations in which policies are poorly linked to organisational effectiveness or outcomes. In means–ends decoupling, policies are thoroughly implemented, but have a weak relationship to the core tasks of the organisation (Bromley & Powell, 2012).

Previous research has typically conceptualised decoupling as a dichotomy: facing similar pressures, some organisations conform, while others do not (Boxenbaum & Jonsson, 2008; DiMaggio & Powell, 1983). More recent research has revealed shades of grey in decoupling. Battard et al. (2017) asserted that organisations do not respond to institutional pressures as a whole; instead, physical (material elements and formal rules), mental (meaning) and social (identity) spaces of organisations integrate institutional expectations separately and to different extents. Li (2017) added that decoupling occurs not only between 'doing' and 'saying', as per existing studies, but also between 'doing' and 'meaning' and between 'meaning' and 'saying'.

Scholars have also covered a range of causes or conditions leading to organisational decoupling. Those include, for example, the influence of top management, organisational size and administrative intensity (Westphal & Zajac, 1994, 2001; Zajac & Westphal, 2004; Beck & Walgenbach, 2005; Berrone et al., 2010); whether organisations are subjected to conflicting logics (Pache & Santos, 2012); organisational identity (Kodeih & Greenwood, 2013); the capacity to implement the policies (Bird et al., 2019); the motivation and stage of adoption

(Bromley & Powell, 2012); the interplay between internal managerial and external stakeholder dynamics (Crilly et al., 2012); issue salience and cost-benefit (Durand et al., 2019); the level of conscious reflection during implementation (Gondo & Amis, 2013); and complex goals and internal fragmentation (Heese et al., 2016).

Despite this considerable body of research on responses to institutional pressures, decoupling has been mostly investigated at the organisational level through the analysis of responses of single organisations (Crilly et al., 2012); the baseline condition is one organisation decoupling from one policy. In projects, however, responses are coordinated across the multiple organisations that participate in the project, which are embedded in multiple institutional contexts and might respond to external pressures according to different logics. In search of a better understanding of project responses to institutional pressures, especially policy mandates, we turn our attention to the literature on project management.

Projects and their interaction with the institutional environment

Major project management outlets recurrently urge contributions focused on debating and theorising how projects relate to broader institutional contexts (e.g., Geraldi et al., 2020). Research on the interaction of projects with the institutional environment has looked, for example, at how different types of institutional pressure (such as mimetic and normative pressures) lead to changes in project processes (e.g., Ullah et al., 2020), the impact of the institutional context on managing project portfolios (Martinsuo & Geraldi, 2020), and how projects cope with institutional complexities and ambiguities (especially in the context of megaprojects) through institutional work (e.g., Dille et al., 2018; Eren 2018) or negotiating multi-ties roles, responsibilities and hierarchical relations (van Marrewijk et al., 2016). Still in the context of megaprojects, previous studies have looked at the multiple actors in the

megaproject structure and explored the roles and responsibilities of those entities in the megaproject delivery model (Denicol et al., 2021).

Studies have also identified coping mechanisms for institutional demands, such as selective coupling (Matinheikki et al., 2019) and the enactment of multiple, co-existing institutional logics (Fred, 2020).

More recently, some few studies have started to look at decoupling the context of projects. Bertello et al. (2022) looked at why and how organisations adopt open innovation in response to societal pressures rather than technical ones. The authors analysed a case study of a publicly funded R&D consortium, and explored the factors that influence policy–practice and means–ends decoupling across three dimensions: at firm, project, and network level. The authors concluded that policy–practice decoupling is triggered by resource limitation, administrative burdens, and behavioral complicity while means–ends decoupling is triggered by technical complexity, best practice dissemination, and institutional complexity. Maddaloni and Sabini (2022) introduced the concept of means-end decouplingas a powerful perspective to understand the discrepancy between what project managers perceive to be moral (including communities), versus what project organisations actually do (not including them). Jabbouri et al. (2019) identified three types of means-ends decoupling work in R&D project implementation: ‘work on’ causal complexity, ‘work at’ behavioural invisibility, and ‘work with’ practice multiplicity. Despite some recent studies started to emerge looking at, especially, means-end decoupling, there is still a lack of studies looking at project responses in the context of coercive pressures. Although studies looking at how project practices are transformed in the context of digital transformation and how governance, for example, evolves in such context, also started to emerge (Brunet & Cohendet, 2022), polyc-practice decoupling has not yet been investigated in the

context of coercive pressures, such as pressures to digitalise project practices. Investigating a decoupling phenomenon in a project context not only adds to organisational theory by looking at an established phenomenon in a new context and by revealing the facets of such phenomenon in a new context but also extends project management literature and recent studies by providing a new perspective on projects and their interaction with institutional environments.

Methods

We employed a multiple case study approach to explore and compare how project organisations respond to coercive institutional pressures and, more specifically, how they change their work practices to comply with a policy (i.e., we explore the policy-practice coupling/decoupling as previously explained). The coercive pressure imposed on projects and explored in this research is a BIM mandate: it is a set of interacting processes and digital technologies that enhance coordination between various project stakeholders, arguably to facilitate the digital capture of required information throughout the whole project lifecycle (Sacks et al., 2010). Since 2011, BIM has become central to the United Kingdom's industrial strategy for the construction sector (Smiley et al., 2014). Formal structures have been devised and imposed as part of BIM coercive efforts, including standardised processes for managing information on delivery, handover and throughout the operation, and have been mandated in public-sector projects (Whyte & Hartmann, 2017).

However, evidence suggests that these coercive pressures have yet to produce the envisaged systemic change, nor have they progressed at the expected pace. In the UK, policy awareness advanced from 10% in 2011 to around 70% in 2019. However, results of recent survey with industry practitioners indicated that only 35% of respondents were implementing the standards related to BIM level 2 (e.g., PAS 1192-2:2013, BS 1192:2007) (NBS, 2019). Interested in

studying how projects decouple from coercive pressures from governments, we thus considered this a suitable context for in-depth investigation. More specifically, we looked at the implementation of formal structures as part of the BIM level 2 mandate in the UK – mandates enabling digital tools and a range of standards and documents (BSI, 2013) – to explore how projects decouple from the coercive pressure to digitise their processes.

Case Selection and Data Collection

This research applied theoretical sampling to select projects that were implementing the BIM mandate across the UK. The longitudinal in-depth analysis encompassed eight construction projects (Table 1) from three client organisations (hereafter project organisations A, B, and C).

Table 1. Overview of the projects.

Project	**Description**	**Stage at the moment of data collection** *following the Royal Institute of British Architects (RIBA) classification of project stages
Project 1	18,000 m^2 six-storey building containing state-of-the-art laboratories	RIBA 6 (handover)
Project 2	2,600 m^2 research facility for the study of neurodegenerative disorders	RIBA 6 (handover)
Project 3	Biological support facility for clinical medicine and biological sciences	RIBA 6 (handover)
Project 4	Three-storey building comprising laboratory and workshop spaces for engineering science	RIBA 5 (construction)
Project 5	37,160 m^2 building comprising a range of laboratories, offices, clean rooms, and workshops as well as multiple lecture theatres for physics	RIBA 4 (design)
Project 6	Three-story educational facility with enhanced sports and arts facilities	RIBA 5 (construction)
Project 7	Laboratory-based facility for health and life science	RIBA 7 (in use)

Project 8	Teaching block, four-storey building for engineering science	RIBA 5 (construction)

Source: Created by the authors.

Throughout data collection, we aimed for maximum variation (Curtis et al., 2000): we diversified the selection of projects in different stages of their implementation (ranging from 'design' to 'in use') and selected projects in which the client organisation had different motivations to adopt the policy mandate. We collected data from 2018 to 2020, starting with five construction projects from organisation A – these were the first BIM Level 2 projects the client organisation had implemented, thus offering rich insights on cross-project variance. Organisation A decided to implement BIM in its projects primarily because of public perception; as a well-known organisation in the national context, it was important to follow the government's recommendations. The data collection then progressed to evaluate a project from organisation B – which as a public sector client, had to comply with the government's mandate and had implemented BIM level 2 in a range of its projects since 2011. We then collected data for two of organisation C's projects (7 and 8) – these were, respectively, the first completed BIM level 2 project and their second, which was still at the construction stage. Organisation C implemented BIM in its projects for strategic reasons; because of its potential to facilitate the digital capture of information throughout the projects' lifecycle. We employed multiple techniques to collect data, as summarised in Table 2.

Table 2. Data sources.

Case study setting	**Techniques**	**Transcribed data (pages)**
Client organisation A (projects 1 to 5)	• Semi-structured interviews with BIM managers and project team members • Observations of meetings • BIM documentation analysis	1274

	• Secondary data analysis of internal documents • Shadowing of project stakeholders	
Client organisation B (project 6)	• Semi-structured interviews with BIM managers and project team members • BIM documentation analysis • Observations of meetings • Shadowing of computer-aided facilities management (CAFM) system provider	576
Client organisation C (projects 7 and 8)	• Semi-structured interviews with BIM managers and project team members • BIM documentation analysis • Secondary data analysis of internal documents	501

Source: Created by the authors.

Multiple data sources were used and combined to ‘reconstruct’ how the implementation of the mandate took place. The first author interviewed 22 different project members including the people undertaking the role of information management/BIM manager on behalf of the client organisations and on behalf of the project teams, project managers, asset or facilities managers, designers, etc. We used a semi-structured questionnaire for interviews; this questionnaire included questions on each aspect of the BIM Level 2 mandate that had to be implemented (details of the standards that had to be implemented can be found in British Standards Institution, 2013) and each interview lasted 60 minutes. The BIM level 2 mandate (which has now been updated to the BIM framework) was constituted of mandatory enabling tools, a range of standards and documents (BSI, 2013), and the interviews covered questions on the implementation of those tools, standards, and documents following the standards. We also collected compulsory documentation that had to be developed by project teams as part of the mandate's implementation, observed project team meetings to understand how the project team worked, and analysed internal reports from the client organisations on their BIM strategy. Appendix A provides a detailed description of all data collected and analysed. These

multiple sources of data were used and combined to ‘reconstruct’ how implementation of the mandate occurred.

The research started with data collection and analysis of implementation at five construction projects within organisation A. Implementation was first analysed within a context in which both technical and legitimacy reasons drove implementation in order to gain a comprehensive understanding of how enactment takes place and possible responses that projects employ that are not necessarily related to one motivation for adoption or another.

The five construction projects analysed included organisation’s A first BIM Level 2 projects as well as the BIM level 2 projects in progress at the moment of data collection. Data analysis was performed parallel to data collection, which resulted in the identification of patterns on how enactment occurred (which is explained in the following section). The data collection then progressed to organisation B and its projects, which implemented BIM because, as a public sector client, it was mandatory for its projects. The goal with organisation B’s project was to collect data on a case where implementation was mandatory and that was the main motivation for adoption, aiming to identify if the same responses previously identified for projects 1 to 5 were replicated or if new responses could emerge.

BIM level 2 had been implemented in a range of projects since 2011, and one in particular was initially selected for analysis by organisation B as representative of its projects. This project was at the construction stage and a wide perspective on implementation across all stages could be gained. The patterns in implementation identified in project 6 were aligned with the themes seen in data analysis for organisation’s A projects, so the analysis of just one project was enough to confirm the previously identified findings.

The data collection then proceeded for organisation C's projects. A contractor suggested BIM implementation in one of the projects (project 7 considered for analysis), and it had been seen to be beneficial to the client organisation since then. Thus, organisation C adopted BIM Level 2 for mostly technical reasons. Data was collected for two projects (projects 7 and 8) – organisation C's first BIM level 2 project, and their second, which was the ongoing BIM level 2 project at the moment of data collection (at the construction stage). Similar to the logic adopted for organisation B, as this project was at the construction stage, a wide perspective on implementation across the stages could be gained. The same implementation patterns were identified. It was then found that despite the motivation for adoption, projects might respond to coercive pressures in some common ways.

Patterns in the responses adopted by the projects and reasons for implementation in certain ways were repeating within and across cases from three different contexts indicating theoretical saturation and meaning that no more cases were necessary to confirm the findings. This is also aligned with Yin's (2014) recommendations that when the emerging theory was straightforward, the design does not need a larger number of replications.

Data analysis

The data-analysis process started with a within-case analysis designed to understand practical implementation in each individual setting/project. The first step in the analysis was to understand 'what' was implemented by each setting (client organisation) and its respective projects. This consisted of looking at the data and identifying which of the mandate requirements had been adopted/implemented, that is, the standards, documents and procedures, and also which clauses, processes/activities of those standards had been implemented.

Then, the analysis focused on understanding ‘how’ implementation occurred. Tables on ‘how’ the clauses and processes/activities had been implemented were built based on the different data sources. The ‘why’ of implementation was then examined. The reasons for why enactment happened in the ways it did were identified when analysing the data, and also through the different data sources. Descriptions of the reasons for implementation in certain ways were created for each clause/process of the two main standards part of the BIM Level 2 mandate (e.g. PAS 1192-2 and PAS 1192-3), and tables were built describing the reasons. These two standards were considered because they represented the main standards related to processes implementation, they were adopted by all projects and patterns emerged during the analysis, indicating that the patterns in response are independent of the process being implemented. This structure of looking at the ‘what’, ‘how’ and ‘why’ was followed when building the detailed case-study write-ups for each site.

After the data was organised in this way, it was categorised from lower to higher levels of abstraction (Gioia et al. 2013). Descriptive codes were created and labels assigned to the data (to the descriptive tables built, as previously explained) to summarise in a phrase the topic of the data related to each process being implemented. This was performed for each of the 144 clauses/ processes of the two analysed standards. The same was performed for the data related to the reasons; the variables found as reasons were categorised according to their similarity in terms of referring to the same construct.

This analytical procedure led to the observation that enactment of the policy mandated followed some patterns that were independent of the process/activity being enacted. Four first-order categories or types of response to the BIM level 2 policy for organisation’s A projects were identified: i) non-implementation, ii) violation, iii) assimilation and iv) accommodation. If the

standard or a clause of a standard was not implemented, it was coded as ‘non-implementation’. Alternatively, if a clause/process was implemented but not fully implemented, i.e. part of the clause/its prescription was not implemented, then it was classified as ‘violation’. There were other occasions in which, despite clauses of standards were implemented, their intrinsic meaning were not implemented, and it was classified as ‘assimilation’. Finally, when a clause was fully implemented, which means implementation in terms of prescription and meaning, it was classified as accommodation.

For the reasons, the descriptions of the causes of enactment in certain ways for the first five analysed projects (organisation’s A projects) were identified as related to the following variables: strategic orientation, scripts from bodies of knowledge, repetition of role expectation, repetition of models of reality, early stages of adoption, existing authority systems, existing governance systems, repetition of existing procedures and reward and cost structures. These labels for the variables were given considering content-characteristic words, and also considering concepts in the literature. These reasons came from both the organisational and industry contexts. These variables were then categorised as normative rules, cognitive rules, regulative rules (which represent existing structures, according to institutional theory), strategic orientation and capacity, which are the first-order categories. In other words, those are the categories of institutions that shape social order and that influenced implementation of the mandate.

The data collection and analysis proceeded with the analysis of the other projects where implementation was motivated by different reasons. It was observed that the identified categories of response previously identified were repeating across the cases; no new variances in response emerged. The same procedure was performed regarding the underlying first-order categories of conditions for the following projects and then compared with the previous ones. There were

variables forming the first-order categories that were repeating, and others that emerged in the following cases (two emerged for project 6), but the emerging ones were still related to the defined first-other categories. As new categories did not emerge for projects 7 and 8, it was concluded that theoretical saturation in the possible categories had been reached.

The first-order categories were then clustered into second-order themes. It was identified that some types of response (i.e. non-implementation, violation and assimilation) were related to a policy–practice decoupling phenomenon, and two variances could be observed, extending existing conceptualisation of decoupling in organisational theory literature. These higher-order themes were created based on the organisational theory literature. The same was performed for the first-order categories of reasons; they were clustered as related to the ability and willingness of projects to respond and reproduction of conflicting norms. Then, the second-order themes were collapsed into aggregate dimensions of 'project' responses to institutional pressures and underlying conditions leading to decoupling, which form the conceptual framework answering how projects respond to institutional pressures and the underlying reasons leading to such responses.

According to Easterby-Smith et al. (2018), the criteria to assess the validity of a qualitative research design involve the consideration of multiple perspectives and access to the experiences of those involved in the setting. The research design matches the suggested criteria by considering the viewpoints of multiple project members in the interviews and by collecting data through observations, that is, by having direct access to the real experiences of those involved. Regarding construct validity, a chain of evidence is provided in the following sections describing how the research proceeded from the within-case analysis to the conceptualisations shown in a data structure presented next. The constructs were conceptualised in light of the relevant

literature. Multiple data sources and triangulation also facilitated the adoption of different angles. In terms of external validity, although there is criticism around generalising from case studies, scholars recognise that a case-based approach has merits over quantitative methods in terms of theoretical generalisation (Tsang, 2014). The multiple-case research design and case-selection approach provide the basis for theoretical generalisation, as the findings are observed within and among multiple projects.

Findings

Our empirical study identified two types of policy-practice decoupling: decoupling from the 'what' (i.e., the content of the policy mandate) and decoupling from the 'how' (i.e., the intended purpose of the policy mandate). We also identified two underlying conditions that lead to decoupling: the willingness and ability of project organisations to implement the policy mandate and the reproduction of conflicting norms within the organisational or industry contexts. In this section, we explain these features based on what we observed from our data.

Types of policy-practice decoupling in projects

- *Decoupling from 'what' was imposed by the policy mandate*

The data revealed that projects had not implemented parts of the imposed structure; the BIM level 2 framework was composed of a range of principles and standards, tools and documents that were supposed to be followed. While projects implemented some of the requirements, they have not implemented others.

The content of implementation varied in terms of both breadth and depth within and across cases. Non-implementation was a type of response that occurred in two main forms: i) a lack of adoption/implementation of one or more principles, standards or documents of the proposed policy framework; and ii) incomplete adoption of a principle, standard or document, meaning that some of its clauses and prescriptions and respective processes and activities were not implemented. It was observed that standards, documents and procedures related to information management during the operational phase of the asset, for example, were implemented less often. Some specific clauses of some standards such as PAS 1192-3:2014, were not implemented in the majority of projects. Table 3 shows the clauses/processes of the standards PAS 1192-2 and PAS 1192-3 non-implemented across cases.

Table 3. Clauses non-implemented across cases (for PAS 1192-2/ PAS 1192-3).

Projects	Number of clauses non-implemented	Clauses
Project 1	12	5.1.4, 10.2, 4.1, 4.2, 4.3 item a, 4.3 item b, 4.3 item f, 4.4, 4.5.3, 4.5.4, 4.6.4, 6
Project 2	12	5.1.4, 10.2, 4.1, 4.2, 4.3 item a, 4.3 item b, 4.3 item f, 4.4, 4.5.3, 4.5.4, 4.6.4, 6
Project 3	12	5.1.4, 10.2, 4.1, 4.2, 4.3 item a, 4.3 item b, 4.3 item f, 4.4, 4.5.3, 4.5.4, 4.6.4, 6
Project 4	11	10.2, 4.1, 4.2, 4.3 item a, 4.3 item b, 4.3 item f, 4.4, 4.5.3, 4.5.4, 4.6.4, 6
Project 5	11	10.2, 4.1, 4.2, 4.3 item a, 4.3 item b, 4.3 item f, 4.4, 4.5.3, 4.5.4, 4.6.4, 6
Project 6	18	5.3a item 6, 5.3b item 4, 6.1.3, 6.1.4, 7.2.1, 10.2, 4.1, 4.2, 4.3 item a, 4.3 item b, 4.3 item e, 4.3 item f, 4.4, 4.5.3, 4.5.4, 4.6.4, 5.1, 6
Project 8	7	5.3a item 8, 10.2, 4.1, 4.3 item a, 4.3 item f, 5.1, 6

Source: Created by the authors.

When non-implementing some clauses of the standards, it was observed that some projects reported having implemented some of the processes. In the cases of projects 1 to 5, for example, it was stated in their Employer Information Requirements (EIRs) that the government soft-landings framework was in place, but it was not implemented in practice. The EIR of organisation A's projects also stated that the client would provide a common data environment (CDE), when this did not occur in practice and remained the contractor's responsibility. In other words, some projects adopted some of the standards as a window dressing.

Examples of clauses non-implemented for organisation's A projects include the EIR not having been incorporated into the tender documentation to enable suppliers to produce their BEP, as prescribed by clause 5.1.4 of PAS 1192-2:2013. Project 3 also reported not having all the documentation in place from the start of the project. Table 4 shows other examples of clauses and respective processes/activities that were found not being implemented for projects 1 to 5, illustrating how enactment was reconstructed based on different sources of data.

For project 6, Table 5 shows examples of clauses non-implemented, which included an EIR that does not set out the requirements for bidders' proposals for BIM/CDE-supported H&S/CDM management (clause 5.3a item 6 of PAS 1192-2) and an EIR that does not contain an initial responsibility matrix setting out any discipline responsibilities for model information production in line with the defined project stages (clause 5.3b item 4 of PAS 1192-2). This was also the case for the PAS 1192-3:2014, with most of its clauses not being implemented. Client organisation B does not have, for example, an information management procedure in place, has not defined its Organisational Information Requirements (OIR) and has not defined its processes for maintaining the asset information model (AIM).

Clause	Enactment	Representative quotes/events/documents underlying enactment
5.1.4	The EIR was not incorporated into the tender documentation.	What we received to tender on and for us to review was a pre-contract BIM execution plan. There were references to COBie and to the workflows, but we didn't actually receive an EIR document. (project 2)
10.2	A formal handover process was not defined in the EIR.	EIR and interviews: They didn't specify it. I think it could definitely be improved. I think the handover process, from both sides, maybe, only got decided when it actually needed to be done. So, there are still some elements where people aren't quite sure what they should or shouldn't be receiving. (project 3)
4.1	The client organisation has not established, documented, implemented and maintained an information management process.	There is no reference in any documentation; the client organisation has not established a formal OIR.
4.3 item b	There is no OIR guiding the process, although a document started to be drafted.	OIR draft
4.3 item f	No mechanisms for maintaining the AIM and monitoring the quality of data and information within the AIM were defined.	There is no reference in any documentation.
4.4	The client organisation has not determined and catalogued a formal OIR.	OIR draft, EIR, AIR
4.5.3	As there is no formal OIR, it was not conveyed to external contractors or in-house work teams through a task- or project-specific AIR.	OIR draft, AIR. Interview: We received a very generic, not project-specific EIR, which puts us in the unknown. We questioned why it was as it was, because it didn't seem to be representative of what we were doing. (project 2)

Table 4. Examples of clauses/processes non-implemented in organisation A's projects.

Source: Created by the authors.

Table 5. Examples of clauses/processes non-implemented in organisation B's project 6.

Clause	Enactment	Representative quotes/events/documents underlying enactment
5.3a item 6	The EIR does not require bidders to submit proposals for BIM/CDE-supported H&S/CDM management.	EIR template
5.3b item 4	The EIR does not include an initial responsibility matrix.	EIR template
6.1.3	A BEP was not submitted by the supplier post-contract award.	Pre-contract BEP, interview: We never produced a post-contract BEP. (BIM manager, main contractor)
4.1	The organisation has not established, documented, implemented and maintained an information management process.	That's because we don't operate the estate. If they want to… I don't think it's a winnable thing, to force schools to update their model that we hold. It'll just be a legacy model, 'That's how it was.' It won't be taking full advantage. (BIM implementation leader)
4.2	There is no management process in place.	Same as above
4.3 item a	There is no information governance in place.	Same as above
4.3 item b	An OIR has not been defined.	AIR, EIR
4.3 item e	The interfaces for the exchange of data and information were not defined.	Before information is uploaded into PS Assets it needs some standardisation and cleaning up; that did not happen. (CAFM provider)
4.5.3	An OIR was not defined.	AIR, EIR
4.5.4	No exchange of data and information with the AIM was established.	AIR
4.6.4	There are no processes for maintaining the AIM.	That's because we don't operate the estate. If they want to… I don't think it's a winnable thing, to force schools to update their model that we hold. It'll just be a legacy model, 'That's how it was.' It won't be taking full advantage. (BIM implementation leader)

Clause	Enactment	Representative quotes/events/documents underlying enactment
5.1	The organisation does not have a CDE in place; for capital delivery, it was provided by the contractor.	‘Should we hold the models?’ At the moment, we don’t hold O&M manuals or as-built drawings. People say, ‘Why should we?’ We’ve got a whole filing system in the department, using SharePoint. So, there’s an ongoing debate as to whether we should hold BIM models? I’m going to say, ‘Well, I’m going to collect because…’ One of our senior directors, actually, has said, ‘We should have a Facebook kind of account.’ I’m not sure quite what he means. I’m taking it as a positive, that he thinks we should store BIM models. (BIM implementation leader)
6	Roles and responsibilities for information management were not set.	That’s the bigger challenge. I don’t think it’s a winnable thing, to force schools to update their model that we hold. It’ll just be a legacy model, ‘That’s how it was.’ It won’t be taking full advantage. (BIM implementation leader)

Source: Created by the authors.

For organisation’s C projects, examples of non-implemented clauses included clause 5.3a item 8 of PAS 1192-2:2013 regarding the EIR not covering specific information for either exclusion or inclusion from/in the information models. Other examples regarding PAS 1192-3:2014 included non-definition of the roles and responsibilities for information management during the operational phase, according to clause 6, and non-implementation of processes to provide the CDE. Thus, despite the goal of BIM level 2 implementation in projects 7 and 8 being technical and not only complying with the mandate, the same patterns of response were observed in terms of the content implemented. The non-adoption or non-implementation of specific clauses,

however, especially in project 8, was less frequent than in the other projects. Table 6 shows some examples of clauses not being implemented for projects 7 and 8.

Table 6. Examples of clauses/processes non-implemented in organisation C's projects.

Clause	Enactment	Representative quotes/events/documents underlying enactment
5.3a item 8	The EIR does not cover any specific information for either exclusion or inclusion from/in the information models.	EIR
4.3 item a	Information governance processes have not been established yet.	We're doing quite a big piece of work on that at the moment, because there are a lot of systems that have space data, but they have it in different formats, different naming conventions, etc. (facilities manager)
4.3 item f	The mechanisms for maintaining the AIM have not been defined yet.	Same as above
5.1	Organisation C still does not have a CDE.	We are still going through a procurement process to find the right CDE, to understand our information piece and what everybody needs from a CDE system. (client's BIM manager)

Source: Created by the authors.

In other circumstances, standards and their respective clauses, processes/activities were adopted, but extensive implementation did not occur. Implementation of a clause, process or activity was 'violated' or did not fully comply with the 'letter' of the imposed structure. Analysis of the 'how' of implementation across cases saw this pattern of response across a range of processes/activities. Table 7 summarises the clauses/processes violated across some of the cases.

Table 7. Clauses violated across cases (for PAS 1192-2/ PAS 1192-3).

Projects	Number of violated clauses	Clauses
Project 1	32	5.1.3, 5.2.1, 6.1.2, 6.1.3, 6.1.4, 6.1.5, 6.2, 6.3.2, 6.4.1, 6.4.2, 6.5.1, 6.5.2, 6.5.3, 6.6, 6.7, 7.2.1, 7.5.1.1, 8.2, 9.1.5, 9.1.6, 9.2.2.1, 9.2.2.9, 9.4.9, 9.9.7, 4.3. item c, 4.3 item d, 4.3 item e, 4.5.1, 4.6.2, 4.7.2, 5.2, 7.1.2
Project 2	32	5.1.3, 5.2.1, 6.1.2, 6.1.3, 6.1.4, 6.1.5, 6.2, 6.3.2, 6.4.1, 6.4.2, 6.5.1, 6.5.2, 6.5.3, 6.6, 6.7, 7.2.1, 7.5.1.1, 8.2, 9.1.5, 9.1.6, 9.2.2.1, 9.2.2.9, 9.4.9, 9.9.7, 4.3. item c, 4.3 item d, 4.3 item e, 4.5.1, 4.6.2, 4.7.2, 5.2, 7.1.2
Project 3	30	5.1.3, 5.2.1, 6.1.2, 6.1.3, 6.1.4, 6.1.5, 6.2, 6.3.2, 6.4.1, 6.4.2, 6.5.1, 6.5.2, 6.5.3, 6.6, 6.7, 7.2.1, 7.5.1.1, 8.2, 9.1.5, 9.1.6, 9.4.9, 9.9.7, 4.3. item c, 4.3 item d, 4.3 item e, 4.5.1, 4.6.2, 4.7.2, 5.2, 7.1.2
Project 4	31	5.1.3, 5.2.1, 6.1.2, 6.1.3, 6.1.4, 6.1.5, 6.2, 6.3.2, 6.4.1, 6.4.2, 6.5.1, 6.5.2, 6.5.3, 6.6, 6.7, 7.2.1, 7.5.1.1, 8.2, 9.1.5, 9.1.6, 9.2.2.9, 9.4.9, 9.9.7, 4.3. item c, 4.3 item d, 4.3 item e, 4.5.1, 4.6.2, 4.7.2, 5.2, 7.1.2
Project 5	15	5.1.3, 6.1.5, 7.5.1.1, 8.2, 9.1.6, 9.4.9, 9.9.7, 4.3. item c, 4.3 item d, 4.3 item e, 4.5.1, 4.6.2, 4.7.2, 5.2, 7.1.2

Source: Created by the authors.

Examples of violated clauses for projects 1 to 5 included one of the first clauses of PAS 1192-2:2013, which recommends defining the information exchange and collaborative working requirements that shall be undertaken in parallel with other procurement and project definition activities. The definition of information exchange was not undertaken in parallel with other project definition activities, and the projects did not have those definitions established from the beginning.

Clause 5.1.2 of PAS 1192-2:2013 was also not completely followed regarding the recommendation for the requirements in the EIR to only provide sufficient information to answer the plain language questions (PLQ) required at a particular stage, with the EIR asking for information about everything. The requirements set out by client organisation A, therefore, were not specific and realistic, as prescribed by clause 5.1.3 of PAS 1192-2:2013. Moreover, it was noticeable that the EIRs were not issued as part of the employer's requirements or tender documentation, as required by clause 5.2.1 of PAS 1192-2:2013, and there were modifications of the EIR issued across the projects' stages.

The PAS 1192-3:2014 also establishes that the AIR should define the structure, process and content of the information to be exchanged, and the AIR did not contain specifications for the information-exchange processes and content. The standard specifies that the information should be of a quality appropriate for the asset management decisions and activities it supports, as well as the asset's operation, maintenance and management; however, the asset information requirements were not defined in terms of the asset management decisions and activities it supports. The AIR was limited in the identification of assets that should be considered. Table 8 provides other examples of clauses/processes that were not fully implemented.

Table 8. Examples of clauses/processes not fully implemented in organisation A’s projects

Clauses	Enactment	Representative quotes/events/documents underlying enactment
5.1.3	The information requirements were not specific, realistic and achievable.	Realistically, we can't do all the stuff that's being asked of us here. (project 4)
5.2.1	The EIRs were not issued as part of the employer’s requirements or tender documentation.	When the project started, there was a lack of clear information. I think only after a year or a year-and-a-half did we receive a project-specific EIR. I get the impression that that was because it was being developed as they were going along. (project 3)
6.1.2	The BEPs did not have enough specification for the employer to identify if the supply chain had the capabilities to deliver what was asked in the EIR.	Contractor’s BEP
6.1.5	There is no information about the supplier's information cascade process.	Contractor’s BEP, EIR
6.2	The contents of the BEP could not cover everything in the EIR because an EIR was not provided.	Contractor's BEP, interview: What we received to tender on and for us to review was a pre-contract BIM execution plan. There were references to COBie and the workflows, but we didn’t actually receive an EIR document. (project 2)
7.5.1.1	Some roles were not explicitly defined.	Facilities managers were coming to us for what they want, rather than through their own team, which sometimes blurs the lines about who should be doing what, and when. (project 3)
8.2	Not all selected software was tested.	EIR, and interview: As you got your building modelled as it is, you can’t just press a button and put it into your thermal modelling software because the software won’t understand any clashes. (project 5)
9.1.2	The project information model (PIM) was not strictly developed in	I think that, sometimes, they didn't fully, say, asset-tag something, so it wasn't

	accordance with the MIDP/MPDT.	immediately obvious what it was. You could say it's an LOD issue. It wasn't so bad. It was present, though, and sometimes caused some issues when someone thought an object that looked quite generic was something that it wasn't. (project 3)
9.1.5	The process of delivery management was not strictly followed, with information exchanges still occurring via email.	It’s been difficult to get the team out of the habit of just sharing drawings by email before uploading onto a system. (project 2)
4.3 item d	Mechanisms for analysing and reporting on the information and data held in the AIM were not defined.	AIR
7.1.2	The information identified by the organisation was not defined by considering the asset management decisions and appropriate to the operation and management of the asset.	AIR and interview: Then, the asset list wasn’t reflecting the actual expectations by the estates team. (project 2)

Source: Created by the authors.

For project 6, examples of violated processes regarding the EIR include that, although the EIR highlights that the contractor should perform the role of information manager, it does not provide details regarding the roles and responsibilities (clause 5.1.5). In terms of information production, the project information model has been progressively developed and delivered to the employer (according to clause 9.1.1) but has not coincided with the employer's decision-making processes. For example, in terms of the information necessary to procure the mechanical and electrical maintenance services, no formal information exchanges occurred to support the client’s procurement of those services. Also, more information than necessary has been delivered (i.e. non-graphical data).

Moreover, the process of sharing and issuing production information has not been consistent, according to that prescribed by clause 9.1.6, and information has not been delivered in a lean

manner. There has been significant communication by email instead of via CDE as well. Although information exchange has been established in the EIR, the formal exchange of information has not occurred (according to clause 9.1.1). Table 9 shows other examples of violated clauses.

Table 9. Examples of clauses/processes not fully implemented in organisation B's project.

Clauses	Enactment	Representative quotes/events/documents underlying enactment
5.1.3	The information requirements were not specific.	I suspect that one of the lessons learned from all of this would be how the client and the end-user in this type of construction project can work together earlier to look at what potential future asset management requirements the Trust might need. (technical advisor)
5.1.5	The EIR highlights that the contractor should perform the role of information manager; it does not provide details about the roles and responsibilities.	EIR
6.1.2	The BEP does not provide enough information to determine if the requirements within the EIR are achievable – the capabilities of the whole team are not clear.	BEP: Each BIM supplier is to complete a BIM competence assessment.
6.4.2	An assessment form has been completed according to the main contractor but the BEP does not provide a way to assess their capability.	BEP
7.5.1	There was no clarity of roles/responsibilities for all project members, such as the TA.	It should be the technical advisors. The technical advisors have that in their scope of work. How specific that is… I think it's just one line saying, 'You'll do everything necessary to do BIM'. (BIM implementation leader)
8.2	No all software has been procured and tested at the	What we are proposing at this moment in time won't capture that. The PS asset software

Clauses	Enactment	Representative quotes/events/documents underlying enactment
	appropriate time for information production.	won't necessarily take all of that. But we still have nowhere to store that. (asset-operator)
9.1.6	The process of creation, sharing and issuing of information has not been consistent.	Actually, one of the things that is notable on this project is there is still an awful lot of email communication. There is an awful lot of correspondence, and there is an awful lot of discussion. Even though we've all got access to the contractor's CDE, it's actually not the place where that discussion is actually typically taking place. It's still taking place in workshop environments and across those emails. (technical advisor)

Source: Created by the authors.

Similarly, although to a lesser extent than in other projects, it could also be observed that not all processes/activities were implemented fully in projects 7 and 8. Examples include the EIR not having an initial responsibility matrix setting out the discipline's responsibilities for model or information production in line with the defined project stages, although it contains a high-level description of roles and responsibilities. Other aspects involved the creation of the project information model not strictly in accordance with the Master Information Delivery Plan (MIDP). The BIM manager reported that, although the suppliers compiled their Task Information Delivery Plan (TIDPs), they should have done it in a more refined way. The models were not developed appropriately, and remodelling was necessary for some services. The production of information was not truly lean, which is the end that PAS 1192-2:2013 was created for.

In summary, the data revealed that non-extensive implementation is not tied to a specific standard and all of its prescriptions; instead, it occurs at process level, meaning that some processes of the same standard were violated while others were not, which can also happen concurrent to other types of response. Previous research at organisational level has not identified

this hybridisation; organisations are usually identified as employing a type of holistic response to a pressure.

These two types of enactment – not implementing everything that was required by the policy mandate (e.g., some of the standards) or, when adopting a standard, not implementing all of its proposed clauses/processes – were characterised as decoupling from ‘what’ has been required by the imposed policy framework, or from the content of the imposed structure.

- *Decoupling from 'how' the imposed policy framework was meant to be implemented*

In cases that, at first glance, seemed to indicate coupling, we observed a superficial implementation of some processes and activities mandated by BIM level 2. While projects implemented the ‘content’ of processes and activities, project members did not implement the content in the manner it was meant to be implemented, and the intended purpose of the prescriptions was not *de facto* pursued; in other words, projects sometimes ticked the boxes of compliance but did not engage substantially with their ‘spirit’. This creates a disconnect between implementation and its expected outcomes as envisaged by the policy framework.

In other words, projects ‘assimilated’ the structure but did not implement its real ‘meaning’ in terms of the actual ‘how’ of enactment. The new processes and activities were implemented by assimilating them into existing ways of doing things, and so the focus has mostly been on surface-level aspects of the structure and expected change. Table 10 provides a summary of some clauses/processes assimilated across cases.

Table 10. Clauses assimilated across cases (for PAS 1192-2/ PAS 1192-3).

Projects	**Number of clauses assimilated**	**Clauses**
Project 1	19	5.1.2, 5.1.5, 5.3b item 1, 7.4.5, 7.5.1, 7.5.1.2, 7.5.1.4, 7.5.1.6,

		8.3, 9.1.1, 9.1.2, 9.2.2.8, 9.2.2.10, 9.2.2.12, 9.5.1, 9.9.6, 4.7.1, 5.1, 7.1.1
Project 2	19	5.1.2, 5.1.5, 5.3b item 1, 7.4.5, 7.5.1, 7.5.1.2, 7.5.1.4, 7.5.1.6, 8.3, 9.1.1, 9.1.2, 9.2.2.8, 9.2.2.10, 9.2.2.12, 9.5.1, 9.9.6, 4.7.1, 5.1, 7.1.1
Project 3	19	5.1.2, 5.1.5, 5.3b item 1, 7.4.5, 7.5.1, 7.5.1.2, 7.5.1.4, 7.5.1.6, 8.3, 9.1.1, 9.1.2, 9.2.2.8, 9.2.2.10, 9.2.2.12, 9.5.1, 9.9.6, 4.7.1, 5.1, 7.1.1
Project 4	18	5.1.2, 5.1.5, 5.3b item 1, 7.4.5, 7.5.1, 7.5.1.2, 7.5.1.6, 8.3, 9.1.1, 9.1.2, 9.2.2.8, 9.2.2.10, 9.2.2.12, 9.5.1, 9.9.6, 4.7.1, 5.1, 7.1.1
Project 5	17	5.1.2, 5.1.5, 5.3b item 1, 7.4.5, 7.5.1, 7.5.1.2, 8.3, 9.1.1, 9.1.2, 9.2.2.8, 9.2.2.10, 9.2.2.12, 9.5.1, 9.9.6, 4.7.1, 5.1, 7.1.1
Project 6	22	5.1.2, 5.1.4, 5.2.1, 5.3a item 1, 5.3a item 3, 5.3b item 1, 5.3c item 1, 5.3c item 2, 5.3c item 3, 7.5.1.6, 7.6.3, 8.3, 9.1.2, 9.1.5, 9.2.2.4, 9.2.2.5, 9.2.2.8, 9.2.2.10, 9.2.2.12, 9.8.1, 4.7.1, 7.1.1
Project 8	5	7.4.1, 7.4.2, 8.3, 9.1.2, 9.2.2.10

Source: Created by the authors.

Examples of processes complying with the ‘letter’ but not the ‘spirit’ for projects 1 to 5 included the consideration of information requirements in project contracts to avoid duplication of responsibilities (clause 5.1.5 of PAS 1192-2:2013). Despite complying with the formal specification of the standard, that is, information requirements are included as part of the contracts, those requirements were not precisely specified and changed over the projects’ life-cycle stages, in turn, creating issues in terms of the responsibilities in some projects (e.g. project 2). Other examples included, despite having an EIR in accordance with the standards, having a generic EIR not tailored to the project. Also, the EIR sets out that contractors are required to collaborate with the delivery team on the definition of those requirements, but without actively involving facilities managers who are also information-users. PAS 1192-2:2013 (clause 5.1.5) indeed sets out that the employer is advised to assign the role of project-delivery manager to one or more individuals as early as possible to develop these requirements; however, the information requirements were defined by consultants without considering the input of users of this

information. Table 11 shows other clauses that have been followed according to the 'letter' of the standard but not its intended meaning.

Table 11. Examples of clauses/processes for which the 'letter' has been followed but not the meaning in organisation A's projects.

Clauses	Enactment	Representative quotes/events/documents underlying enactment
5.1.2	Although the information requirements set out in the EIR only provide enough information to answer the PLQs, the PLQs actually ask for information about everything.	*They tended to ask for nearly all of the information, and then people might come in later and say: 'Actually, I don't want to know about everything'.* (project 3)
5.1.5	Information requirements are included in contracts, but they change afterwards. The client organisation assigns the role of delivery manager to individuals to develop the requirements, which are defined, but they are not representative of what the organisation needs.	*Some of the EIR, I feel that it still needs organisation's A expertise adding to it. I think a lot of it is written by a BIM consultant, and it maybe needs someone to look through it from organisation's A eyes and say, 'Actually, no, we don't want this. We want that'.* (project 3)
7.5.1	Roles were embedded in contracts, but when it comes to the client organisation members, the roles were not very specific.	Observations, interview: *Facilities managers were coming to us for what they want, rather than through their own team, which sometimes blurs the lines about who should be doing what, and when.* (project 3)
7.5.1.6	The information exchange activities, as listed in this clause, were followed, but they were performed following existing templates. For example, the information management role enabled reliable information exchange through a CDE, but exchange also occurred via email before uploading to the CDE.	Observations, interview: *It's difficult to get them out of the habit of just sharing drawings before uploading onto a system.* (project 2)
9.2.2.12	The accepted gate of the CDE was used for information to be verified and validated for use in operation of the facilities. However, as information-users were not completely involved in the process, changes occurred.	Observations, interview: *Different members of the project team were influencing things as they went through. So, towards the end, the facilities team got more involved, and their requirements were different. What they've asked for has changed, because more people have become involved.* (project 4)

Source: Created by the authors.

For project 6, this type of enactment could be observed with regards to the assessment and need stage of the information delivery cycle. The EIR has been produced as part of a wider set of documentation for use during project procurement, as recommended by clause 5.2.1 of PAS 1192-2:2013. However, the EIR was developed taking into account the employer's needs, defined by/in consultancy with contractors; it did not consider the perspective of the asset-users/ operators. As per organisation's B current framework for capital delivery, the asset-operator only becomes involved in the later stages of the project. That is, although the implemented processes comply with the standard, the intended goal of deploying an EIR for the production of information that supports decision-making across the asset life cycle is not realised. Also, organisation B has a generic EIR document with a section for project particulars or particular requirements for the project. Clauses 5.1.2, 5.1.4 and 5.2.1 of PAS 1192-2:2013 state that the EIR should be incorporated into the tender documentation to enable suppliers to produce their initial BEP and should be produced as part of a wider set of documentation for use during project procurement. However, according to organisation B's current framework, the particular requirements are defined after the appointment is made and the lead contractor starts engaging with the asset-user. Thus, although the EIR has been incorporated into the tender documentation, this involves the generic EIR – not one specific to the project – to contractors to bid, which effectively leads to the production of valuable information to support decision-making. Finally, for projects 7 and 8, although this type of enactment occurred for fewer clauses/processes in comparison to the other projects, it still happened, thus showing the same patterns of implementation across all projects.

The underlying conditions leading to decoupling

- *Decoupling varies depending on the willingness and ability of projects to respond to pressures from the environment*

We noted that client organisations – i.e., key project members with influence on the adoption/implementation of the imposed pressure – sometimes were interested in not implementing the mandate fully or holistically, i.e. its full implementation was not aligned with its strategy. Client organisation A, for example, implemented the policy framework mostly at the capital delivery stage of the project, as identified in their digital strategy report:

> *'Estate management (EM) identified that BIM, as defined in the government's construction strategy of 2011, was necessary to support capital delivery. EM invested a significant amount of time and money in establishing the foundations for using BIM across the capital delivery programme.'*

Since the primary purpose of the information models was not to support the buildings' operations but to help with project delivery, the standards and principles related to asset operation were not the primary focus of BIM implementation (see example in Table 12). In other words, there was a lack of will to fully implement the mandate, as it was not strategically interesting to organisation A. This resulted in decoupling from some of the prescriptions related to the operational phase of the asset and also in a non-holistic implementation of other processes (i.e., decoupling from both the content and the meaning). An example is the implementation of a CDE to maintain integrity and control of the data, which has not been applied in the operational phase; it was only used as a data archive.

The ability to conform to the policy mandate was also limited due to be early stages of adoption of BIM across the industry and there is still a lack of resources at the organisational level, skills and experience at the organisational level and across the industry. A lack of organisational

resources to take advantage of the outputs of the mandate influenced the implementation of processes/activities (specifically those related to the operational phase). This was highlighted by the person responsible for the digital transformation strategy for project 6:

> *'We haven't really got the resources to do much with that data; hopefully, we're going to do something about that.'*

Skills shortages in the marketplace have also been cited as a barrier to using data models during the operational phase of an asset, as noted by the person responsible for the digital transformation strategy for project 6:

> *'It's not just about linking to the assets and all that sort of stuff. It's about having the skills set within your organisation that can interpret the data correctly. In the case of extensions to schools or anything like that, there is a skills shortage in the marketplace within the school's estate to be able to use this data. I think that's a challenge.'*

For project 7, although the project team knew BIM, the BIM managers noted that a lack of common experience across the industry interfered with implementation:

> *'There are some issues around the CDE, for example – people uploading stuff to the wrong status code, and the wrong naming convention; just teething problems like that. I guess you'd umbrella that into upskilling the project team because the requirements are slightly more strenuous.'*

Table 12 shows some other representative findings across cases that substantiate the second-order theme willingness and ability to respond to the imposed pressure and reproduction of existing norms, as elaborated next.

Table 12. Examples of cross-setting findings for the reasons underlying decoupling.

Category	Representative quotes, events and archival entries underlying first-order categories	Setting
A lack of reconfiguration of normative rules (i.e. maintaining existing roles, norms of conduct, authority systems, procedures)	Consultants defining requirements and repetition of previous roles (e.g. interviews: *I think a lot of it is written by a BIM consultant, and it maybe needs someone to look through it from the client's eyes and say: 'Actually, no, we don't want this'*), existing authority systems influencing communication in the team, existing procedures such as change management shaping work and leading to rework (e.g. interviews: *Because of the changes here we've had to go in and remodel, and I think that's the bit that's taken the time and the cost).*	A
	Contractors expected to conduct certain activities according to the existing framework, technical advisors automatically expected to carry out new activities (e.g. interviews: *It should be the technical advisors doing that. The technical advisors in theory have that in their scope of work),* existing authority systems still framing activities such as requirements' specification and involvement of information-users.	B
	Contractors expected to conduct certain activities, such as those related to specification (EIR), organisational-level procedures, such as the decision-making process regarding systems' performance, were not changed.	C
A lack of reconfiguration of regulative rules (i.e. maintaining governance systems and reward and cost structures)	Maintaining the same reward and cost structure, and as the risk is assumed by the contractor, and governance systems with regards to contractors' involvement.	A
	Many of the processes, especially related to the operational stage, were not implemented because of the current governance system related to asset management (e.g. interviews: *We see others who have got whole estates to manage. I think those ones tend to be the ones who have embraced BIM more fully*).	B
A lack of reconfiguration of cultural–cognitive rules (i.e. following bodies of knowledge, models of reality)	Discipline-based focus shown in the EIR, MPDT, evidence of repetition of habitual dispositions such as for communication (e.g. interviews: *it's difficult to get them out of the habit of just sharing drawings before uploading onto a system*).	A
	Risk-avoidance culture of over-production influencing activities such as information production (e.g. interviews: *A very diligent contractor and design team will be putting forward all that information, you know).*	B
	Frames from bodies of knowledge related to the division of work into stages influencing activities (e.g. interviews: *You*	C

Category	Representative quotes, events and archival entries underlying first-order categories	Setting
	can write a model-production delivery table and say, 'Right, this is the LOD requirement for each system,' but I think there was room for interpretation).	
A lack of capacity (i.e. lack of resources, skills, experience)	Early stages of adoption leading to uncertain specification of requirements (e.g. interviews: *I think only after a year or a year-and-a-half we received a project-specific EIR. I get the impression that that was because it was being developed as they were going along).*	A
	A lack of resources to use information models (e.g. interviews: *We haven't really got the resources to do much with that data; hopefully we're going to do something about that).*	B
	A lack of sufficient skills to use technologies and perform new processes (e.g. interviews: *There are some issues around the CDE, for example – people uploading stuff to the wrong status code, the wrong naming convention; just teething problems like that. I guess you'd umbrella that into upskilling the project team).*	C
Strategic orientation	Focus on capital delivery (internal report): *Estate management identified that BIM, as defined in government's construction strategy of 2011, was necessary to support capital delivery.* And non-implementation of processes related to the operational stage.	A

Source: Created by the authors.

- *Decoupling is impacted by the reproduction of existing norms at both the organisational and industry levels.*

Reproduction of conflicting existing norms often occurred due to a lack of awareness of project members, especially the client organisation, which directed the decisions made over the project lifecycle. This often led to decoupling from both what has been imposed by the mandate (its constituent standards, principles, and tools), and from how the implementation was expected to be enacted in practice.

Previous "norms" remained in place with the introduction of BIM and continued to shape how project work unfolded. This included existing roles in projects and the expectation that they

would be followed in a new way of delivering the project through BIM, and conflicting with some ethical principles within the client organisation and existing ways of getting the work done. For example, client organisations took for granted the role expectation that contractors and consultants should establish information requirements on behalf of the client, as conventionally occurs for project requirements in a non-BIM project. We observed across all projects that the roles established for conventional projects were reproduced in a BIM project, where new roles should emerge, such as the one related to the establishment of information requirements which should also be defined by the users of information across the asset lifecycle, not by the contractor or a consultant or only the project members previously involved in a conventional project. As noted by a BIM manager for project 3, the project team members did not realise the existing roles were being reproduced:

> *'The detail is fairly good. Some of it, I feel that it still needs the client's expertise adding to it. I think a lot of it is written by a BIM consultant, and it maybe needs someone to look through it from the client's eyes and say, 'Actually, no, we don't want this. We want that'. Because there have certainly been times where we've said, 'Well, this is what you've asked for', and they've said, 'I didn't realise that'.*

The authority systems and hierarchies in place at client organisations were also not reconfigured and continued to frame the actions of project team members, such as facilities managers. For example, although clause 7.5.1.2 of PAS 1192-2:2013 was followed in the sense that the roles and responsibilities of individual team members were defined, they were not strictly followed in practice. The internal authority system was not reconfigured, leading to compliance with the 'letter' but not the 'spirit', as noted by a digital engineer (project 3):

‘I think the communication between the client's management team doesn't seem to be quite as good as it should be. They (facilities managers) seem to be coming to us for what they want, rather than through their own team as specified, which sometimes blurs the lines about who should be doing what, and when.’

Entrenched ways of getting the work done or prescriptions about appropriate ways to conduct activities, such as the change management process established by the client organisation, were also not updated to reflect the new ways of working and producing digital models, leading, for example, to rework and remodelling when changes were incorporated. As highlighted by a project manager (for project 4):

‘Because of the changes here, we’ve had to go in and remodel, and I think that’s the bit that’s taken the time and the cost.’

Also, even though a change in the authority systems in place in the client organisation for project 6 was made and asset operators started to have a voice in the specification of requirements, the authority assigned to specific actors remained the same as before, i.e. there was a mismatch between the policy framework and existing authority systems, as noted by a technical advisor:

I suspect that one of the lessons learned from all of this would be how the client and the end-user in this type of construction project can work together earlier to look at what potential future asset management requirements the trust might need. At the moment, it’s very much organisation B is client, the Trust is the end-user and stakeholder, and only organisation B makes the decisions on the specifications.

Moreover, existing ethical principles that dictate the codes of conduct in the projects and which had to be updated to align with the imposed policy framework requirements were not changed. For example, despite the EIR containing details of the competence assessment that bidders

should respond to (clause 5.3 of PAS 1192-2:2013), the competence requirements were not followed when selecting the contractors because of the established codes of conduct within the client organisation. This was illustrated by the BIM implementation leader from project 6:

> *'We were harder on the bigger contractors, we had to balance it with… We get criticised if we don't allow smaller contractors onto our frameworks, there is nothing we can do. So, we didn't want BIM to be a pass/fail kind of thing.'*

Previous governance systems for asset management and the operating costs and reward systems within the organisations and within the industry also hindered the full implementation of the mandate. For project 6, for example, the contractor has not submitted a BIM Execution Plan as prescribed in the standards because the risks would be the contractor's responsibility anyway following the existing cost structure and risk assignment. Additionally, following the existing governance system in place organisation B does not directly operate the assets within its estate. According to organisation B's manager leading the interface with the government policy, the fact that they do not manage the buildings directly represents a challenge for BIM level 2 full implementation across the whole life cycle of the asset, i.e. the current governance system hinders full implementation:

> *'We've always struggled a bit with not being owner-operators of our estate. That's always been a challenge, how we could implement it on the few hundred projects we manage directly. I think it's fair to say we've struggled with buy-in to BIM within the organisation generally. The same questions always come back, we don't operate the estate.'*

Decoupled responses are also justified by customary norms or prescriptions from professional membership bodies in the sector. In project 5, for example, interviewees highlighted that a sense of 'engineering discipline' led to designers modelling without considering other BIM uses later

on in the project. Conflict with existing habits, such as, existing patterns of communication/interaction followed by subcontractors of generally sharing drawings and exchanging information in emails also occurred, instead of exchanging all information through the CDE as per the BIM mandate. As highlighted by a BIM coordinator (project 2):

> *'When we've got a big push where we don't want anyone sharing drawings in emails, it's difficult to get them out of the industry's habit of just sharing drawings before uploading them onto a system.'*

The numerous conflicts and mismatches between the imposed mandate and existing norms within the project organisations, especially the client organisation, and within the industry context, and the purposive (i.e. conscious but non-deliberate) and purposeful (i.e. conscious and deliberate) enactment of existing norms by project members led to the two forms of decoupling.

Discussion

We investigated the implementation of a policy mandate in large construction projects to understand how projects, composed of a constellation of interdependent organisations, respond to coercive pressures. We found that projects decouple both from the content (i.e., 'what' has been imposed) and the intended purpose (i.e., the 'how' of implementation). We also identified that the willingness and ability of the project organisations to respond to the imposed pressure and the reproduction of prevailing industry and organisational norms are underlying conditions leading to the variance of policy-practice decoupling in projects.

By identifying the responses that projects employ to coercive pressure, we make three contributions to the literature on decoupling and project management. First, we bridge decoupling with project management, advancing decoupling literature so that it better applies to the temporary, distributed, and interdependent work conducted via projects (Soderlund &

Sydow, 2019; Geraldi et al., 2020). Second, we define decoupling in projects as provisional and fragmented wayfinding efforts (Chia & Holt, 2001; Bouty et al., 2019) through distributed and heterogeneous institutional spaces (Ferraro et al., 2015; Etzion et al., 2017), which open an array of possible policy–practice assemblages. Third, we conceptualise and reflect on 'qualitatively different decoupling' in projects as part of a legitimation process in ambiguous situations (Vaara et al., 2006; Suddaby et al., 2017), whereby projects share a resemblance of conformity with multiple institutional pressures when they are de facto only partially conforming to each of them.

Bridging decoupling with project management

Decoupling means that organisations adopt new structures imposed by institutional pressures without necessarily implementing the related practices (Boxenbaum and Jonsson, 2017; Meyer & Rowan 1977; Kern et al. 2018). The baseline condition of most studies is one organisation decoupling from one policy. By studying how projects – rather than individual organisations – decouple from a policy mandate, our findings bridge literature on decoupling with project management so that the former becomes better suited to work conducted through temporary, distributed, and interdependent projects (Soderlund & Sydow, 2019; Geraldi et al., 2020), and the latter becomes more attentive to project responses to contextual pressures (e.g., Soderlund & Sydow, 2019; Geraldi et al., 2020).

We identify that projects might couple with some parts of the imposed structure while decoupling from others, and that this decoupling can be from both the content (or the 'what') and from its intended way of implementation (or the 'how' of the coercive pressure). These forms of decoupling are qualitatively different. By parsing the 'what' and the 'how', our findings suggest that in the conceptualisation of policy-practice decoupling (e.g., Bromley & Powell, 2012), it is appropriate to consider the implementation of the intended purpose of a policy rather than simply

predicting whether project organisations adopt imposed practices (i.e. the content) and whether the working practices or daily routines are altered. We thus build directly on the contributions from scholars who argue that organisational responses to institutional pressures are not binary (Battard et al., 2017; Li, 2017; Bansal et al., 2014; Desai, 2016) and demonstrate that decoupling in projects can be qualitatively different too.

Our work also extends work on the conditions that lead to decoupling (e.g., Westphal & Zajac, 1994, 2001; Zajac & Westphal, 2004; Beck & Walgenbach, 2005; Bird et al., 2019) and, more particularly, in explaining the complexity of evaluating these conditions in projects. We build on Crilly et al. (2012) who argue that the exclusive consideration of firm-level conditions is relevant when single actors direct firms' responses, but not for projects that involve a constellation of organisations, and on Battard et al. (2017), who argue that previous studies provide fruitful information on the causes of decoupling, but these causes are typically considered in isolation (i.e., in *ceteris paribus*, keeping everything else constant). We do not know if the conditions we identified in our study – willingness and ability of member organisations and competing organisational and industry-related norms – fully explain decoupling in projects, but our findings show that those conditions occur in conjunction, not in isolation, and lead to both decoupling from the content and the meaning, suggesting complex causality. The identified conditions provide a basis for future studies investigating conditions for decoupling in inter-organisational settings– such as in collaborative arrangements, networks, supply chains, or ecosystems – which, to the best of our knowledge, have not been appraised yet in full.

We contribute to the literature on project management, and particularly, to studies on inter-organisational responses to contextual pressures (e.g., Soderlund & Sydow, 2019; Geraldi et al., 2020) which have not yet investigated project decoupling from a policy mandate. In projects,

although the client plays a significant role in the delivery and activities enacted, delivery is coordinated by multiple actors whose actions are shaped by complex institutional environments and whose boundaries are not clearly demarcated. By demonstrating different types and conditions of decoupling in temporary projects, we start unpacking these complex interactions between projects and their institutional environments.

Decoupling as wayfinding through distributed and heterogeneous institutional spaces

Most studies on policy–practice decoupling conceptualised its occurrence as an either/or proposition: whether organisations adopt rules completely (in terms of the content) or not, and whether organisational practices change or not (Bromley & Powell, 2012; Durand et al., 2019). Our findings show that projects can both acquiesce to some institutional pressures and decouple from others, in very fragmented ways that cope (even if only partially) with the many coercive pressures they face. Previous research would characterise a partial implementation of the imposed structure simply as decoupling. The findings, nevertheless, show that decoupling is more complex and may occur to different extents, and pragmatically, as actors intentionally or not aim for the "practical adequacy" (Dewey, 1938) of their responses.

We argue that this partial non-conformity consists of wayfinding efforts (Chia & Holt, 2001; Bouty et al., 2019) of a constellation of organisations, each with different resources and affordances. They conform to some of the structures that have been imposed but deviate from others, sometimes in ways that allow them to 'tick the boxes' while refraining from engaging with the 'spirit' of a policy mandate. Decoupling in these contexts is not either purely intentional avoidance (calculated deception) or unintentional enactment; it often happens because project members were not willing or able (e.g., did not have the resources, skills, etc) to implement some

part of the mandate and because they have intended or unintended reproduced other existing structures.

These multifaceted realities that account for organisational capture recursively change what project actors deem viable and desirable (Padgett & Powell, 2012; Ferraro et al., 2015) as they interact with and reconcile multiple, and often conflicting institutional pressures such as industry norms, customary habits, and new policies. These wayfinding efforts, whether intentional or not, keep future lines of action open in strategic contexts (Ferraro et al., 2015; Etzion et al., 2017), thus opening an array of possible policy–practice assemblages, instead of narrowing compliance into a list of isomorphic practices mandated by a policy. These assemblages are influenced by the many combinatorial responses of multiple organisations to multiple institutional pressures. In other words, they emerge from how, if, and when project members' activities are coupled or decoupled (in qualitatively different ways) with the many institutional pressures each encounters. Scholars could build on our work by examining decoupling in other distributed and heterogeneous institutional environments through a pragmatic lens (Dewey, 1938). We particularly encourage an emphasis on processes (Langley et al., 2013), as an account of a sequence of events and practical actions (and inactions) could appraise generative mechanisms and multidimensionality in inter-organisational decoupling. We also suggest studying the different decoupling assemblages in large-scale, complex projects.

Qualitatively different decoupling as a legitimation process in ambiguous situations

Our study indicates that a way of reconciling different institutional pressures is to couple with “what” has been prescribed by a policy while decoupling from ‘how’ practices were supposed to be implemented if they were to attend to a policy’s intended purpose – what we call

‘qualitatively different decoupling’. By ticking the box, while deviating from a policy’s ‘spirit’, multi-sited projects partially conform to coercive pressures.

Scholars have argued that legitimacy provides organisations with instrumental advantages in obtaining resources, clients, and flexibility, also reducing contextual ambiguity by helping organisations select among goals and actions (DiMaggio & Powell, 1983; Durand & McGuire, 2005). The situation we evaluated in our study shows how actors navigate ambiguity in projects, as they are subjected to multiple co-existing norms with different levels of formalisation – for example, customary habits that are engrained in the sectors, industry norms, and policies enforced by the state.

We argue that decoupling in qualitatively different ways may grant project members, whether intentionally or not, legitimacy in the context they operate and, in the case of contractors, legitimacy to work in public contracts along with others (Vaara et al., 2006; Suddaby et al., 2017), while also giving themselves wiggle room to accommodate competing norms and routines (Pache & Santos, 2012). With qualitatively different decoupling, projects avoid contestation and conflict as they aim to obtain a generalised perception that they are “desirable, proper or appropriate” (Suchman, 1995, p. 574) in institutionally complex environments, where there are multiple socially constructed systems of norms and values that might be contradictory and competing.

We encourage scholars to build on our work, and particularly to examine qualitatively different decoupling as legitimation processes in ways that are attentive to different boundary conditions – i.e., “when”, “who”, and “where” (Busse et al., 2017) – and the impact of power disparities across member actors in decoupling. In projects, although the client plays a significant role in the delivery and activities enacted, delivery is coordinated by multiple actors whose actions are

shaped by a complex institutional environment and whose boundaries are not clearly demarcated. Scholars might also be interested in understanding how qualitatively different decoupling leverages category ambiguity in policy mandates (Ozcan & Gurses, 2018; Granqvist et al., 2013; Sgourev, 2013) for legitimation, how this ambiguity is sustained or negotiated over time, and how the defining attributes and boundaries of policy categories shape decoupling across project organisations.

Conclusion

This study explored how projects, as temporary and inter-organisational arrangements, decouple from coercive pressures. By exploring a context yet not studied (i.e., the context of projects as a temporary form of organising), we reveal that projects decouple both from the content (i.e., from ‘‘what’’ has been imposed) and from the intended purpose (i.e., the ‘‘how’’ of implementation) of a policy and identify underlying conditions leading to decoupling (i.e., the willingness and ability of the project organisations to respond to the imposed pressure and the reproduction of prevailing industry and organisational structures).

This research considered only a limited number of settings and cases, as projects take years to complete. We encourage the examination of a larger sample of projects in construction or across sectors, including mega projects involving multiple and complex institutional environments, as well as the investigation of decoupling of the ‘‘what’’ and the ‘‘how’’ as a process, unveiling the sequence of activities through longitudinal data across different stages of a project’s lifecycle. From a policy perspective, and focusing on the transformation of the construction industry as a legacy sector, future studies could compare decoupling across international BIM mandates; insights from these studies could improve policy mandates and support national efforts to transform the construction industry and BIM policy development.

In practical terms, our study provides policymakers with new ways of minimising the chances of policy-practice decoupling in large-scale projects, which may include different ways of designing policies, monitoring their implementation, coercion via regulation or public procurement, or by establishing close collaboration between project members and regulatory agents.

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