

Right on time – Socio-ecological strategy and implications of turbulence in the Swiss watchmaking field

Abstract

We explore how the socio-ecological approach to strategy extends and enriches current theory on fields (especially Fligstein and McAdam, 2012). We do so with a socio-ecological (Ramirez and Selsky, 2016) lens which helps us analyse how contention and change work in conditions of turbulence, conditions where macro-level issues play a central role in transforming a field. Our empirical exploration of the Swiss watchmaking field in its current turbulent causal texture enables us to examine the locus of strategic action (intra-field vs inter-field) by both incumbents and challengers, and how they enact the strategic stances of preparation, relocating and reinventing collaboration. With this lens we also analyse the roles a legacy technology can play in the framing-reframing contention, where incumbents favour an ‘intra-field’ framing (i.e. centred in the legacy technology) whereas challengers favour an ‘inter-field’ reframing (i.e. open to emerging technologies). Our research further contributes to the literature by providing a clarification of the Ramirez and Selsky (2016) strategic stances in relation to its core unit of analysis: field-level vs organizational-level vs inter-organizational network level and does so with empirical data.

Keywords

Theory of fields; Socio-ecological approach to strategy; Technological change; Turbulence; Watchmaking.

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1. Introduction

The construct of ‘field’ has been one of the most studied meso-level constructs in social sciences (Bourdieu, 1984; Scott, 2001). Fligstein and McAdam’s (2012) theory of fields stands out as it tackles field emergence, transformation, inter-field relations, and the roles of external events/actors in field changes such as those in turbulent causal textures (Emery and Trist, 1965).

Researchers developing the socio-ecological approach to strategy (Lewin, 1952; Emery and Trist, 1965, Ramirez et al., 2008; Ramirez and Selsky, 2016) have studied the links between macro events in the ‘contextual environmental’ and their consequences in the ‘transactional environment’ or strategic action field. In this paper we propose that this strategy approach extends and enriches Fligstein and McAdam’s (2012) theory of fields by providing an understanding of contention and change in conditions of turbulence, where macro-level issues play a central role.

For those in such conditions, the common shared ground upon they are positioned is in motion in ways that emphasize a strategic response to such conditions with collaboration at a field level rather than centring strategy on firm-by-firm competition. Ramirez and Selsky (2016) proposed three principles for strategy to address that they suggest are inherent to turbulent environments: a) transition, b) heterogeneity, and c) subjectivity; and associated these with three corresponding strategic stances: a) preparation, b) relocating, and c) reinventing collaboration. They suggested that these three strategic stances capture the collective nature of strategy identified by other socio-ecological and inter-organizational network scholars (e.g. Astley and Fombrun, 1983; Provan et al. 2007).

A central contribution of Fligstein and McAdam’s (2012) theory of fields is to bring to the fore that relations between multiple strategic action fields can be of three types: a) unconnected, b) hierarchical or dependent, and c) reciprocal or interdependent. Their stance is distinct from institutional theory (DiMaggio and Powell, 1983; Scott, 2001) where the focus has been much more intra-field than inter-field.

Centrally, under conditions of turbulence, collaboration has been argued by recent researchers (Ramirez and Selsky, 2016) to involve a diverse set of actors and stakeholders who are from different fields and who, in coming together, can together engage the contextual level factors which affect or may affect all actors in one or more fields. In this paper we show how, by specifying the strategic stances by which actors can collaboratively engage contextual level factors, the research of these scholars, refines and enriches Fligstein and McAdam (2012) theory of fields.

Our way of realizing this objective is to examine the locus of strategic action in a field under conditions of turbulence by two key actors: incumbents and challengers. Our research seeks to establish whether challengers favour enacting the ‘reinventing collaboration’ strategic stance given its potential to reframe the field (Burgelman, 2005) and whether incumbents, given their clout and embeddedness in the ‘existing’ field, favour the ‘preparation’ and ‘relocating’ stances.

Given the extensive body of research on situations of lock-in and legacy technologies (see e.g. Bonvillian and Weiss, 2015; Tripsas, 2009), we also examine the role a legacy technology plays in the framing-reframing contention. We assess whether incumbents favour an ‘intra-field’ framing (i.e. centred in the legacy technology) and if it so that challengers adopt more of an ‘inter-field’ reframing (i.e. open to the emerging technology) stance.

We chose Swiss watchmaking as our empirical grounding for this paper because this field exhibits characteristics which are uniquely well suited for our analysis. First, this field went through a turbulent period back in the 1980’s involving the re-emergence (Raffaelli, 2018) of the field, and then again in the mid 2010’s when four factors brought forth a new turbulent era: (a) novel regulatory changes (e.g. *Swisness* legislation approved in 2013, enacted in 2017, and enforced in 2019); (b) sudden volatility in consumer behaviour (due mainly to China’s anti-graft policy since 2012); and (c) un-planned for currency changes when the Swiss Central Bank suddenly and unexpectedly allowed the Swiss franc to be traded internationally as of 2015; and (d) the emergence of connected devices (notably the appearance of the Apple Watch in 2015). The relations among these four factors were felt by several Swiss players as ‘hyper-turbulent’ (McCann and Selsky, 1984) conditions, as they fundamentally challenged their perceived adaptive capabilities.

This paper is structured as follows. We first review the literatures on the field construct; on the socio-ecological approach to strategy and strategizing in a turbulent environment; and on legacy technology and field re-emergence. We then describe our conceptual lens and its epistemological approach, our research design, and our data collection and analysis methods. We follow this by presenting our results characterizing the Swiss watchmaking field as one in turbulence, as well as contention in this field, and provide examples of the three socio-ecological strategic stances being enacted in this turbulent context. We discuss how these results both enrich and extend Fligstein and McAdam (2012) theory of fields and require minor clarifications of Ramirez and Selsky (2016) strategic stances. We conclude by assessing the implications for scholarship and practice, identifying limitations, and suggesting further research directions.

2. Literature Review

2.1. The 'field' construct

The 'field' has been one of the most studied meso-level constructs in social sciences in recent decades as has been shown in Fligstein and McAdam's (2012) review of its history. Among the main approaches are the seminal contributions by Bourdieu (1984; 1996; 1998) and those from institutional theory (DiMaggio and Powell, 1983; Scott, 2001; Zietsma and Lawrence, 2010; Smets, Morris and Greenwood, 2012). DiMaggio and Powell (1983) defined organizational/institutional fields as including "those organizations that, in the aggregate, constitute a recognized area of institutional life: key suppliers, resource and product consumers, regulatory agencies, and other organizations that produce similar services or products" (p. 148). This definition was extended and more restrictively specified by Scott (2001) to entail situations where "participants interact with one another more frequently and fatefully than with actors outside the field" (p. 56).

Although the latter contributions led the research on fields to focus more on a meso-level of analysis, Fligstein and McAdam (2012) noted that institutional theory failed to produce an understanding of field emergence or transformation, suggesting that for institutional theory accounts, unlike Bourdieu's work, power was underestimated. Fligstein and McAdam proposed "(...) an integrated theory that explains how stability and change are achieved by social actors in circumscribed social arenas" (2012,

p.3), with their theory of fields comprising seven elements: 1) strategic action fields (meso-level social orders) as the basic structural block of modern political/organizational life in the economy and society; 2) each strategic action field is taken to be comprised of incumbents, challengers, and internal governance units; 3) the micro-foundations of the field are the social skills in its cognitive, empathetic and communicative dimensions which seek to create and sustain social worlds by securing the cooperation of others; 4) acceptance that any given field is embedded in a broader environment consisting of countless proximate or distal fields as well as State(s) (i.e. political power); 5) the taking into account that a field can be subjected to exogenous shocks, to the mobilization and the onset of contention, both possibly as a consequence of the interdependence among fields; 6) episodes of contention where framing and re-framing actions by those in the field as an integral part of the field; 7) the seeking by actors comprising a field of settlements when a generalized sense of order returns with some certainty on the positions of both incumbents and challengers.

With this perspective of fields change is thus episodic and regular if not constant and ongoing; and actors seek to fashion and maintain different forms of ‘order’ and their relevant material and status rewards. In a consistent vein and in line with the practice turn in strategy studies (Whittington, 2006), Zietsma and Lawrence (2010) and Smets, Morris and Greenwood (2012) have shown how work drives field-level institutional change through cycles of institutional innovation, conflict, stability, and restabilization.

Fligstein and McAdam posited three principal contextual sources of destabilization for a field: a) invasion by outside groups; b) changes in fields upon which the focal strategic action field is dependent, and c) rare macro events which destabilize the broader social/political context of the field. These destabilization sources activate the contention by challengers -and sometimes by incumbents – of established roles and positions, giving rise to ‘framing and reframing’ efforts and counter-efforts until a new settlement is reached.

Fligstein and McAdam (2012) highlighted that what “is distinctive about our approach is our insistence that we can only make sense of any given field by embedding it in the broader environment of other fields that powerfully shape its fate over time. By contrast, virtually all prior scholarship on fields basically begins and ends with a focus on the internal dynamics of the strategic action field in

question.” (2012, p. 213). This has not been the case with the socio-ecological approach to strategy, which like Fligstein and McAdam attends to the link between macro events in the ‘contextual environmental’ and their consequences in the ‘transactional environment’, that is the strategic action field of an organization. This attentiveness to context is also central to scenario planning scholarship. Unsurprisingly then, the three types of sources of field destabilization proposed by Fligstein and McAdam contribute to the conditions in which scenario planning comes onto its own (Ramirez and Wilkinson, 2016) and, according to the popular press, have been becoming more common (The Economist, 2016a). This has for example been the case with the so-called ‘uberisation’ of many sectors (The Economist, 2016b). Also, given the inter-connected nature of today’s world’s economy, the consequences of ‘rare’ macro events (like the 9/11 terrorist attacks, the 2008 financial crisis, or UK’s Brexit vote) can be much wider in reach and become less isolated and more destabilizing than they have been before. As such, actors in more and more fields find themselves in conditions of turbulence (Emery and Trist, 1965).

2.2. A socio-ecological approach to strategy

As mentioned above, the socio-ecological approach to strategy attends to context and is grounded in an open-systems view of an organization’s strategic situation, where the core unit of analysis is the shared field of inter-organizational action (Lewin, 1952). Emery and Trist’s (1965) Causal Texture Theory (CTT) is the part of the social ecology school that studies environmental types, helping strategists to analyse how a system such as an organization and its environment (composed of factors, actors and interactions) relate. In CTT those actors with whom a focal actor interacts are located in its more immediate ‘transactional’ environment — which can involve actors in several industries. These interactions in the transactional environment are in turn situated in a broader ‘contextual environment’, made up of factors which the focal actor cannot influence. Several interacting organizations, their shared environments, and the connections that link them jointly constitute a ‘field’ in CTT’s view (for a deeper analysis of CTT see also Ramirez, Selsky and Van der Heijden, 2008).

Emery and Trist (1965) proposed four causal textures of the organizational environment, distinguished by the salience, complexity and uncertainty of the contextual environment links for the organizations

inhabiting such contexts. The most complex and most unpredictable of the four textures was the turbulent causal texture, where the whole common shared ground is felt to be in motion, with contextual environment elements becoming inter-connected in ways that make them become uncertain and changing. Distinctions between the external contextual environment and what had up to then been under influence in the more immediate transactional environment begin to break down. They posited that in turbulent causal textures there is no survival for systems acting alone, and thus collaborative strategies among dissimilar organizations become necessary. Ramirez and Wilkinson (2016) updated this stream of work and related it to scenario planning to claim that turbulence is nowadays present in contexts that exhibit turbulence but also uncertainty, novelty and ambiguity (TUNA conditions)¹. Lang and Ramirez (2017) suggested that such collaborations can be built quickly by designing scenario planning to build new social capital.

Besides Emery and Trist, other seminal works concerning ‘collective strategy’ are those of Astley and Fombrun (1983) who highlighted how actors engage in inter-organizational networks to exercise strategic choices at a collective level. They explored joint action in four forms of organizational collectives: agglomerate (e.g. trade and professional associations), confederate (e.g. oligopolies), conjugate (e.g. joint-ventures) and organic (e.g. industrial symbiosis districts). Our understanding of Fligstein and McAdam’s (2012) ‘internal governance units’ (IGUs) is one which relates only to the agglomerate form. Another contribution is that of Freeman and Boeker (1984) and of Boeker (1991), who pioneered the importance of quantitative modelling (vs. case studies) to evaluate the effects of environmental characteristics and competition on strategic groups, that is, collectives of organizations sharing an organizational ‘form’.

Given the growing ‘density’ (Normann, 2001) enabled by the development of information and communication technologies, it is not surprising that the literature on social networks, organizational networks and inter-organizational networks is now quite extensive (see Provan et al. 2007 for a review). Provan et al. (2007) identified five unique properties of networks: density (i.e. levels of

¹ We find this construct to be better grounded in social science than the more disseminated VUCA acronym (volatile, uncertainty, complexity and ambiguity) developed by the US military. See Stiehm and Townsend (2002).

connectedness among organizations in the network), fragmentation and structural holes (i.e. is the network broken here and there in fragments of unconnected organization, dyads and cliques?), governance (i.e. mechanisms used to govern and/or manage the overall network), centralization (i.e. to what extent are one or a few organizations in the network more centrally connected) and cliques (i.e. clique structures of the overall network). Since our focus in this paper is the specific turbulent causal texture, we only focus on authors in the socio-ecological approach of strategy that dealt with turbulent environments.

A refinement of the Emery-Trist model on turbulence was offered by McCann and Selsky (1984), who highlighted that in actual practice the experience of turbulence is subjective, and not an objective condition of a field, as Emery and Trist had implicitly proposed. This made the construct more practical, as it is the perception of the links managed by the organization internally and their relation to the organization's transactional environment which are felt to be under pressure by those individuals who perceive themselves as having become insufficiently resilient and incapable to cope. It is this that they will attribute to the emerging turbulence in their own broader contextual environmental. McCann and Selsky proposed that it was this felt loss of capability to cope which leads individuals in organizations to question whether they can, on their own, work to maintain their position or viability – and to instead reach out for collaborative solutions.

It follows from this distinction that an environment which is perceived by people in some organizations as turbulent may be perceived by people in other (better prepared, more resilient) organizations as not turbulent.

Building on that McCann and Selsky (1984) insight, Ramirez and Selsky (2016) suggested that a distinctive contribution of the socio-ecological approach to strategy is to “(...) examine unpredictable uncertainty as 1) a contextual-level phenomenon, produced in a field of tightly coupled interactions which can produce unexpected bifurcations (Prigogine, 1996; Bernard, 2008) and field-level unintended consequences; and 2) as a distinguishing property of a distinct ‘texture’ of the environment that is felt to be so by an individual actor in that field” (p. 94).

Ramirez and Selsky rendered explicit three principles of CTT which had remained implicit in Emery and Trist's (1965) original formulation. They are: a) Transition: ‘Turbulence is not a stable state of a

field, but a state that manifests itself in strong moments and which can then dissipate - or accelerate further'; b) Heterogeneity: 'Turbulence is not necessarily homogenous across a whole field, it may be more salient in some parts of a field than in others'; c) Subjectivity: 'While turbulence may be an objective condition ('texture') of a field, it is experienced differently by particular organizations in the field, depending on their 'perceived adaptive capacity' to cope' (2016 p. 95-96).

2.3. Strategizing in a turbulent environment

Ramirez and Selsky (2016) suggested that neoclassical based strategic planning processes (e.g. Porter 1985) are better suited to non-turbulent causal textures than to turbulent conditions. Previously, Selsky et al. (2007) had established that effective strategizing in a turbulent environment looks first to decrease this turbulence, demanding that the strategy focus is at field rather than at the organisation level. They saw this as best accomplished through collaboration among functionally dissimilar types of organisations. This is consistent with CTT's view to the effect that inter-organisational cross-sectoral collaboration contributes to create enough combined capacity to cope with the macro forces emanating from the contextual turbulent environment, helping the field to become less turbulent; while also securing adaptive capacity for each organisation.

Strategic collaboration thus complements competitive strategy with new, field-level kinds of strategic initiatives, often operating as networks (Provan et al. 2007). Thus, stances in relation to turbulence are often complicated blends of competition and cooperation, including coopetition (Brandenburger and Nalebuff, 1996). One can compete with some actors and collaborate with others.

But as opposed to Brandenburger and Nalebuff (1996), for Ramirez and Selsky (2016), the emphasis of collaboration is not within one's 'industry', nor focused on horizontal partnering with competitors, nor on vertical integration ventures with value-chain partners. Instead, here collaboration involves a much more diverse set of actors and stakeholders comprising the broader transactional environments that jointly comprise the fields in which organizations operate (Selsky et al. 2007). The collaboration

seeks to together engage contextual level factors that affect or may affect all actors in a field (Ramirez and van der Heijden, 2007)².

Ramirez and Selsky related these elements as three ‘strategic stances’³ which they proposed as corresponding to the three CTT principles of transition, heterogeneity and subjectivity. They are: a) Preparation: ‘Building reserves of resources in times of no or low turbulence, enabling these organizations to invest those resources to strengthen themselves or to sit out or hide away when turbulence increases’; b) Relocating: ‘It involves organizations migrating to locations in the field that are shielded from the worst impacts of turbulence’; and c) Reinventing collaboration: ‘It involves enriching organizations and their counterparts with relevant knowledge about the possible unfolding of the turbulence they expect or are beginning to experience so they can negotiate and invent new roles and relationships’ (2016, p. 96-97).

The field effects of the three strategic stances which they proposed are correspondingly a) Organization(s) can reinforce an existing region with additional capacity; b) Organization(s) can escape to a less turbulent region; and c) Organization(s) can create a higher-capacity region with others. This is shown in Table 1.

<i>CTT Principle</i>	<i>Description</i>	<i>Strategic Stance</i>	<i>Description</i>	<i>Field effects</i>
Transition principle	Turbulence is not a stable state of a field, but a state that manifests itself in strong moments and which can then dissipate - or become more concentrated	Preparation: Stocking up resources	Building reserves of resources in times of no or low turbulence, enabling these organizations to invest those resources to strengthen themselves or to sit out or hide away when turbulence increases.	Organization(s) can reinforce an existing region with additional capacity
Heterogeneity principle	Turbulence is not homogenous across a whole field, it may be more salient in some parts of a field than in others.	Relocating: escaping via migration or defence	Organizations migrate to locations in the field that are shielded from the worst impacts of turbulence	Organization(s) can escape to a less turbulent region
Subjectivity principle	While turbulence may be an objective condition (‘texture’) of a field, it is experienced differently by particular people in the organizations in the field, depending on their	Reinventing collaboration	Enriching organizations and their counterparts with relevant knowledge about the possible unfolding of the turbulence they expect or are beginning to experience so they can	Organization(s) can create a higher-capacity region with others

² It is worth noting that this observation find its roots in the study of the US healthcare sector under conditions of deregulation (Selsky et al. 2007).

³ Although other authors have developed constructs that could be associated to these strategic stances, we use these constructs here because they were developed specifically in relation to the context of turbulence.

	'perceived adaptive capacity' to cope.		negotiate and invent new roles and relationships	
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Table 1: CTT Principles and Strategic Stances (source: adapted from Ramirez and Selsky, 2016)

The socio-ecological approach to strategy proposes that in conditions of turbulence, effective strategizing looks to decrease turbulence, demanding a strategy that is focused on the field instead of on the single organisation (Selsky et al. 2007). By specifying the strategic stances by which actors can collaboratively engage contextual level factors under conditions of turbulence, Ramirez and Selsky (2016) approach refines and enriches Fligstein and McAdam (2012) theory of fields.

However, the theoretical nature of Ramirez and Selsky (2016) work has so far remained to be empirically explored. We do so here with the help of the distinctions offered by Fligstein and McAdam's (2012) theory of fields and its definition of incumbents, challengers and internal governance units (IGUs). They suggested that incumbents are better endowed to undertake these strategic stances than challengers because of their resources and privileged links with IGUs and the State/Government. If 'reinventing collaboration' is called upon in conditions of turbulence as Emery and Trist (1965) proposed, challengers would be those enacting this strategic stance, as Intel did in exiting the DRAM business (Burgelman, 2005). On the other hand, incumbents who are not pioneers may resist this stance given their clout and embeddedness in the existing field (Granovetter, 1985). They would thus rather resist change, aiming instead to reinforce their position via competitive actions – but these might paradoxically lead to a further increase in the turbulence (Selsky et al. 2007) they are trying to forestall.

Thus, whereas incumbents would be better endowed to undertake the strategic stances of 'preparation' and 'relocating', their clout can act as a double-edge sword when undertaking 'reinventing collaboration'. We set out to empirically examine how incumbents and challengers enact the strategic stances of 'preparation', 'relocating' and 'reinventing collaboration' in a field under conditions of turbulence.

2.3. *Legacy technology and field re-emergence*

The extensive body of work about situations of lock-in and legacy technologies (see e.g. Bonvillian and Weiss, 2015; Tripsas, 2009) shows that a novel technology which challenges a legacy one can be a cause of turbulence.

This is indeed the case in our empirical field, Swiss watchmaking, where the mechanical movement legacy technology has been paramount in the field's survival and development. This is particularly the case in the period which followed the development by a Swiss consortium of the electronic quartz calibre Beta 21 technology in the late 1960's and 1970's. Raffaelli (2018), Donzé (2011) and Hoffmann and Lecamp (2015) have explored this field 'near-death' experience.

Electronic watches offered several advantages in terms of precision, power reserve capabilities, sensitivity to jolts and impacts, and cost. Quartz watches soon became a commodity, with their introduction having the effect of transforming mechanical watches into a niche category. Swiss watchmakers went from holding 55% of the world's watch export market (in monetary value) in the 1970's to roughly 30% a decade later. Volumes decreased from 45% to 10% of watches produced globally in the 1980's (Glasmeier, 1991, p. 477). In this period, nearly 60,000 jobs were lost, accounting for almost half of those employed by the sector in Switzerland and two-thirds of all Swiss watch companies disappeared (Raffaelli, 2018). Swiss watchmakers repositioned their mechanical watches as premium products and Swatch became famous when it managed to integrate quartz into what became fashionable pieces, enabling the field to resist and strengthen itself against Asian watchmakers like Seiko and Casio (Hayek, 2014). However, Donzé (2011) pointed out that rather than a product innovation (Swatch), it was "the rationalization and globalization of the production system (concentration of strategic parts' production in Switzerland; transfer of production facilities from Switzerland to Asia), together with a new marketing strategy (brand segmentation, distribution and retailing facilities, communication, etc.) which were the two main sources of the comeback of the Swiss watch industry on the world market" (p.1).

On his side, Raffaelli (2018) took institutional theory lenses to examine the processes and mechanisms whereby marked demand for a 'dying' technology (e.g. mechanical watches) re-emerged. He showed that changes in the product, and in the organizational and community identities associated with a legacy technology could be reconstituted to reconfigure a field. Three mechanisms – identity claims,

leadership, and (temporal, linguistic and symbolic identity value) framing - were at the core of his explanation of field re-emergence. The framing mechanism is of interest in the context of our research. Temporal frames are those that help “(...) actors re-interpret the past in light of the future, during periods of category development, evolution, or expansion” (Navis and Glynn, 2010); linguistic frames refer to metaphors “(...) that help actors create new labels and meanings during periods of change and evolution (Cameron 1986); and symbolic identity value claims “(...) help organizations to gain or maintain membership in specific communities, particularly when managing strategic change (Albert and Whetten, 1985)”. Coherently with institutional theory, the mechanisms uncovered by Raffaelli (2018) are ‘intra-field’ ones.

This legacy-technology ‘intra-field’ framing became so dominant that it ended up framing the field itself: Swiss watches are now seen as “Swiss watches” precisely because they have mechanical movements.

But with the emergence of connected wrist devices such as the Apple Watch, the Swiss watchmaking field is again experiencing a challenge to its (so far, successful) legacy technology. Different from the quartz technology that was developed by Swiss watchmakers themselves, the microprocessor and operating system central to the connected watch have been developed by outsiders to the field - American and Asian electronic companies.

This led us to explore the following research questions - How does this proven legacy technology constrain and how does it enable (re-) framing in turbulence? Do incumbents favour an ‘intra-field’ framing (i.e. centred in the legacy technology) and challengers an ‘inter-field’ reframing (i.e. open to the emerging technology)? In doing so we offer a further contribution to the field, for – as we show below- understanding the role of technology further enriches Fligstein and McAdam (2012) theory of fields.

3. Data and Methodology

3.1 Epistemological approach and research design

Given our research objectives, we situate our approach in a critical-constructivist epistemology (Wilkinson and Eidinow, 2008) where “...to be useful, knowledge of reality has to be acceptable and

depends on human perceptions and relationships” (Ramirez and Wilkinson, 2016, p. 56). Our stance is compatible with Morgan’s (1983) assertion that “...social scientists (...) are concerned with the realization of *possible knowledge*” (p. 369) and his view that a “reflective social science” needs to acknowledge that “uncertainty is a defining feature” (p. 383).

We use a qualitative ‘single’-case study approach. Yin (1984) defined a case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clear; and in which multiple sources of evidence are used” (p. 23). Given that turbulence is unfolding (i.e. 2016 was the worst year for the field since the great financial crises in 2008-2009), our study is necessarily exploratory (and incomplete), which challenged us to make research sense of unfolding events iteratively, reviewing findings in relation to theory in several rounds of sense-making.

3.2 Data collection

Data collection involved multiple sources which were triangulated with each other. Over a 40-month period in 2014-2017, we conducted 57 open and semi-structured interviews with actors involved in the Swiss watchmaking field, using a semi-structured interview guide with open questions with interviews lasting on average 90 minutes. Among the interviewees were CEOs of watchmaking companies⁴ and creative agencies, opinion leaders, and clients. We conducted visits at distributors in 5 countries and for four consecutive years attended the two-major annual professional gatherings of the field: the SIHH (*Salon International de la Haute Horlogerie*) in Geneva and BaselWorld in Basel in the 2014-2017 period.

For the 2010-2017 period, we compiled archival material from company reports (e.g. Swatch Group, LVMH, Richemont, Kering, Fossil), consulting and banking reports (e.g. Exane BNP, Bain & Company), the relevant specialized watch industry press (e.g. WorldTempus, businessmontres.com;

⁴ This data collection is part of a larger research project on independent companies in the creative industries; therefore the selected companies were independent watchmakers that could be defined as challengers in Fligstein and McAdam (2012) terms. They are among the most exposed to the current turbulent context (Gomelsky, 2016).

Wearable, Business of Fashion) and the Swiss press (e.g. Le Temps). Two of the co-authors have managerial⁵ and consulting roles in the field, so our stance is not and cannot be that of a distanced or neutral external observer. Table 2 describes these sources of information.

Data source	Interviews ⁶	Role	Entity	n
		Watchmaking company CEO	HYT, Louis Moinet, Cyrus, Carl F. Bucherer, MB&F, Urwerk, Slyde, Michel Jordi	9
		Creative Agency CEO	Holition, Digital Luxury Group, BETC Design	3
		Press / Opinion leader	The Economist, worldtempus.com, Shanghai Morning Post, businessmontres.com, 1.618 Sustainable Luxury, Only Watch	6
		Clients	35 interviews with collectors of high-end watches brands	35
		Retail	Temps & Passion Monaco, E'Collezione Singapore, Bucherer Switzerland, Noble Styling Tokyo	4
	Site visits	Professional Gatherings	SIHH Geneva (2014, 2015, 2016, 2017) BaselWorld Basel (2014, 2015, 2016, 2017)	8
		Retail	Temps & Passion Monaco, E'Collezione Singapore, Bucherer Switzerland, Noble Styling Tokyo, Bucherer France	5
	Archival Material	Specialized Press (eg.)	WorldTempus, businessoffashion.com, businessmontres.com, Wearable	>50
		Generalist Press / Web (eg.)	The Economist, Le Temps	>10
		Company reports (eg.)	LVMH, Kering, Richemont, Swatch Group	28
		Consulting / Banking reports	Exane BNP Paribas, Bain & Company, BCG	35

Table 2: Sources of information

3.3 Data analysis

To analyse this diverse and rich data, we utilized an abductive analysis research strategy (Timmermans and Tavory, 2012) in an iterative process of data collection and interpretation.

First, like Delmestry and Greenwood (2016), we compiled an event history to document the chronology of the Swiss Watchmaking field entering turbulence, noting the main events and the actors involved (see table VI). We utilized ‘temporal bracketing’ to chart the critical junctures in this process. This observation of the field over a relatively long period enabled us to capture the dynamics of interaction between actors in their roles of incumbents, challengers, internal governance units and

⁵ One of the co-authors is Vice-President at Carl F. Bucherer, part of the Bucherer Group.

⁶ Several of these informants were interviewed more than once to expose our interpretations and get feedback; nevertheless, given the secrecy of the Swiss Watchmaking field and the particularly acute crisis that is the topic of our exploration, interviews could not be recorded. Therefore, the interviewer took notes during the interview and compiled them shortly afterwards.

stakeholders in the field of Swiss Watchmaking in conditions of turbulence, in line with Van de Ven et al. (1999) approach to innovation research as longitudinal.

We then drew on the Ramirez and Selsky (2016) strategy stance framework to perform a content analysis of the field notes, interviews and archival materials. We produced a-priori codes based on the conceptual framework to align understanding by the researchers involved. Two researchers then independently carried out a classification of the raw data and compared and discussed the results. As our interpretations emerged, we checked our data to establish analytical consistency by iterating with interviewees during and after our data collection. These analyses led to further data collection to assess the validity of the proposition on the role of the legacy technology in framing-reframing contention. To ensure the trustworthiness of our data, we used the following procedures (Lincoln and Guba, 1985; Delmestry and Greenwood, 2016): given their professional and consulting roles, the first and third authors had prolonged exposure to the field, enabling frequent conversations with interviewees beyond formal interviews; we triangulated our data sources and collected extra data (follow-up interviews, visit to trade fairs, archival data collection in the July 2016-April 2017 period) to strengthen our analysis; we presented our model to field stakeholders (e.g. exchange with FH – Federation of the Swiss Watch Industry - president in March 2017) to obtain “member checks” (Delmestry and Greenwood, 2016). The combination of views on the field enabled us to benefit from proximity with the field while keeping a distance to critically analyse it.

4. Further data and results

4.1. The Swiss watchmaking field

The Swiss watchmaking sector is the world’s leading exporter of watches in terms of value, with exports worth CHF 18.2 billion in 2016, representing 8.6% of all Swiss exports (FH, 2017). This is shown graphically in table 3.

2016 Swiss Watch Exports			
		Volume (1000 pieces)	Value (CHF million)
Price	CHF>10,000	1,438	11,858.1
	CHF 3,000 -10,000		
	CHF 500-3,000	3,291	3,996.9
	CHF 200 -500	4,116	1,289.0

	CHF < 200	16,538	1,111.6
	Total	25,383	18,255.6

Table 3: Swiss watch export by price segment (Source: FH, 2017)

As is shown in table 4, exports of mechanical watches from Switzerland reached 6.9 million pieces for a value of CHF 14.6 billion, whereas export of electronic watches reached 18.4 million pieces for a value of CHF 3.5 bi. Despite these relatively modest volumes, Swiss watchmakers capture close to half of the world's export sales in value terms. 'Swiss Made' is still seen as the ultimate marker of quality and craftsmanship in terms of watches and Switzerland remains the home of the world's most iconic brands.

	2016 Watch Exports	
Country	Value (in USD billions)	Units (in millions)
Switzerland	19.1	25.4
Hong Kong	8.8	241.0
China	5.6	652.0

Table 4: Watch exports by country in 2016 (Source: FH, 2017)

As is shown in figure 1 below, the field is composed of the watchmakers, their 'supply chain' partners, plus organisations in the media (e.g. Le Temps, WorldTempus), banking (e.g. UBS, Credit Suisse), insurance, real estate, non-governmental organizations, education and research bodies, regulators, export-support agencies, Canton governments, and a few other players (e.g. lawyers).

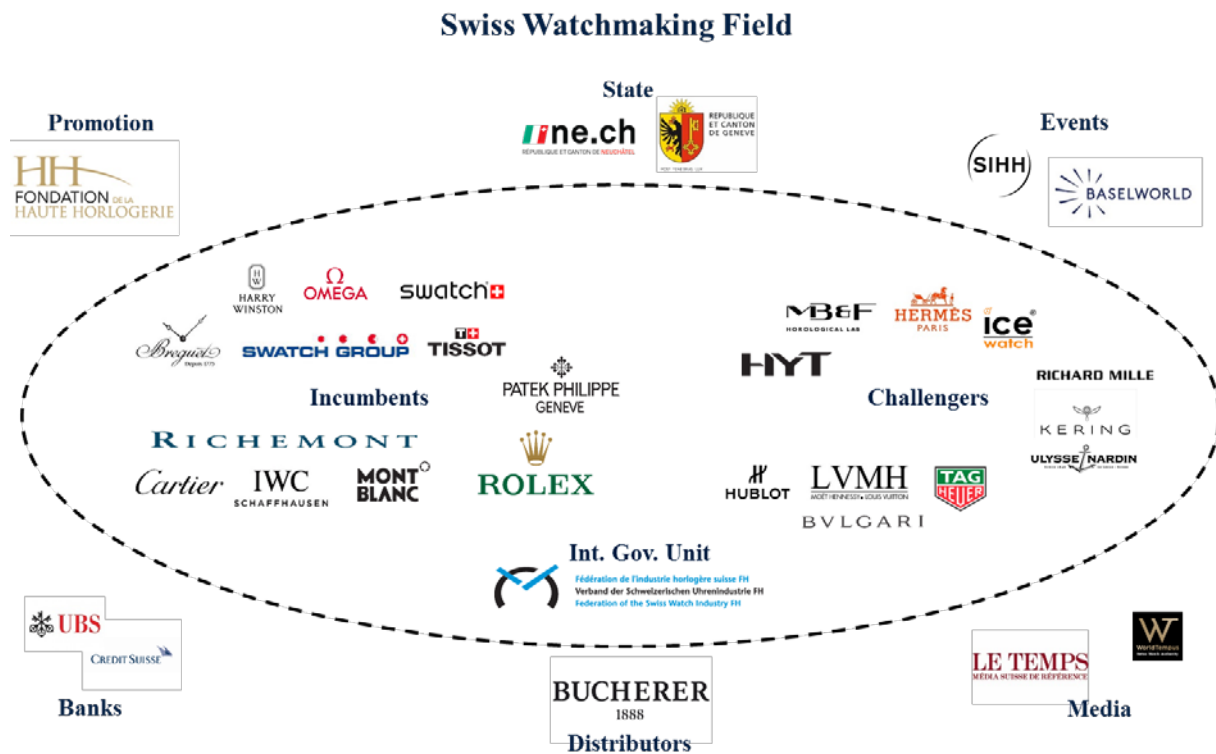


Figure 1: A (non-exhaustive) representation of the Swiss Watchmaking field depicting its main actors (source: authors)

As in other creative ‘industries’, two field-configuring events (Moeran and Pedersen, 2013) take place annually: BaselWorld in Basel and SIHH (Salon International de la Haute Horlogerie) in Geneva.

BaselWorld, the ‘incumbent’ event, is organized by the MCH Group and has taken place since 1917.

As is shown in table 5, the ‘challenger’ event, SIHH, is private and was created in 1991 by Alain-Dominique Perrin, then CEO of Cartier, to feature the Richemont Group brands. It now welcomes external brands as well.

The field is dominated by large companies with many divisions which own most of the major watch brands. The most important ones are: Swatch Group, owner of 18 brands (e.g. Swatch, Breguet, Blancpain, Longines, Tissot) and a large part of the manufacture of watch ‘movements’ (e.g. ‘ébauches’ and ‘assortments’); Richemont, owning 13 watch brands (eg. Piaget, Cartier, IWC); and Rolex (owner of Rolex and Tudor). These first three contributed 47% of the total turnover of Swiss watchmakers in 2014 (Vontobel Equity Research, 2015). The fourth major group is the French group LVMH (owner of brands such as Hublot, Zenith and TAG Heuer) and the fifth group is Kering (e.g.

Ulysse Nardin, Girard Perregaux, Jean Richard). Alongside these five main groups there are several independent and influential family-controlled companies such as Patek Philippe, Audemars Piguet, Chopard, Breitling and Carl F. Bucherer.

Category	Price points	Watchmaking Companies				
		Swatch Group	Richemont	LVMH	Kering	Others
Ultimate	CHF>10,000	Breguet	A. Lange & Söhne	Hublot	Ulysse Nardin	Patek Philippe
		Blancpain	Jaeger-LeCoultre			Audemars Piguet
		Harry Winston	Van Cleef & Arpels			Franck Muller
		Jaquet Droz				Richard Mille
						Greubel Forsey
						Louis Moinet
						Romain Gauthier
High-Range	CHF 3,000 - 10,000	Omega	Cartier	Bulgari	Girard Perregaux	Rolex
		Glashütte Original	IWC	Zenith		Chopard
			Piaget	Chaumet		Breitling
						Carl F. Bucherer
Mid-Range	CHF 500- 3,000	Longines	Montblanc	TAG Heuer	Jean Richard	Tudor
		Rado	Baume & Mercier	Dior		Frederique Constant
		Tissot				Hermès
		Hamilton				Carl F. Bucherer
						Victorinox
Entry Range	CHF 200 - 500	ck watch			Gucci	Festina
		Mido				Ice Watch
	CHF < 200	Swatch				
		Flik Flak				

Table 5: Swiss watch brands by price positioning (retail) and by group (source: TIL Associates, 2016)

Given their Swiss roots and historical presence, the Swatch Group, Richemont, Rolex and independent companies like Patek Philippe, Audemars Piguet and Chopard can be seen as incumbents in the field. French luxury conglomerates LVMH and Kering are relatively new to the field, having acquired their first watchmakers respectively in 1999 and 2013 to enlarge and diversify their luxury portfolio. They can be classified as challengers to the incumbents, alongside innovative companies which have sought to change the field in recent years, like Richard Mille, HYT and MB&F in the ‘ultimate’ category and Ice watch in the entry range category (Hoffmann and Coste-Manière, 2012; Hoffmann and Lecamp, 2015). The field’s internal governance unit is the Federation of the Swiss Watch Industry (FH). It has a limited governance role as its main functions are to promote the field, protect the ‘Swiss Made’ label (particularly from counterfeits) and to publish the only reliable source of data about the field: monthly statistics from the Swiss customs about Swiss watch exports.

In the words of its president, Jean-Daniel Pasche: “the FH mandate is determined by key actors like Hayek (CEO of Swatch Group), Rupert (CEO of Richemont), Dufour (CEO of Rolex) and Biver (CEO of LVMH watch division). Having the four of them in the same room is unusual and happens in rare occasions” (interview, March 2017). He also highlighted the paradoxical nature of the field in the sense that density and fragmentation co-habit: even if actors are close geographically in the areas of Geneva and the Jura Arc around Biel and La Chaux-de-Fonds, a secrecy culture makes for a very fragmented field, where minimal knowledge sharing and common initiatives take place at a field level. As we see below, this is not without consequences in turbulent conditions. As such, the IGU conforms to the description made by Fligstein and McAdam of conservative institutions that serve “to institutionalize the worldview and advantages of incumbents” (2012, p.78).

4.2. Turbulence and contention in the Swiss watchmaking field

Contextual and field level factors combined to form the current causal texture of the Swiss Watchmaking field. At the field level, Hoffmann and Lecamp (2015) show that the control of the manufacture of watch movements (a central component) by the four large groups (resulting from vertical integration of external suppliers and subcontractors) created a challenging situation for smaller players. Swatch Group started this process in the late 1980s, and was followed in the 1990s by Rolex, Richemont, and LVMH.

That wave of acquisitions enhanced the market value of those suppliers who thus came to possess strategic expertise in the production of watch cases, dials, hands, and hair-springs. The acquisition of specialist workshops by the large groups made it much more difficult for smaller companies to obtain supplies, forcing them to find alternative sources, which became increasingly expensive. The decision in 2006 and 2009 by the Swatch Group to cut the delivery of key parts and mechanical movements to third-party brands had a further profound effect on the Swiss watchmaking field. The Swiss Competition Commission was called twice to investigate, and an amicable settlement was eventually reached, allowing deliveries to be phased out more gradually (Hoffmann and Lecamp, 2015). This Swatch field-reconfiguring decision to phase out supplies to competitors appears to have increased the turbulence in the field for those affected. Besides leading to vertical integration, it led suppliers like

Sellita, Soprod and Technotime to increase production capacities to supply the announced penury of movements. However, the gloomy turbulent context resulted in the Swatch Group main mechanism supplier, ETA, to have an overcapacity problem. This typically brings forth aggressive price policies (businessmontres, 2015b), threatening margins and even the viability of suppliers, further fueling turbulence (Selsky et al. 2007).

The hardening of conditions to obtain the label *Swiss Made* (Hoffmann and Lecamp, 2015; FH 2017) put extra pressure on watchmaking firms, particularly those offering low and mid-range price level products. The legislation known as Swissness, voted in 2013 and enacted in January 2017, states that by early 2019, the *Swiss Made* label will only be awarded if at least 60 per cent of production costs are to be incurred in Switzerland, compared to 50% previously (FH, 2017).

These developments within the field were matched up by three important changes in the field's contextual environment. First, the anti-graft campaign in China following Xi Jinping ascension to office in 2012 had a strong impact on purchases from Chinese clients of the products of Swiss watchmaking firms both in Hong Kong and elsewhere. Chinese consumers represented nearly 30% of the luxury market since 2013 (Bain and Altagamma, 2015) and Hong Kong had been the main export destination of Swiss watches (12.2% of exports⁷). 2015 saw a 22% slump in shipments to Hong Kong and 2016 a further 25% reduction in shipments (FH, 2017).

Second, the Swiss National Bank decided early in 2015 to unpeg the Swiss Franc to the Euro, resulting in an immediate and unexpected 10% revaluation of the Swiss Franc, directly reducing both the sales volumes and the profitability of the Swiss companies which export most of their production.

Thirdly, the appearance of 'connected' (or 'wearable') wrist devices, like the Apple Watch, came to be seen as a threat to the established 'disconnected' offerings of the Swiss manufacturers. Wearables in the form of activity tracking devices first appeared in the market in the late 2000's. The first Fitbit, the category leader, was presented in 2008. In 2011, mobile apps were introduced, enabling the emergence of a platform counting 23.2 million active users by the end of 2016. Fitbit shipped 22.3 million devices in 2016 for revenues of USD 2.17 billion (Fitbit, 2017).

⁷ It doesn't mean all these watches are sold in Hong Kong.

Connected watches, or smartwatches, were first launched in 2013 by electronic companies like Sony, LG and Samsung, receiving a harsh reception (Pogue, 2013). An important ‘tipping point’ was Apple’s smartwatch launch in 2015. Apple masters the hardware, the software (OS), the ecosystem of applications and has a sound global retail presence. In presenting its Apple Watch, it emphasized attention to detail as its Swiss counterparts would do. This is exemplified by its description of the ‘Link Bracelet’: “Crafted from the same 316L stainless steel alloy as the case, the Link Bracelet has more than 100 components. The machining process is so precise, it takes nearly nine hours to cut the links for a single band. The custom butterfly closure folds neatly within the bracelet. And several links feature a simple release button, so you can add and remove links without any special tools” (Apple.com, 2015).

Of interest for our research and as shown in figure 2, the Apple Watch sits at the convergence of several fields – those of watchmaking, of health and fitness trackers, and of connected watches. Smartwatch sales show the magnitude of their impact: in the fourth quarter of 2015, more connected watches (8.1 million) were sold than Swiss mechanical watches (7.9 million), and in its first fiscal year, the Apple Watch made Apple become the 2nd biggest watchmaker of the world by value, with a turnover of over US\$ 5 billion (Wearable, 2016; Vontobel Equity Research, 2015; Strategy Analytics, 2016).

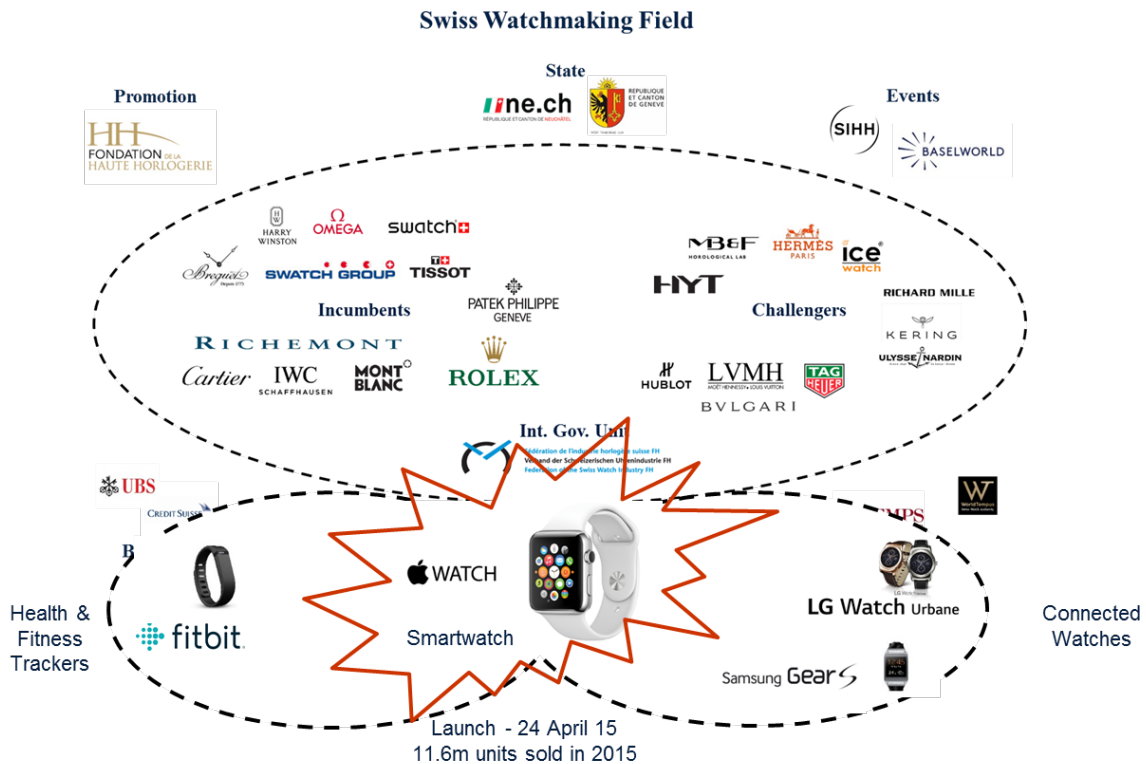


Figure 2: Apple Watch positioning at convergence of watchmaking, health and fitness trackers, and connected watches (Source: authors)

As these developments combined with each other they came to characterize the context of the Swiss watchmaking field as turbulent. Table 6 outlines some of the main issues that brought about turbulence to the Field.

Date	Event	Nature
November 2012	Xi Jinping becomes General Secretary of the Communist Party of China starting anti-graft campaign	Context
September 2013	Launch of the Samsung Galaxy Gear smartwatch	Inter-Field
Octobre 2013	Swiss Competition Authority (ComCo) settle with Swatch Group that, ETA, the industrial arm of the Swatch Group, is authorized to start phasing out delivery of complete watch movements and assortments to external clients from 2014 until 2019 when the group is no longer constrained to supply competitors	Intra-Field
October 2014	Apple announces the Apple Watch	Inter-Field
January 2015	Swiss Franc revaluation	Context
April 2015	Apple starts selling the Apple Watch	Inter-Field
November 2015	TAG Heuer announces the TAG Heuer Connected	Inter-Field
January 2016	Announcement of Swiss exports reduction of -3.6% in 2015	Intra-Field
April 2016	Apple becomes the 2 nd watchmaker of the world in value	Inter-Field
January 2017	Enactment of <i>Swissness</i> legislation	Context
January 2017	Announcement of Swiss exports reduction of -9.9% in 2016	Intra-Field

Table 6: Main events characterizing the entry of the Swiss Watchmaking field in turbulence

With turbulence, executives in many firms may feel they are insufficiently resilient to maintain their position and/or viability. In our empirical research this was manifested as realizations of overcapacity (e.g. ETA from Swatch group) lay-offs (e.g. Richemont's announcement of 210 jobs cuts in November 2016 – Bloomberg, 2016b), bankruptcies (e.g. Slyde), and consolidation (e.g. acquisition of Ulysse Nardin by Kering). As we show in table 7, 2015 was a bad year for Swiss Watchmakers with exports revenues diminishing by 3.6% and 2016 was an *annus horribilis* with a 9.9% contraction in exports value (FH, 2017). Baselworld 2017 attracted 200 fewer exhibitors in its centennial edition, a 13% reduction.

	Swiss Watch Exports		
Year	Units (in millions)	Value (in CHF billions)	Variation
2005	24.3	12.3	
2012	29.2	20.2	
2013	28.1	21.8	+1.9%
2014	28.6	22.2	+1.9%
2015	28.1	21.5	-3.6%
2016	25.4	19.1	-9.9%

Table 7: Swiss Watch Exports by country in 2016 (Source: FH, 2017)

4.3. Causal Texture Theory principles in turbulence

The data above shows two contextual sources of destabilization for a field as specified by Fligstein and McAdam (2012): a) invasion by outside groups (e.g. wearables companies like Apple); b) rare macro events (e.g. Swiss Franc devaluation; anti-graft campaign).

Our data also provides evidence of the CTT transition principle at play in the Swiss Watchmaking field: turbulence does not appear to be present for all actors in the field, nor is it there all the time. Instead, it manifests itself in strong moments which can then appear to dissipate - or to accelerate further. As is shown in in table 8 below, the year of 2016 has been described as the “perfect storm” (Bloomberg, 2016a) or “a very, very difficult year” (Vincent Perriard, CEO of HYT) but -again- it affects each actor in a specific way and is not homogenous across actors. Instead, some parts of the Swiss Watchmaking field experience the turbulence more than others, exhibiting the CTT heterogeneity principle. For instance, incumbents Swatch Group and Richemont got more severely impacted than others. Swatch Group net sales were down 10.6% in 2016 compared with 2015 and its net income decreased by 47%. Richemont also experienced a severe reduction in both its sales and

profits. But LVMH⁸ reported positive results for 2016, due notably to the performance of its brand TAG Heuer.

			2014	2015	2016
Swatch Group	Net Sales	CHF million	8709	8451	7553
	Change from previous year	%		-3.0	-10.6
	Operating result	CHF million	1752	1451	805
	As % of net sales	%	20.1	17.2	10.7
	Net income	CHF million	1416	1119	593
	As % of net sales	%	16.3	13.2	7.9
	Change from previous year	%		-21.0	-47.0
			2015*	2016*	2017**
Richemont (Specialist Watchmakers division)	Net sales	€million	3123	3225	1445**
	Change from previous year	%		3.2	-17***
	Operating profits		730	520	187**
	Change from previous year	%		-28.6	-53***
			2014	2015	2016
LVMH (Watches & Jewelry division)	Revenue	€million	2782	3308	3468
	Change from previous year	%		18.9	4.8
	Profit from recurring operations	€million	283	432	458
	Change from previous year	%		52.6	6.0

Table 8: Annual Results of main field actors - Sources: Swatch Group Annual Report 2016; Richemont Annual Report 2017 & 2016(*Fiscal Year to 31 March;** Six months to 30 Sept 2016; *** compared with six months to 30 Sept 2015); LVMH Annual Report 2016.

When figures are compared by price range, as we show in table 9, watches in the mid-range category have been less impacted by the turbulence than watches in the other price ranges, further manifesting the heterogeneity principle proposed. Whereas the slump for watches in the ‘ultimate’ and ‘high’ ranges can be plausibly explained by the reduction in Chinese consumption alone, the declines in the entry range categories appears to be associated more to the emergence of connected watches, where brands like Swatch face a frontal competition.

		Thousand units			CHF Million		
		2015	2016	%	2015	2016	%
Ultimate & High-Range	>CHF 3,000	1574	1438	-8.6	13415.3	11858.1	-11.6
Mid-Range	CHF 500-3,000	3414	3291	-3.6	4161.0	3996.9	-3.9
Entry Range	CHF 200 -500	4506	4116	-8.6	1424.9	1289.0	-9.4
	CHF < 200	18644	16538	-11.2	1236.8	1111.6	-10.1

Table 9: Swiss watch exports by category (source: FH, 2017).

Several independent watch-making companies, like Raymond Weil, Mondaine and Oris are also affected and appear to exhibit perceived diminished adaptive capacities to cope; while independent companies in the ultimate category like Richard Mille, HYT and MB&F (Hoffmann and Hoffmann,

⁸ Reporting jointly for its jewelry and watch division.

2012; Hoffmann and Lecamp, 2015) have developed innovative value creating systems which helped them to acquire more resilient adaptive capabilities. With these they do not feel the field's development as turbulent. Informal interviews conducted at BaselWorld 2017 suggested that watch brands Rolex, Richard Mille, Audemars Piguet and TAGHeuer were performing well in early 2017. We assess the TAGHeuer case in the next section, but these elements provide evidence of the 'subjectivity principle' being the case in the field.

4.4. The socio-ecological strategy approach in the turbulent Swiss Watchmaking field

We here examine the enactment of socio-ecological strategic stances by incumbents and challengers and the roles of the legacy technology in the turbulent context of the Swiss watchmaking field.

4.4.1. The 'preparation' strategic stance

The acquisition of manufacturing companies and of independent watchmakers by the large groups (e.g. Swatch Group's \$1bn acquisition of Harry Winston for \$750m plus \$250m of debt; LVMH \$5.1bn acquisition of Bulgari; and Kering \$0.9bn acquisition of Ulysse Nardin) can be read as evidence of the preparation strategic stance at the company level.

Another instance of preparation, this time at the field level, is the joint work of Swiss watchmakers, the Federation of the Swiss Watch Industry (IGU), and the Swiss Government to enact the *Swissness* legislation. Whereas this legislation applies to all Swiss Made products, watchmakers via the IGU engaged in inter-field collaboration to favor a "strong" label, as reflected in the Federation of the Swiss Watch Industry website:

"Reflecting the mood of its members, the Federation of the Swiss Watch Industry began a process in 2007 to strengthen the Swiss made label in the watch industry. This involves making amendments to the ordinance governing use of the name Swiss for watches (...) This initiative basically has three objectives: - to guarantee the long-term credibility and value of the geographical indication; to guarantee satisfaction on the part of consumers who, when buying a Swiss made watch, expect it to correspond to the quality and the reputation of Swiss watchmaking tradition and therefore to be manufactured in Switzerland and to incorporate a high added value of Swiss origin; - to make the law more specific, in order to clamp down more effectively on abuses" (FH, 2017).

The change of the legislation involves the specification of a minimum value criterion for the watch as a whole, as opposed to for the movement only. To obtain the "Swiss Made" label a watch now must

meet the requirement of minimum 60% of Swiss value. Previous requirements, like the incorporation of a Swiss movement, casing-up, and final inspection in Switzerland, remain in place; but the definition of the Swiss movement also adopts a minimum rate of Swiss value of 60% (as opposed to the previous 50%). Moreover, new criteria have been added to the calculation of Swiss value, such as research and development and certification costs (FH, 2017; Hoffmann and Lecamp, 2015).

The stricter criteria for obtaining the Swiss Made designation can be fulfilled by most players in the mid-range, luxury and ultimate categories, but less easily by companies in the entry range.

Paradoxically, this legislation has also made it more difficult for a Swiss Made product 'reply' to wearables and connected watches 'challenges' to emerge, as a substantial part of the added value would come from its micro-processor and operating system.

As voiced by Jean-Claude Biver, LVMH's watch division CEO, it is near-impossible to create a Swiss Made Connected Watch because there is an "American dominance in the fabrication of the micro-processor and the operating system"⁹ (RTS, 2016). Both elements are typically imported from the US or Asia, so the legislation could at the end represent a barrier, or even a "poison" (businessmontres.com, 2016), for innovative efforts made in Switzerland, leading some actors to call for a revised "Swiss Made 2.0" (Le Temps, 2017a) law even before the *Swissness* legislation becomes enforced in early 2019.

4.4.2. The 'relocation' strategic stance

Relocation involves organizations migrating to locations in the field which they feel are or will be shielded from the worst impacts of turbulence. The *Swissness* legislation is an example of this stance. Here incumbents, via the FH internal governance unit, jointly lobbied the Swiss government to change established rules in favour of those within their 'protected adaptive-capability' enclave (McCann and Selsky, 1984). Those who could join the enclave could then jointly preclude being adversely affected by turbulence because they became better able to meet the stricter regulations; whereas it made the field more turbulent for those external to that enclave. In migrating according to standards that

⁹ Respectively, by Intel for the microprocessor; and by Apple's iOS and Google's Android Wear, for the operating system.

benefited into the newly created enclave, they made movement into ‘their’ enclave harder and legalized the border.

Yet stronger evidence of the relocation stance is the field level frame defining Swiss watches as *mechanical* watches. This framing was strong as it had been a central part of the survival recipe in the previous upheaval generated by the development by a Swiss consortium of the electronic quartz calibre Beta 21 in the late 1960’s and 1970’s, as we have explained above. Blancpain’s slogan, devised in 1982 by then young entrepreneur Jean-Claude Biver, exemplifies this framing: “Since 1735, there has never been a quartz Blancpain watch and there never will be”. Indeed, despite their modest volumes, Swiss mechanical watches capture close to half of world’s watch export sales in value (see table 4).

Our analysis of the ‘mechanical’ framing is that it has plausibly played an important role in that the announcements and even actions whereby several Swiss watchmakers have downplayed the threat of connected watches. Leading figures from the incumbent firms have concordantly dismissed the threat when Apple announced its Apple Watch in September 2014. Jean-Claude Biver, CEO of the LVMH watch division, declared: “This watch has no sex appeal. It's too feminine and looks too much like the smartwatches already on the market (...) to be totally honest, it looks like it was designed by a student in their first trimester” (businessinsider.com, 2014), analyzing that there was no danger for luxury watches (those prices above 1000 francs) made in Switzerland because “(...) these high-end objects refer to art and culture. The tradition of our profession is incompatible with the concept of obsolescence since the art of watchmaking implies that your watch lasts and can be repaired at any time. With technology, it's different. (...) I will not go into smartwatches on behalf of LVMH” (Bilan, 2014).

In the same way, Stephane Linder, CEO of TAG Heuer, declared: “For now, this product is primarily a microcomputer on the wrist, while lovers of luxury watches seek instead to afford a beautiful object, considered a sign of social status”. And Thierry Stern, CEO of Patek Philippe, said “there is no danger, the smartwatch is a useful gadget for specific populations (elderly or sick in particular), and possibly as an incentive for younger generations. to wear a watch on the wrist, with the hope that they will one day swap their connected watch for a traditional watch” (Bilan, 2015). This framing was also

echoed by trade journalists, for example, La Tribune de Genève, titled “A connected watch for what?” (tdg.com, 2015) and John Biggs at TechCrunch (2014) noted that the threat was more important for other wearable makers like “Fossil. Fitbit. Pebble. Intel. Android Wear. Motorola. LG” than for Swiss watchmakers, “(...) the iWatch isn’t playing in Switzerland’s turf and Switzerland will never play in Apple’s”.

Even after the launch of the Apple Watch in April 2015, Nick Hayek, CEO of the Swatch Group, called it in August 2015 an “interesting toy, but not a revolution” (The Guardian, 2015), saying the device posed no threat (businessoffashion.com, 2015).

But with the emergence of a new *connected watchmaking field*, with very rich invaders from the electronics and the IT fields (Apple’s 2016 turnover of \$ 215 billion is more than 20 times that of the field leader Swatch Group), incumbents and challengers (makers of both mechanical and electronic watches) are contending with unprecedented and novel (and for them ambiguous) environments, badly defined by their existing frames.

As we write the revision of this paper (beginning of 2018), we see that incumbents continue to stick to their existing framing; the Swiss watch-makers appear to do so focusing on heritage and traditional values like inter-generational transmission, as put by the well-known Patek Philippe slogan: “You never actually own a Patek Philippe. You merely look after it for the next generation”. But unlike the last battle, where the quartz electronic mechanism did not challenge the very identity of the wristwatch, our analysis suggests that this time the connected device may well do so. From a (multifunctional) object, the watch appears set to become only one of many supports for a connected ecosystem of applications which can connect what is worn on the wrist with many practices -for example, health- in unprecedented ways. More fundamentally paradoxical for the ‘garde temps’ (time-keeping) function that has defined the role Swiss watchmakers see themselves as providing, time perceptions are also being brutally transformed by the real-time information the invaders bring about (The Economist, 2016b; Financial Times, 2017). Indeed, if the meaning of the ‘wristwatch’ gets reframed to instead become an element in a platform for connected ecosystems of applications, big parts of what was ‘the Swiss watchmaking field’ until the early 2010’s are poised to face a profound existential question. As put by Financial Times columnist John Gapper (Financial Times, 2017),

“swiss watches risk becoming antiques”, where “history was everywhere at Baselworld 2017, the watch industry’s annual trade fair” (...) “at times, though, the multimillion-franc stands at Baselworld felt like design museums”. He analyzed the field as having flourished in the high end by evoking prestige and nostalgia. Prestige because watches are the main form of male jewelry and nostalgia because they evoke the epoch before the 1970’s where mechanical watches were the dominant technology. But he suggested that “mechanical watches will not thrive in splendid isolation forever. Their most thrilling days are past and the meaning they hold for today’s buyers will inevitably fade”, proposing then that “Switzerland’s watchmakers have gained much from their heritage but they cannot be borne back ceaselessly into the past”.

The evidence we found of the relocation stance for incumbent Swiss watchmakers, manifests their favoring the intra-field framing, centred on a historically successful legacy technology, rather than their being actively involved in a search for inter-field alternatives.

4.4.3. The ‘reinventing collaboration’ strategic stance

As we saw above, the socio-ecological strategic approach emphasis on collaboration is not limited to take place within the field; thus, not limited to horizontal partnering with competitors, nor to vertical integration ventures with value-chain partners.

Instead, this stance involves collaborating with a much more diverse set of actors and stakeholders in different ‘industries’, comprising the broader fields in which these organizations operate.

These collaborations help each actor to together engage contextual level factors that affect or may affect all actors in more than one field.

Let’s be clear - collaboration is not new to the Swiss watch-making field. Its very roots can be traced back to the innovative collaborations in the 16th century between the evolved craft of Geneva based jewellers, banned from developing their trade by Calvinism, and the horological know-how of French Huguenots, refugees in Geneva to escape Catholic persecutions in France. Collaborative innovation also gave birth to some of the most remarkable watch companies of this century. For instance, Richard Mille became involved with the automotive and aviation industries, observing their high-tech mechanical objects, to develop his own watch. Back in the late 1990’s, “(...) when the majority of the

players were using today's materials to build watches inspired by the 19th century, Richard Mille used today's materials (albeit different ones) to build the 21st century watch" (Hoffmann and Hoffmann, 2012, p. 61-62). This led to the integration of materials like carbon nanofiber, ALUSIC, Aluminium-Lithium, ANTICORODAL and Phynox, in the watch making field. He thus set the stage for innovators like MB&F and HYT in the 2010's.

In our data set, it is the rise of wearables that best symbolizes the role of the 'reinventing collaboration' stance in turbulent conditions. The case of the field-leading incumbent is worth analysing more in detail in this regard. The Swatch Group had been a pioneer in integrating technology to wristwatches with varied results. As early as 1991, it developed a pager that flopped; in 1999, it proposed abandoning local time zones in favour of a single, 'universal Internet time' that divided the day into 1,000 Swatch beats; since 1999, it offered touchscreen timepieces like the Tissot T-Touch; in 2005, it co-developed with Microsoft the 'Paparazzi', a watch that could receive messages and stock quotes, another flop. In recent years, Swatch Group has been actively stockpiling patents, having filed 173 smartwatch related patents from 2012 to 2015. Now that it faces direct competition from wearables and connected devices, the company is taking strategic actions to develop and explore this category. After developing the Swatch Touch Zero, it partnered with Visa to release the Swatch Bellamy, which integrated near-field communication for payment options, where it seeks to compete with Apple Pay and Ali Pay (in China) payment systems. Swatch Group failed however to (co)develop an operational system, because as expressed by François Thiebaud, CEO of Tissot during Basel World 2014, "we don't want to be dependent on any one" (Bilan, 2015). Gregory Pons, from Business Montres, has been very critical of this approach, stating "this is where we start to regret the incredible strategic mistake of the Swiss who refused to reach out to the Americans when they were asking for watchmaking legitimacy to impose their new concepts of connected objects" (businessmontres.com, 2016).

Swatch Group is now posing itself as an advocate of data privacy and champion of mono-function devices (e.g. for payment), a tough position to pursue in front of the multi-functional connected competitors.

Yet our analysis suggests that Swatch Group may well be losing a central battle: Swatch equity was built by embodying ‘coolness’ on the wrist, but the ‘cool’ factor is now taken up by wearables. In March 2017, Swatch announced that in 2018 it will release a Tissot smartwatch powered by a Swiss operational system (OS), building the platform in partnership with CSEM, a private, non-profit Swiss research and technology organization. It is designed to be used for smartwatches and IoT devices. It promises to ensure that user data is well protected inside a private ‘Swiss vault’. The ‘intra-field’ framing of ‘Swissness’ permeates this new initiative: instead of promising an ecosystem of applications as other smartwatches do, the main promise remains a very Swiss-German¹⁰ one: data privacy (Wareable, 2017) which did not seem to be the main concern of younger demographics (Forbes, 2016).

Swatch was not alone in Switzerland to develop a strategic initiative regarding the rise of wearables. Companies such as Slyde, Montblanc, and Frédérique Constant have all created connected watches in a closed platform with only in-house developed applications. So far the data suggests that this intra-field focus appears insufficient: Slyde, which was a smartwatch pioneer, for example, went bankrupt in 2016.

In November 2015, the first Swiss watchmaker to decide to break with this intra-field framing and strategy to engage in an innovative inter-field collaboration was the challenger TAG Heuer, part of LVMH. Led by Jean-Claude Biver, who in the past had derided smartwatches (as quoted above), the company partnered with American companies Intel and Google to co-develop and launch ‘TAG Heuer Connected’. In this collaboration, “everyone brings its competences. The microprocessor and the software will be made by the two ‘giants’ of Silicon Valley (...) and us: emotion, luxury, design and Swissness” according to Mr. Biver (RTS, 2015). The rationale for this *volte-face* was “Whoever can spend \$1,000 on an Apple Watch could also spend \$1,000 on a TAG Heuer watch. If he wants a smartwatch and TAG Heuer has no smartwatch, he will buy the smartwatch he can find, which is the Apple” (Financial Times, 2018).

¹⁰ According to JD Pasche, president of the FH, Swiss-Germans are much more sensitive to this issue than Swiss-French or Swiss-Italians, source: personal interview.

The TAG Heuer Connected integrated an Intel processor that links the watch to the internet and runs applications via Google's Android Wear Platform. The first version of the watch was manufactured in the United States, and therefore does not benefit from the *Swiss Made* label, but instead advertises a *Swiss Engineered* badge. The company introduced the watch at the retail price of US\$ 1500 with a two-year warranty, giving clients an option to pay an extra US\$ 1500 at the end of that period to get a hand-crafted *Swiss Made* TAG Heuer watch (Le Point Montres, 2015). It then announced in 2017 a *Swiss made* version of the TAG Heuer Connected (Le Temps, 2017b).

Mr. Biver commented that demand for the TAG Heuer Connected exceeded expectations and the company is rushing to increase production capacity (businessmontres.com, 2015a). This led Mr. Biver to announce that the LVMH division high-end brand, Hublot, would also release a smartwatch by 2017 or 2018 (Tom's Guide, 2016).

In the United States, Fossil, the 4th biggest watchmaker in the world by turnover, launched the 'Fossil Q' line of smartwatches, also collaborating with Intel and Google. Its hope is that this collaboration will be the engine of substantial growth in the years to come; its acquisition of Misfit, a maker of wearable activity trackers, has been assessed to be a sign of its investing in this direction (Wired, 2015).

At the time of this writing, Apple is still the only player in the smartwatch field to control both the hardware and the software. It announced in September 2015 a partnership with Hermès, the French leather goods' company, to launch the 'Apple Watch Hermès' with Hermès leather straps. As Hermès also has its own watch product line, we see this collaboration as Apple seeking to strengthen its 'luxury' credentials, and Hermès seeking to raise brand awareness among a younger connected clientele.

The TAG Heuer Connected and Fossil Q seem set to be the frontrunners in a wave of new collaborations with actors in other fields. These actors have reframed their understanding of the field(s) and how existing fields are or might be re-drawn and reconnected. Our analysis suggests that they recognized that the Swiss and the non-Swiss watch 'industry' is being actively morphed in turbulence, instead seeing the rise of several blurred *fields* (plural) of connected business, health, information, status, and privacy-related ecosystems. As pointed by Iansiti and Levien, performance in

platform contexts derives from “something that is much larger than the companies themselves: the success of their respective business ecosystems” (2004, p.1). The breadth of the iOS and Android platforms comes from their openness to third party developers and that matters for our case study, for the success required to collaborate involves being part of, or becoming, a scalable platform (Gawer and Cusumano, 2008). As David Singleton, VP of Android Wear, put it: “a lot of our DNA working on Android has always been to create an ecosystem of partners to work together to create something bigger than the sum of its parts, and that’s what we’re trying to do here” (Fast Co-Design, 2016). Given the impossibility to use actively Apple’s iOS, Google’s Android Wear is at the time of this writing the best alternative platform for connected watches with whom smaller watchmakers can collaborate.

Paradoxically, perhaps, opportunities for collaboration abound. Electronic companies such as LG (G Watch), Samsung (Gear), Lenovo (Moto 360) have joined the connected devices field along (American) start-up firms such as Chronos, Pebble or Nymi. Opportunities also exist in applications conceived with the connected watch; a source of certain frustration at this stage is that most apps are replications of the ones conceived for smartphones (Comtesse, 2015).

Our data shows that the focus on inter-field collaborations, as the ones performed by TAG Heuer and Fossil¹¹, so far appears to be producing better results than the intra-field collaboration focus of the Swatch Group (see table 8), as posited by socio-ecological approach to strategy.

Most of the inter-field collaborations our data manifested are however pursued at the company level, not at the field level. Therefore, even if we have found evidence for the ‘reinventing collaboration’ strategic stance in conditions of turbulence, with an actor like TAG Heuer having shared knowledge with counterparts to invent a new role and relationships for the company, we don’t see the same kind of field level collaboration identified by Selsky et al. (2007) underpinning the Ramirez and Selsky (2016) 3rd strategic stance. The absence of field-level knowledge sharing mechanisms and the limited mandate of the Internal Governance Units in the Swiss Watch Federation appear to so far have played a role in this outcome.

¹¹ Fossil proprietary brands, including fossil, had net sales in 2014, 2015 and 2016, of respectively \$ 1,516.7 million, \$ 1,458.6 million and \$ 1,479.0 million (source: FossilGroup Form 10-K 2016).

Our data shows that incumbents like the Swatch Group, Richemont, Patek Philippe and Rolex have favoured an intra-field framing, typically centred in the legacy technology. In contrast, challengers like TAG Heuer, HYT and Richard Mille favoured an inter-field reframing centred on emerging technologies.

Table 10 provides sample quotes from actors in our data set which manifest each of the three socio-ecological strategic stances.

<i>Strategic Stance</i>	<i>Manifestation</i>	<i>Sample quotes</i>
Preparation	Swissness	FH website: “Reflecting the mood of its members, the Federation of the Swiss Watch Industry began a process in 2007 to strengthen the Swiss made label in the watch industry” (FH, 2017) Jean-Claude Biver, CEO of LVMH watch division: Swissness makes impossible to create a Swiss Made Connected Watch because there is an “American dominance in the fabrication of the micro-processor and the operating system” (RTS, 2016)
Relocating	Framing Swiss watches as mechanical watches	Thierry Stern, CEO of Patek Philippe: “there is no danger, the smartwatch is a useful gadget for specific populations (elderly or sick in particular), and possibly as an incentive for younger generations. to wear a watch on the wrist, with the hope that they will one day swap their connected watch for a traditional watch” (Bilan, 2014) Nick Hayek, CEO of Swatch Group: the Apple Watch is an “interesting toy, but not a revolution” saying the device posed no threat (The Guardian, 2015). Jean-Claude Biver (in 2014): there is no danger for luxury watches (those prices above 1000 francs) made in Switzerland because “(...) these high-end objects refer to art and culture. The tradition of our profession is incompatible with the concept of obsolescence since the art of watchmaking implies that your watch lasts and can be repaired at any time.” John Gapper, Financial Times: “Mechanical watches will not thrive in splendid isolation forever. Their most thrilling days are past and the meaning they hold for today’s buyers will inevitably fade”, proposing then that “Switzerland’s watchmakers have gained much from their heritage but they cannot be borne back ceaselessly into the past”.
Reinventing collaboration	Development of smartwatches	François Thiebaud, CEO of Tissot in 2014: “we don’t want to be dependent on any one” (Bilan, 2015). Gregory Pons, Founder of Business Montres: “this is where we start to regret the incredible strategic mistake of the Swiss who refused to reach out to the Americans when they were asking for watchmaking legitimacy to impose their new concepts of connected objects” (businessmontres.com, 2016). David Singleton, VP of Android Wear, “a lot of our DNA working on Android has always been to create an ecosystem of partners to work together to create something bigger than the sum of its parts, and that’s what we’re trying to do here” (Fast Co-Design, 2016). Jean-Claude Biver (in 2015) about the TAG HEUER Connected: “everyone brings its competences. The microprocessor and the software will be made by the two ‘giants’ of Silicon Valley (...) and us: emotion, luxury, design and Swissness” (RTS, 2015)

Table 10: Sample quotes of manifestation of the socio-ecological strategic stances

5. Discussion

This exploratory study is grounded in the Swiss Watchmaking field, have been able to identify its actors, including incumbents, challengers, internal governance and other stakeholders and their respective strategic stances, which conform to socio-ecological strategy tenets.

As this field entered turbulent conditions in the 2010's, the actions and reactions of its component organizations exhibited evidence of Causal Texture Theory principles of transition, heterogeneity and subjectivity. Respectively, turbulence was exhibited as an unstable state of the field, heterogeneous across the field, and as being experienced differently by organizations in ways which reflected their own individual perceived adaptive capacity to cope. With the data of this empirical case study we have also been able to explore how the enactment of three strategic stances -preparation, relocating, and reinventing collaboration - are (or fail to be) taken up by relevant actors under conditions of turbulence.

Recall that according to Selsky et al. (2007), in turbulence, effective strategizing looks first to decrease turbulence, demanding that strategy focuses at the level of the field instead of on the single organisation. The empirical research we have conducted suggests that the preparation and relocating stances occur as expected, particularly the enactment of the *Swissness* legislation which means that several incumbents will be better shielded by early 2019 when the transition period ends. We also found that incumbents were better endowed to undertake these two strategic stances than challengers, because of their resources and privileged links with the internal governance unit and the State/Government.

However, in our empirical case, the 'reinventing collaboration' stance was mainly enacted at the level of single organisations and not of the field, specially by challengers. Consistent with CTT, this limited enactment of this stance can be understood as having contributed to the worsening of turbulence during 2016. This is so as competitive actions from most incumbents co-produced a situation of production overcapacity which hurt many of them more or less significantly as we surveyed above. We found in analyzing our data that in conditions of turbulence, challenger companies Richard Mille, HYT and TAG Heuer were first movers in undertaking this strategic stance and did so with awareness of its potential to reframe the field. The field major incumbent, Swatch Group, also undertook collaboration initiatives and was even a pioneer in integrating software to watches. However, our data

suggests that since it wanted to keep ‘control’ and developing connected watches meant collaborating with US and Asian actors who have developed knowledge in microprocessors and operating systems came from the US and Asia, it appears to have missed the opportunity represented by connected watches. Given its manufacturing capacity of mechanical movements and brands using this legacy technology, the group appears to have faced a lock-in situation which did not help it to assess the looming threat.

So, whereas incumbents were better endowed to undertake the strategic stances of ‘preparation’ and ‘relocating’, our reading of the data in our empirical case suggests to us that their clout and embeddedness appears to have prevented them from undertaking ‘reinventing collaboration’ across fields in conditions of turbulence.

We now explore contributions to the socio-ecological approach to strategy and then to field theory.

5.1 Contributions to the socio-ecological approach to strategy

These findings provide us with an opportunity to produce a clarification of the three Ramirez and Selsky (2016) strategic stances. ‘Reinventing collaboration’ for them “involves enriching organizations and their counterparts with relevant knowledge about the possible unfolding of the turbulence they expect -or are beginning to experience- so they can negotiate and invent new roles and relationships” (p. 97). The clarification is one regarding the relevant unit of analysis to be employed. Their unit of analysis contrasts with the one employed by Selsky et al’s. (2007) study of the healthcare sector in the US states of California and Minnesota in conditions of ‘hyper’ turbulence, following deregulation. They found that in California competitive actions led to further turbulence, whereas in Minnesota actors from different fields (hospital, insurers, etc.) jointly worked to reduce turbulence - taking field-level initiatives in the spirit of the 3rd strategic stance. Ramirez and Mannervik (2016) took the ‘value-creating system’ of a single organisation as their unit of analysis. Our reading of our watch-making field data suggests that a confusion may emerge where in the one case, collaboration refers to field-level initiatives whereas in the other case it refers to organization-level initiatives. In both studies, inter-field collaboration is called upon, but in one study this collaboration reinforces the whole field’s joint capacity to cope with turbulence, whereas in the other it reinforces only the single

organisation's capacity to cope. The first form is exemplified by the Minnesota healthcare case (Selsky et al. 2007), by joint initiatives like industrial symbiosis districts, and by those tackling issues like circular economy or climate change (Sempels and Hoffmann, 2013). The TAG Heuer Connected case studied here, like the Scania case in Ramirez and Mannervik (2016), exemplify the second form. We thus suggest that this strategic stance can be taken at least in three levels of analysis: by a single organization, by a small set of organizations which comprise an inter-organizational network (Astley and Fombrun, 1983), and at the level of the field as a whole. The same level of analysis distinction should also apply for the two other strategic stances.

In conclusion, in our empirical research of socio-ecological strategizing in the current turbulent condition of the Swiss watch-making field, we find evidence for the strategic stances 'preparation' and 'relocation' at the organization, inter-organizational network and field levels, but only at the organization and inter-organizational levels for the 'reinventing collaboration' stance, as is expressed in table 11.

		<i>Level of Analysis</i>		
		<i>Organization</i>	<i>Inter-Organizational Network</i>	<i>Field</i>
Strategic Stance	Preparation	Acquisition of manufacturing companies by the large groups (eg. Swatch Group, LVMH, Hermès)	Joint lobbying with internal governance unit (FH) for the <i>Swissness</i> legislation	Actions of Federation of Swiss Watch Industry to promote and protect 'Swiss Made' label
	Relocating	Framing Swiss watches as <i>mechanical</i> watches at the organization level (eg. Swatch Group, Patek Philippe)	Framing Swiss watches as <i>mechanical</i> watches at the inter-organizational network level (e.g. via FH actions)	Framing Swiss watches as <i>mechanical</i> watches at a field level; <i>Swissness</i> legislation
	Reinventing collaboration	Frederique Constant, Slyde and Swatch (locally connected) smart watches	TAG Heuer Connected Watch developed with Intel and Google; HYT and Helbling Technik	

Table 11: Examples of Strategic Stances in the Swiss Watchmaking Field in Turbulence

5.2 Contributions to field theory

We also found that the framing-reframing contention in turbulence involved incumbents favouring an 'intra-field' reframing centred on the legacy technology of mechanical movements which would work in conditions enabling field re-emergence (Raffaelli, 2018); whereas challengers like TAG Heuer favoured an 'inter-field' reframing centred in the emerging technology of connected watches.

Fligstein and McAdam (2012) brought to the fore that relations between multiple strategic action fields can be of three types: a) unconnected, b) hierarchical or dependent, and c) reciprocal or interdependent. In relation to the emergence of connected watches in our empirical case study, actors in the Swiss watchmaking field appear to have evolved in framing their relations with microprocessors and operational system manufacturers from the unconnected to the interdependent type (eg. TAG Heuer). Incumbents framed the type of relations between these two strategic action fields in a different manner and acted accordingly. The stakes were indeed high because this change of frame had large strategic and operational implications.

This is consistent with Delmestry and Greenwood (2016) results in as much as we have found that an inter-field locus of reframing is suitable for a peripheral organization in a categorization effort. This appears to be strategically critical in conditions of strong legacy technologies (e.g. combustion engines), where conditions of lock-in are present but which face turbulence.

It remains to be explored what might be the role of field-configuring events (Moeran and Pedersen, 2013; Suyash and Raven, 2016) in framing-reframing contention, particularly in the actions of field invaders. Our evidence shows that neither the BaselWorld nor SIHH events hosted so far have been venues for major launches of connected watches – the field as a whole appears incapable of, or disinclined, to do field-level reframing. On the contrary, these events have acted more as an echo chamber of the dominant frame of the legacy technology.

Also, our research extends Fligstein and McAdam (2012) theory and Ramirez and Selsky (2016) strategic stances. It does so by showing that, in certain situations, the study of field transformation needs to integrate the central role a legacy technology plays in framing contentions. This result seems of interest in the context of studies focusing on technological forecasting and social change.

In coherence with Fligstein and McAdam (2012), we also demonstrated that an internal governance unit without a mandate from its main constituencies cannot be of much help in these conditions. In discussing with senior executives of the IGU about the interest of undertaking initiatives to engage with these turbulent conditions (eg. scenario planning), it became clear to the authors that such an initiative could only be undertaken with the approval of its main constituencies, as there is no mandate for the IGU to engage in it by itself. On the contrary, incumbents in the field do not see a reason for

undertaking initiatives that they can undertake internally and resist initiatives that, even if they could strengthen the field as a whole, could potentially reinforce companies they would be willing to acquire given their clout. The Swiss Watchmaking is an example where “lower strategic action fields exert strong control over the higher order fields” (eg. Leifer, 1995), where the field main incumbents strongly influence the action and scope of FH.

These results contribute to current organization research on category building and institutional maintenance. Delmestry and Greenwood (2016) explored the constitution of new product categories by showing how grappa elevated its status. They proposed ‘theorization by allusion’ as the process by which grappa emulated and eventually detached itself from other high-status categories like cognac. This research may inform whether the smartwatch will be able to convey a viable alternative to the status evoked through mechanical watches. What is the process by which that ‘stigmatized’ technology could gain its ‘*lettres de noblesse*’? Would ‘theorization by allusion’ be a viable approach? Hybrids like TAG Heuer Connected aim to bridge this status divide but which ‘theorization’ processes correspond to such strategy? How might it co-evolve in face of opposition from the Swiss Watchmaking field dominant frame and actions?

Delmestry and Greenwood (2016) aimed to falsify the ‘heroic entrepreneur’ claim (p. 11) but found out that institutional entrepreneurs are necessary for the ‘theorization by allusion’ process to take place. Raffaelli (2018) brought evidence that Nicholas Hayek, founder of the Swatch Group, played a similar role during the quartz revolution. We demonstrate that Jean-Claude Biver is playing a comparable role as LVMH watch division CEO, by pioneering the development of the TAG Heuer Connected in collaboration with Google and Intel. Richard Mille (founder of the eponymous company), in the high-end spectrum, has also been playing such a role for the past two decades. Although, the ‘heroic entrepreneur’ runs counter to institutional theory doxa, it is possible that in conditions of turbulence, institutional entrepreneurs may play a more prominent role than has been thought to be the case.

6. Limits, Implications and Future Research Directions

As many in the Swiss watch-making field have been experiencing rising turbulence, some of our analyses remain incomplete and tentative; they are based on partial evidence and fragmented information. This is both a characteristic of, and a limitation of this study.

Another limit of our work is that like many institutional theory authors (Scott, 2001), we do not tackle the power dynamics nor the micro-foundation of social skill claimed as important by Fligstein and McAdam (2012) theory of fields. This remains to be tested in conditions of turbulence. Relatedly, an interesting research path is the analysis of nearness in the geographical versus in the social space (Barabasi, 2016). The Swiss watchmaking field is geographically concentrated in the areas of Geneva and the Jura Arc around Biel and La Chaux-de-Fonds. Even if in the recent past, challengers like Richard Mille and HYT brought innovations to the Swiss watchmaking by building relations with outside fields, this remained in the realm of the mechanical watch framing. It was from a well-known challenger in the field, Jean-Claude Biver, that came the ‘transgression’ of inter-field collaboration. This coheres with Candace, Lorenzen and Sapsed (2015) observation that innovation in the creative industries requires a certain level of legitimacy; it cannot come entirely from outside the field. Ramirez and Selsky (2016) claimed that in turbulent conditions scenario planning both complements competitive strategy by “framing strategic choices in multiple plausible imagined contexts” (p. 9) and can challenge and even change strategies. It remains to be empirically tested how in a turbulent context, scenario planning can play a role in federating actors from disjointed fields to take a collaborative stance to jointly reduce the turbulence for those who participate in it. We have tried to do so in Swiss watch-making and have not yet succeeded. Relatedly, Ramirez and Mannervik (2016) state that inter-field collaboration aiming to engage contextual factors can reshape field boundaries. Assessing this claim and the underlying process has yet to be done.

Given that uncertainty and turbulence seem to be a defining feature of a growing number of sectors and society (Ramirez and Wilkinson, 2016), the managerial relevance of our topic of study cannot be overstated. Besides exploring the above identified gaps in the literature, we see the value of this study in its broader exploration and articulation of the strategic stances available to actors in conditions of turbulence storming a given field.

We hope the insights presented here may be of help to the Swiss Watchmaking field. In ancient Greece, time was represented by two words: 'chronos' and 'kayros'. Chronos denoted chronological and linear time, which is the time watches tell. But kayros was considered to be a qualitative lapse in time manifesting a bifurcation moment where new possibilities arise. Kayros was the God of opportunity in Greek mythology, the youngest son of Zeus and a lover of Fortuna, often represented with wings and only one lock of hair. If you met Kayros, you could grab him there and then - but once he passed you, it was too late. Swiss watchmakers have for centuries excelled with chronos; we hope our results may help them to undertake initiatives to make sense and cope with turbulent environments so they do not miss Kayros.

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7. References

- Albert, S., Whetten, D. A. (1985) Organizational Identity. *Research in Organizational Behavior* 7, 263-295.
- Apple.com (2015) Link Bracelet available at https://www.apple.com/us_smb_78313/shop/product/MJ5J2ZM/A/42mm-link-bracelet retrieved 15 Mar 2017.
- Astley, W.G., Fombrun, C.J. (1983) Collective strategy: Social ecology of organizational environments, *Academy of Management Review* 8 (4) 576-587.
- Bain & Company and Fondazione Altagamma (2015) *Worldwide Markets Monitor*, Milan.
- Barabasi, A.-L. (2016) *Network Science*, Cambridge: Cambridge University Press.
- Bernard, M. New forms of coherence for the social engagement of the social scientist. In: Ramírez, R., Selsky, J., van der Heijden, K. (Eds.), *Business Planning for Turbulent Times: New Methods for Applying Scenarios* (2008) London: Earthscan, 65–84.
- Bilan (2014) Interview with Jean-Claude Biver, available at <http://www.bilan.ch/entreprises-les-plus-de-la-redaction/la-smartwatch-une-belle-opportunite-pour-la-suisse> retrieved 15 Mar 2017.
- Bilan (2015) L'horlogerie suisse traditionnelle à l'assaut des smartwatches! Apple Watch, available at <http://www.bilan.ch/techno-plus-de-redaction/lhorlogerie-suisse-traditionnelle-lassaut-smartwatches>, retrieved 16 March 2017.
- Bloomberg (2016a) Saving the Swiss watch industry - Again, 26 Jul 2016 available at <https://www.bloomberg.com/news/articles/2016-07-26/saving-the-swiss-watch-industry-again> retrieved 26 Jul 2016.
- Bloomberg (2016b) Richemont cuts send shockwaves from geneva to mountain valleys, 25 Nov 2016 available at <https://www.bloomberg.com/news/articles/2016-11-25/richemont-cuts-send-shockwaves-from-geneva-to-mountain-valleys> retrieved 15 Mar 2016.
- Boeker, W. (1991) Organizational Strategy: An Ecological Perspective, *Academy of Management Journal* 34 (3) 613-635.
- Bonvillian, W.B., Weiss, C. (2015) *Technological Innovation in Legacy Sectors*, Oxford: Oxford University Press.

Brandenburger, A., Nalebuff, B. (1996) Co-Opetition: A Revolution Mindset That Combines Competition and Cooperation, New York: Currency Doubleday.

Burgelman, R. (2005) Intel Corporation (A) The DRAM Decision, Case Study No.BP256A, available at <https://www.gsb.stanford.edu/faculty-research/case-studies/intel-corporation-dram-decision> retrieved 26 Sep 2017.

businessinsider.com (2014) Swiss watchmaker: The apple watch looks 'like it was designed by a student', 10 Sep 2014 available at <http://www.businessinsider.com/jean-claude-biver-apple-watch-2014-9?IR=T> retrieved 16 Jun 2016.

businessmontres.com (2015a) Dix bonnes raisons de penser que TAG Heuer a su tirer son épingle du jeu, 3 Dec 2015 available at www.businessmontres.com retrieved at 16 Jun 2016.

businessmontres.com (2015b), Les 10 stupidités sur les smartwatches qu'on espère bien ne plus jamais entendre en 2016, 10 Dec 2015 available at <https://www.businessmontres.com/article/et-pour-lannee-prochaine-2-les-10-stupidites-sur-les-smartwatches-quon-espere-bien-ne-plus-jamais-entendre-en-2016> retrieved 10 Dec 2015

businessmontres.com (2016), Pourquoi on se trompe de question à propos des montres connectées et comment on peut piloter ces montres connectées à l'œil et non au doigt, 1 Feb 2016 available at <https://www.sojh.ch/revue/2016-02-02-pourquoi-on-se-trompe-de-question-a-propos-des-montres-connectees> retrieved 14 Mar 2016.

businessoffashion.com (2015) Swatch is secretly stockpiling patents, 10 Dec 2015 available at <http://www.businessoffashion.com/articles/news-analysis/swatch-is-secretly-stockpiling-patents> retrieved 10 Dec 2015.

Cameron, K. S. (1986) Effectiveness As Paradox: Consensus and Conflict in Conceptions of

Candace, J., Lorenzen, M., Sapsed, J. (2015) The Oxford Handbook of Creative Industries, Oxford: Oxford University Press.

Compagna, D., Kohlbacher, F. (2015) The limits of participatory technology development: The case of service robots in care facilities for older people, Technological Forecasting and Social Change 93 19-31.

Comtesse, X. (2015), L'avenir de la montre suisse devrait etre la sante...mais c'est mal parti, Blog La Transition Sociétale 20 Dec 2015, available at <http://xcomtesse.blog.tdg.ch/archive/2015/12/20/1-avenir-de-la-montre-suisse-devrait-etre-la-sante-mais-c-es-272736.html> retrieved 15 January 2016.

Delmestry, G., Greenwood, R. (2016) How Cinderella Became a Queen: Theorizing Radical Status Change, *Administrative Science Quarterly*, 61 (4) 507-550.

DiMaggio, P., Powell, W. (1983) The iron cage revisited: institutional isomorphism and collective rationality in organizational fields, *American Sociological Review* 48 (2) 147-160.

Donzé, P. (2011) History of the Swiss Watch Industry: From Jacques David to Nicolas Hayek, Bern, Switzerland: Peter Lang AG.

Emery F.E., Trist E.L. (1965) The causal texture of organizational environments, *Human Relations* 18 (1) 21–32.

Fast Co-Design (2016) Google Could Beat Apple At Fashion—Just Like It Did Phones, available at <https://www.fastcodesign.com/3057935/google-could-beat-apple-at-fashion-just-like-it-did-phones>, retrieved 24 Mar 2017.

FH (2017) Swiss Watch Exports: World, February 2017 available at <http://www.fhs.swiss/eng/homepage.html> retrieved 20 April 2017.

Financial Times (2017) Swiss watches risk becoming antiques, 29 Mar 2017 available at <https://www.ft.com/content/0ff2327e-13bf-11e7-80f4-13e067d5072c> retrieved 29 Mar 2017.

Financial Times (2018) Jean-Claude Biver: shrewd timing helped face down crisis, 4 Feb 2018 available at <https://www.ft.com/content/74d43e36-051c-11e8-9650-9c0ad2d7c5b5> retrieved 4 Feb 2018.

Fitbit (2017) Fitbit Reports \$574M Q416 and \$2.17B FY16 Revenue, Sells 6.5M devices in Q416 and 22.3M devices in FY16 available at <https://investor.fitbit.com/press/press-releases/press-release-details/2017/Fitbit-Reports-574M-Q416-and-217B-FY16-Revenue-Sells-65M-devices-in-Q416-and-223M-devices-in-FY16/default.aspx> retrieved 20 Apr 2017.

Fligstein, N., McAdam, D. (2012) A theory of fields, Oxford: Oxford University Press.

Forbes (2016) How older and younger millennials differ in their approach to online privacy and security, 13 Apr 2016 available at <https://www.forbes.com/sites/kevinmurnane/2016/04/13/how-older->

[and-younger-millennials-differ-in-their-approach-to-online-privacy-and-security/#222ddbbf9aa3](#)

retrieved 13 Apr 2016.

Fossil Group (2017) Fossil Group Form 10-K 2016, available at <https://www.fossilgroup.com/wp-content/uploads/2017/03/FOSL-2016.12.31-10K-Final-w-exhibits.pdf> retrieved 12 Jul 2017.

Freeman, J., Boeker, W. (1984) The ecological analysis of business strategy, *California Management Review*, 26 (3) 73-110.

Gawer, A., Cusumano, M. A. (2008) How companies become platform leaders, *MIT Sloan management review*, 49.

Glasmeier, A. (1991) Technological discontinuities and flexible production networks: The case of

Gomelsky, V. (2016) Independent Watch Brands Most at Risk in the Downturn, *The International New York Times*, 18 Jan 2016.

Granovetter, M. (1985) Economic action and social structure: the problem of embeddedness, *The American Journal of Sociology* 91 (3) 481-510.

Hayek, N.G. (2014) *Au delà de la Saga Swatch*, Paris: Albin-Michel.

Hoffmann, J., Coste-Manière, I. (ed.) (2012) *Luxury Strategy in Action*, London: Palgrave-Macmillan.

Hoffmann, J., Hoffmann, B. (2012) The PIER framework of luxury innovation *in* Hoffmann, J., Coste-Manière, I. (ed.) (2012) *Luxury Strategy in Action*, London: Palgrave-Macmillan.

Hoffmann, J., Lecamp, L. (2015) *Independent luxury: the four innovation strategies to endure in the consolidation jungle*, London: Palgrave-Macmillan.

Iansiti, M., Levien, R. (2004) Strategy as Ecology, *Harvard Business Review* 82 (3) 1–11.

IDC (2017) *Wearables Aren't Dead, They're Just Shifting Focus as the Market Grows 16.9% in the Fourth Quarter*, According to IDC available at

<http://www.idc.com/getdoc.jsp?containerId=prUS42342317> retrieved 20 Apr 2017.

Lang, T., Ramirez, R. (2017) Building new social capital with scenario planning, *Technological Forecasting and Social Change*, *in press*, available online 8 July 2017.

Le Point Montres (2015) Apple, avec son Apple Watch, déjà numéro trois mondial... de l'horlogerie !

30 Oct 2015 available online at http://montres.lepoint.fr/magazine/magazine-29-10-2015-1977910_830.php retrieved 30 Nov 2015.

Le Temps (2017a) A quand le “Swiss made 2.0 », available at <https://www.letemps.ch/opinions/swiss-made-20>, retrieved 10 Mar 2018.

Le Temps (2017b) Pour l’instant, la nouvelle TAG Heuer connectée est «Swiss made», available at <https://www.letemps.ch/economie/linstant-nouvelle-tag-heuer-connectee-swiss-made>, retrieved 10 Mar 2018.

Leifer, E. (1995) *Making the Majors: The Transformation of Team Sports in America*. Cambridge, MA: Harvard University Press.

Lewin, K. (1952) *Field Theory in Social Science: Selected Theoretical Papers*, London: Tavistock.

Lincoln, E. G., Y. S. Guba (1985) *Naturalistic Inquiry*, London: Sage.

McCann, J., Selsky, J. (1984) Hyperturbulence and the Emergence of type 5 Environments, *Academy of Management Review* 9 (4) 460–470.

Moeran, B., Pedersen, J.S. (ed) (2013) *Negotiating Values in the Creative Industries: Fairs, Festivals and Competitive Event*, Cambridge: Cambridge University Press.

Morgan, G. (ed.) (1983) *Beyond method: strategies for social research*, London: Sage.

Navis, C., Glynn, M. A. (2010) How New Market Categories Emerge: Temporal Dynamics of Legitimacy, Identity, and Entrepreneurship in Satellite Radio, 1990-2005, *Administrative Science Quarterly*, 55 (3) 439-471.

Normann, R. (2001) *Reframing Business: when the Map Changes the Landscape*, Chichester: Wiley. *Organizational Effectiveness*, *Management Science* 32 (5) 539-553.

Pogue, D. (2013) A Watch That Sinks Under Its Features, *The New York Times*, 3 Oct 2013.

Porter M. (1995) *Competitive Advantage*, Boston: Harvard Business School Press.

Prigogine, I. (1996) *The End of Certainty: Time, Chaos, and the New Laws of Nature*, Toronto: The Free Press.

Provan, K.G., Fish, A., Sidow, J. (2007) Interorganizational Networks at the Network Level: A Review of the Empirical Literature on Whole Networks, *Journal of Management* 33 (3) 479-516.

Raffaelli, R. (2018) *Technology Reemergence: Creating New Value for Old Technologies in Swiss Mechanical Watchmaking, 1970-2008*, *Administrative Science Quarterly*, available online 16 May 2018.

Ramirez, R., Mannervik, U. (2016) *Strategy for a networked world*, London: Imperial College Press.

Ramirez, R., Selsky, J. (2014) Strategic planning in turbulent environments: a social ecology approach to scenarios, *Long Range Planning* 49 (1) 90-102.

Ramírez, R., Selsky, J., Van der Heijden, K. (eds) (2008) *Business Planning for Turbulent Times*, 2nd ed. 2010, London: Earthscan.

Ramírez, R., Van der Heijden, K. (2007) Scenarios to develop strategic options: a new interactive role for scenarios in strategy. In: Sharpe, W., Van der Heijden, K. (Eds.), *Scenarios for Success: Turning Insights into Action*, Chichester: Wiley.

Ramirez, R., Wilkinson, A. (2016) *Strategic Reframing: The Oxford Scenario Planning Approach*, Oxford: Oxford University Press.

RTS (2015) La smartwatch de Tag Heuer, Intel et Google "sera à 90% suisse", available at <https://www.rts.ch/info/sciences-tech/6635155-la-smartwatch-de-tag-heuer-intel-et-google-sera-a-90-suisse-.html> retrieved 15 Mar 2017.

RTS (2016) Interview with Jean-Claude Biver, available at www.rts.ch/play/tv/le-journal-du-matin/video/invite-de-la-redaction-jean-claude-biver?id=7444286 retrieved 15 Mar 2017.

Schön D A. (1984) *The Reflective Practitioner: How professionals think in action*, New York: Basic Books.

Scott, W. R. (2001) *Institutions and Organizations*, 2nd ed. Thousand Oaks, CA: Sage.

Selsky, J.W., Goes, J., Baburoglu, O.N. (2007) Contrasting perspectives of strategy making: applications in 'Hyper' environments, *Organization Studies* 28 (1) 71–94.

Sempels, C., Hoffmann, J. (2013) *Sustainable innovation strategy*, London: Palgrave-Macmillan.

Smets, M., Morris, T., Greenwood, R. (2012) From practice to field: a multilevel model of practice-driven institutional change, *Academy of Management Journal* 55 (4) 877-904.

Stiehm, J.H., Townsend, N.W. (2002) *The U.S. Army War College: Military Education in a Democracy*, Philadelphia (PE): Temple University Press. p. 6.

StrategyAnalytics (2016) Global Smartwatch Shipments Overtake Swiss Watch Shipments in Q4 2015, 18 Feb 2016.

Suyash, J., Raven, R.P.J.M. (2016) Field configuring events shaping sustainability transitions? The case of solar PV in India, *Technological Forecasting and Social Change* 103, 324-333.

Switzerland and the world watch industry, *Research Policy* 20 (5) 469-485.

tdg.com (2015) Une montre connectée pour quoi faire?, available at <https://www.tdg.ch/economie/montre-connectee/story/25088839?track> retrieved 16 Mar 2017.

TechCrunch (2014) If Switzerland is Fucked, then the iWatch is too, available at <https://techcrunch.com/2014/09/07/if-switzerland-is-fucked-then-the-iwatch-is-too/> retrieved 16 Mar 2017.

The Economist (2016a) Uberworld, 3 Sep 2016, available at <http://www.economist.com/news/leaders/21706258-worlds-most-valuable-startup-leading-race-transform-future> retrieved 20 Apr 2017.

The Economist (2016b) Management theory is becoming a compendium of dead ideas, 17 Dec 2016, available at <http://www.economist.com/news/business/21711909-what-martin-luther-did-catholic-church-needs-be-done-business-gurus-management> retrieved 20 Apr 2017.

The Guardian (2015) Swatch CEO: Apple Watch is ‘interesting toy’ that can’t last more than 24 hours, 24 Aug 2015 available at <http://www.theguardian.com/technology/2015/aug/24/swatch-ceo-apple-watch-interesting-toy> retrieved 16 Jun 2016.

TIL Associates (2016) Swiss watch brands by price positioning (retail) and by group, Internal Report.

Timmermans, S., Tavory, I. (2012) Theory construction in qualitative research from grounded theory to abductive analysis, *Sociological Theory* 30 (3) 167-186.

Tom’s Guide (2016) Une smartwatch Hublot, pour bientôt ? 3 avr 2016 available at <http://www.tomsguide.fr/actualite/montre-connectee-hublot,50729.html> retrieved 3 Jun 2016.

Tripsas, M. (2009) Technology, Identity, and inertia through the lens of the digital photography company, *Organization Science* 20 (2) 441-460.

Van de Ven, A., Polley, D. E., Garud, R., Venkataraman, S. (1999) *The Innovation Journey*, New York: Oxford University Press.

Vontobel Equity Research (2015) Vontobel Luxury Goods Shop - Watch Industry, Zurich.

- Wareable (2016) Tim Cook: Apple is the No.2 watchmaker in the world (behind Rolex) available at <https://www.wareable.com/apple/watch-sales-rolex-tim-cook-556> retrieved 20 April 2017.
- Wareable (2017) Swatch will launch its 'Swiss OS' with a Tissot watch in 2018, 16 Mar 2017 available at <https://www.wareable.com/smartwatches/swatch-swiss-os-announced-3903> retrieved 16 Mar 2017.
- Wilkinson, A., Eidinow, E. (2008) Evolving practices in environmental scenarios: a new scenario typology, *Environmental Research Letters* 3 (4) 1-11.
- Wired (2015) Fossil's new smartwatches favor fashion over tech, 24 Nov 2015 available at <http://www.wired.com/2015/11/fossil-q-founder-smartwatch/> retrieved 30 Nov 2015.
- Whittington R. (2006) Completing the practice turn in strategy research, *Organization Studies* 27 (5) 613–634.
- Yin, R.K. (1984) *Case study research: design and methods*, London: Sage.
- Zietsma, C., Lawrence, T. B. (2010) Institutional work in the transformation of an organizational field: the interplay of boundary work and practice work, *Administrative Science Quarterly* 55 (2) 189-221.