

# Field-Level Paradox and the Co-Evolution of an Entrepreneurial Vision

Ryan Raffaelli  
Richard DeJordy

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Ryan Raffaelli  
Harvard Business School

Richard DeJordy  
California State University

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ENTREPRENEURIAL VISION**

**Ryan Raffaelli**

Assistant Professor of Business Administration  
Harvard Business School  
Organizational Behavior Unit  
[r Raffaelli@hbs.edu](mailto:r Raffaelli@hbs.edu)

**Richard DeJordy**

Assistant Professor  
California State University, Fresno  
Management Department  
[dejordy@csufresno.edu](mailto:dejordy@csufresno.edu)

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## ABSTRACT

This paper examines how entrepreneurs embrace field-level paradoxes in order to adapt and preserve aspects of a field's past success in the wake of technological change. Drawing on the decline and rise of Swiss watchmaking in response to competition from less expensive quartz watches from Japan, we characterize how field-level paradoxes can foster adaptation after an environmental jolt. Prior research has focused on organizational-level paradox management; by contrast, we induce a set of four paradoxes at the field level: two based in tensions over material aspects of the field (paradoxes of production and profit) and two whose tensions are substantively symbolic in nature (paradoxes of the profession and the past). Grounded in ethnographic interviews, archival data, and immersive field work, our model and findings trace how two actors influential in the evolution of the field – Nicolas Hayek and Jean-Claude Biver – each created an organization that embraced a pair of paradoxes in the material and symbolic realms respectively. Unexpectedly, the subsequent merger of these organizations triggered accommodation of these paradoxes via various dialectics. We advance a novel process whereby leaders who accommodate cross-realm paradoxes and divergent visions can establish templates that allow for field adaptation through sustained paradox.

**Keywords:** paradox theory, field-level analysis, dialectics, field adaptation

### *1980s*

*Jean-Claude Biver*: “In a mechanical watch you buy beauty, you buy emotion, you buy a status symbol.”

*Nicolas Hayek*: “The only way to survive is to have [quartz] watches in the middle and lower end.”

### *2000s*

*Jean-Claude Biver*: “The Swiss watch industry was saved because of quartz watches.”

*Nicolas Hayek*: “[Mechanical] mechanisms...captured my heart and my imagination.”

The early 1980s witnessed the height of what industry insiders called the “quartz crisis” in Swiss watchmaking—the perceived threat that mass-produced, lower-cost, more accurate quartz watches from Japan posed to the survival of Swiss watchmaking. The first pair of quotations above captures the initial strategic responses of two influential leaders, Jean-Claude Biver and Nicolas Hayek. Biver, a champion of Swiss craftsmanship, articulated a vision of the future that would honor the past; Hayek, whose industrialist perspective embraced technological change, expressed a vision untethered to the traditions of mechanical watchmaking. The two perspectives seemed incompatible; their champions both appeared intractable.

The more recent pair of quotations suggests that the two leaders reversed their initial stances. In actuality, both men’s thinking shifted from narrow, focused strategies to a broader, accommodating vision that presaged the evolution of the entire field. As other organizations began to adopt this broader vision, the result was neither the stronghold of traditional mechanical purity initially envisioned by Biver nor the embodiment of modern industrial efficiency previously advanced by Hayek. This study explores the roles of these seemingly incompatible visions and their champions, and traces how the field sustained contradictory tensions that subsequently enabled its survival and regeneration.

Swiss watchmaking appears to embody the classic strategic paradox created by the introduction of a new technology: the choice between resisting and defending, or embracing and prospecting (Hambrick, 1982; Miles & Snow, 1978; Smith, 2014). This set of choices represents

the strategic stances available to a field facing the introduction of a discontinuous technology (Tripsas, 2009; Tushman & Anderson, 1986). At the field level, research usually frames divergent strategic visions as incompatible, setting up an either/or choice or a win/lose scenario (e.g., Fox-Wolfgramm, Boal, & Hunt, 1998; Greenwood & Suddaby, 2006; Hiatt, Sine, & Tolbert, 2009). This does not happen in our case. As the second set of quotations demonstrates, each vision not only remained salient but was ultimately championed by its would-be nemesis. Such eventual mutual accommodation attests to how two influential leaders, and eventually the field as a whole, settled on an arrangement that embodied a “collection of contradictory yet interrelated elements that exist simultaneously and persist over time” (Smith & Lewis, 2011: 392), or a “paradox.”

Scholarly adherents of paradox theory have tended to focus on intra-organizational paradoxes rather than field- or institutional-level ones (Smith & Tracey, 2016; Tracey & Creed, 2017). Despite some exploration of paradox at the dyadic level (e.g., Bengtsson & Raza-Ullah, 2017), its manifestation at the field level has not received significant empirical attention (Smith & Tracey, 2016). But a field’s wider range of embedded elements—from agents to audiences, from meaning to materials—offers considerable potential for tensions and contradictions, making it fertile ground for paradoxes. Fields are “socially constructed arenas within which actors with varying resource endowments vie for advantage” (Fligstein & McAdam, 2011: 3), a definition that succinctly captures the field of Swiss watchmaking. Geographic and economic embeddedness fostered by frequent and fateful interactions (Scott, 1994) among Swiss watchmakers— as well as history, culture, traditions, and practices—have infused the field with

shared values (Selznick, 1957).<sup>1</sup> Facing the threat that quartz technology posed to its future viability, many actors began to question whether Switzerland's past dominance in watchmaking would prove to be an asset or a liability. In this context, we ask: What role does paradox play in a field's adaptation to a discontinuous technological shock?

By definition, paradoxes persist over extended periods of time (Smith & Tracey, 2016). The sustained strategic contradiction exemplified by our two pairs of quotations spanned nearly three decades, and thus makes Swiss watchmaking particularly well suited to a study of field-level paradox. Neither initial vision triumphed; Swiss watchmakers eventually settled on arrangements characterized by contradictory but mutually reinforcing arrangements. In fact, it was actors' "lived" experiences of tension between these two orientations, and their underlying meanings and values, that built a foundation for the Swiss to reclaim their industry dominance. Organizational and individual actors experienced this tension as provocation to negotiate about, among other things, the role and meaning of history, emotion, and tradition in the future of Swiss watchmaking.

Using data from extensive ethnographic interviews, participant observation, and archival records, we induce a set of novel "field-level" paradoxes (Smith & Tracey, 2016: 455) experienced by Swiss watchmakers that elicited competing visions within the community. These competing visions eventually became manifest in organizational paradoxes; we thus examined how new arrangements that sustained tensions within organizations became established and normalized, and in turn diffused throughout the field via institutional mechanisms. By tracing this process, we make three broad contributions. First, we induce a set of uniquely field-level

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<sup>11</sup> Fields do not always conform to the same organizing principles as industries. For example, the watchmaking *industry* consists of all watchmakers throughout the world (e.g., Switzerland, China, Japan), but actors in the *field* of Swiss watchmaking adhere to more specific norms because of shared geographic boundaries and cultural norms. Nonetheless, the Swiss typically refer to themselves colloquially as members of "the Swiss watchmaking industry."

paradoxes and show that they are usefully understood as spanning two realms: paradoxes of production and profit embodying tensions around the allocation and utilization of *material* resources, and paradoxes of the profession and the past that manifest tensions over *symbolic* aspects of the field. Second, we trace how two prominent actors initially addressed material and symbolic paradoxes separately but subsequently brought the two into mutual accommodation. We thus introduce a field-based perspective (e.g., Scott, 1994; Zietsma, Groenewegen, Logue, & Hinings, 2017) to paradox theory, particularly in “conceptualizing the role of the environment” (Smith & Tracey, 2016: 460) by exploring the variety of embedded actors’ experience of paradox. Finally, we bring a paradox perspective to institutional research by exploring how actors translate tensions in interests and agency (DiMaggio, 1988) into field-level responses. We examine the parallel evolution of entrepreneurial visions (Battilana, Leca, & Boxenbaum, 2009), and custodial visions (Dacin, Dacin, & Kent, 2019) for a field, and how contradictory views can amalgamate into a shared vision that propagates paradox and promotes institutional change and stability. We thus provide a model for how sustained field-level paradoxes can simultaneously adapt to environmental change and preserve valuable aspects of a field.

### **PARADOX THEORY AND FIELD ADAPTATION**

Paradox theory addresses management of “a collection of contradictory yet interrelated elements that exist simultaneously and persist over time” (Smith & Lewis, 2011:382), and the adoption of both/and versus either/or strategies, decision making, and mindsets. To quote Smith and Lewis (2011:281), paradox theory explores “choices between exploration and exploitation (i.e., Tushman & Romanelli, 1985), cooperative and competitive (Deutsch, 1968), mechanistic and organic (Burns & Stalker, 1961), and centralized and decentralized (Siggelkow & Levinthal, 2003).” Though exogenous jolts (Meyer, 1982; Sine & David, 2003) often compel adaptation,



paradox researchers have focused on the organization as their level of analysis; most empirical work addresses paradoxes within organizational boundaries (Smith & Tracey, 2016; Tracey & Creed, 2017; see Jarzabkowski, Bednarek, Chalkias, & Cacciatori, 2019, for an exception).

Organization theories oriented toward field-level dynamics tend not to incorporate paradox explicitly. Alternatively, institutional theory has embraced the organizational field as a preferred level of analysis (DiMaggio & Powell, 1983): though a considerable literature examines intra-organizational processes and outcomes, the influence of field-level forces as explanatory mechanisms is central to research in this stream (DiMaggio & Powell, 1991). Although institutional theory does not engage paradox theory explicitly, a long tradition explores contradiction (e.g., Seo & Creed, 2002), the multiplicity of institutional forces (e.g., D'Aunno, Sutton, & Price, 1991; Zilber, 2002), and value pluralism (e.g., Kraatz & Block, 2008). More recently, researchers have employed the rubric “institutional complexity” (Greenwood, Raynard, Kodeih, Micelotta, & Lounsbury, 2011) to denote conditions of and responses to multiple conflicting or contradictory institutional forces or logics (Thornton, Ocasio, & Lounsbury, 2012). As Smith and Tracey point out, “While both institutional complexity and paradox theory explore how organizations address competing demands, their underlying assumptions and approaches diverge” (2016: 456). We believe that these divergent approaches can jointly foster future research and a better understanding of the experience of paradox across multiple levels of analysis, including field-level paradoxes.

### **The Implications of Paradox Theory for Field Adaptation**

Smith and Lewis (2011), reviewing the literature on paradox theory, attribute organizational tensions to four distinct activities that constitute organizational life: belonging, learning, organizing, and performing. Below, in keeping with recent calls to do so (e.g., Smith

and Tracey, 2016), we will review the paradox research that is most relevant to field adaptation and that affords the best opportunities for extending paradox theory to the field level of analysis. In particular, we will focus on paradoxes of belonging and learning.

Paradoxes of belonging entail issues of membership in a collective and the implications of such membership. Such paradoxes can involve tensions between individuals' values and those of the organization, playing out at the individual or organizational level. From one perspective, as in Dutton and Dukerich's (1991) classic study of the Port Authority of New York and New Jersey, paradoxes of belonging triggered organizational change when the organization's image conflicted with individual values. Alternatively, Ibarra (1999) offered insights into individual-level responses to paradoxes of belonging, suggesting that professionals engage such tensions by adopting "provisional selves" during organizational and professional transitions.

Such paradoxes of belonging are rooted in tensions that arise from social embeddedness, such as in an organization or a profession. Membership raises issues of consistency, in terms of behaviors and values, with respect to the self and the collective (Ethier & Deaux, 1994; Festinger, 1957; Heider, 1946). In contrast to the "real world experiences of tensions" (Smith & Tracey, 2016:461) in terms of belonging that actors often face in organizations, little work has explored individuals' experiences of paradoxes of belonging arising from field-level embeddedness, in part because those experiences are likely to be partially mediated by one's organizational context (Dejordy & Creed, 2016). A field perspective on the paradoxes of belonging would be useful for exploring the mechanisms by which fields reshape their boundaries (Zietsma & Lawrence, 2010) and redefine membership criteria, field composition, and professional values (Rao, Monin, & Durand, 2003; Van Wijk, Stam, Elfring, Zietsma, & Den Hond, 2013). Some work in institutional theory does acknowledge these tensions, but it

typically adopts a normative stance. By exploring how actors—either entrepreneurs or custodians—work to reduce or eliminate these tensions, a paradox perspective on field adaptation could offer insights into the challenges of balancing tensions between preservation and change throughout a community.

Other paradoxes of belonging deal with consistency over time, or coherent linkage of the past with the present and future, as examined in Chreim's (2005) work on change and continuity in organizational identities. In the case of a profession, Nelson and Irwin (2014) trace how membership and professional norms created a paradox for librarians in the face of technologies that changed the nature of information search, requiring the profession to adopt new norms. Their work also captures tensions inherent in the half-life or expiration date of knowledge relevant to organizations, which may vary with the rate of environmental change or exogenous jolts (Meyer, 1982). The necessity of applying current knowledge to organizational processes while simultaneously striving to supplant it to build new capabilities is well documented (Lewis, 2000). Research on managing such processes covers a range of empirical contexts, from new-product development (e.g., Andriopoulos & Lewis, 2009; Leonard-Barton, 1992) to creative industries (e.g., Knight & Harvey, 2015). Research in this sphere explores tensions between prospective and protective approaches to knowledge (Sollosy, Guidice, & Parboteeah, 2019), between promoting novelty and promoting conformity, and between striving simultaneously to replace and to improve.

March's (1991) work on exploration and exploitation is widely credited with articulating the paradox of organizational learning, which essentially entails learning from the past while making it obsolete through new learning (Smith & Lewis, 2011). This paradox embodies negotiating tensions between, for example, "learning-by-doing" that leverages existing

knowledge and competence-destroying learning (such as radical process substitution), while engaging in both (Tushman & Anderson, 1986) in pursuit of continuous and episodic organizational change simultaneously (Weick & Quinn, 1999). One particularly fruitful stream of research is organizational ambidexterity (Andriopoulos & Lewis, 2009), which often links learning with organizing: research in this stream investigates structures that integrate paradoxical strategies (Smith & Tushman, 2005), their simultaneous adoption (Tushman & O'Reilly, 1996), or to vacillate among them for optimal performance (Boumgarden, Nickerson, & Zenger, 2012).

From a field perspective, learning is often manifest in studies of diffusion, although the distinction between exploration and exploitation is not as clear. Davis's (1991) study of the spread of poison-pill policies through the corporate interlock tracks a form of field-level learning in response to a spate of hostile takeovers. Such diffusion represents a form of exploitation, or leveraging, of a "best practice" throughout the field to preserve traditional values. At the same time, it also represents the exploratory mechanisms that characterize a field experimenting with practices that might be adopted—often with local translation or bricolage—by organizations for which they represent innovations (Davis & Marquis, 2005; Raffaelli & Glynn, 2014).

Alternatively, research on entrepreneurial ecosystems (e.g., Spigel, 2017), various forms of alliances (Sytch & Tatarynowicz, 2014), and knowledge networks resulting from human-resource flows (Owen-Smith & Powell, 2004) also represent a form of field learning. Common to field-level work on learning is a focus on structures that facilitate creation and diffusion of knowledge, both within and across a field composed of heterogeneous actors and interests (Fligstein & McAdam, 2011). We posit that a focus on field-level learning paradoxes can help scholars understand how inter-organizational relationships and structures promote (or inhibit) the spread of learning and of best practices during periods of field transformation.

## **Opportunities to Combine Perspectives**

To explore paradox at the field level requires a shift to a theoretical perspective grounded in that level of analysis. The notion of a “field” has historical roots in institutional theory, and offers a unique opportunity to “view actors in [their] context” (Davis & Marquis, 2005: 337). Field-level analysis also draws on institutionalism’s longstanding tradition of recognizing contradictions (Seo & Creed, 2002), pluralism (Kraatz & Block, 2008), and complexity (Greenwood et al., 2011). We affirm recent assertions that paradox and institutional theories offer complementary approaches to the experience of tensions and contradiction that, taken together, can inform our understanding of paradox across levels of analysis. As Smith and Tracey (2016:450) observe, “Institutional theory has the potential to support paradox theorists’ understanding of tension salience by providing a theoretical basis and vocabulary for conceptualizing the role of the environment.” Building on this point, we propose that institutional theory provides a valuable perspective on how field-level complexities (Greenwood et al., 2011) translate into tensions manifest in (and mediated by) organizational actors’ experiences. Combining the perspectives of paradox theory and institutional analysis can, in our view, advance a deeper understanding of three dynamics associated with field-level adaptation.

First, the central place that institutional theory assigns to history (Hughes, 1936) makes it particularly well suited to questions about how traditional values and practices can create tensions in the face of changes in a field. A recent turn toward “inhabited” perspectives of institutions (Hallett & Ventresca, 2006) has focused scholarly attention on the pragmatic experiences of actors in their institutional contexts. Work in this stream tends to explore actors’ experiences of their institutional contexts through field observations and ethnography (Zilber, 2014); such inductive approaches to the lived, or inhabited, experiences of actors may also create

opportunities for researchers to “further explore the everyday experience of [paradoxical] tensions in organizations by the actors who inhabit them” (Smith & Tracey, 2016: 461).

Alternatively, a combined perspective that opens up research on institutional work (Lawrence & Suddaby, 2006) to insights from paradox theory could bring the latter’s complement of cognitive, behavioral, and emotional responses to bear on how actors inhabit their institutional contexts (Lok, Creed, DeJordy, & Voronov, 2017) as they respond to competing demands.

Second, work on robust action (Ferraro, Etzion, & Gehman, 2015; Padgett & Ansell, 1993) suggests that socially skilled actors (Fligstein, 1997) are able to build coalitions within a field by bringing to light ambiguity, multivocality, and latent tensions. Research in this area focuses on the normative value of such action when tackling grand social challenges, such as poverty alleviation and social injustices (e.g., Jarzabkowski, Bednarek, Chalkias, & Cacciatori, 2019; Tracey & Creed, 2017), and acknowledges that such action can enable field-level learning. But scholars have yet to explore how agency and paradoxes at the field level can affect more management-related performance outcomes. For example, in contexts coping with the introduction of a discontinuous technology, an appreciation for field-level paradoxes could offer practical insights into how actors manage tensions associated with premature selection of a new dominant design (Anderson & Tushman, 1990). It also seems likely that paradox theory could enhance our understanding of how organizational actors enable transformational mechanisms that amplify or diffuse individual agency throughout a field.

Third, recent work has exposed various mechanisms that enable multiplicity and complexity to persist at the field level. For example, Zilber (2011) examined the role of field-configuring events in enabling multiple—and often conflicting—institutions to coexist within the boundaries of one community. And Nicolini and colleagues (2016) explored how embedded

societal polities enabled conflicts to endure and recur over time. But scholars have yet to consider the role of paradox in complex, nested institutional environments (Holm, 1995). The potential for paradox is likely to increase as field complexity increases—whether as the result of explicit boundary work or of field evolution. A perspective that combines paradox theory with field-level analysis seems especially well suited to exploring this uncharted territory.

In sum, this paper examines how the experience and management of paradox at the field level advance the understanding of factors that influence field-level adaptation and change in response to an environmental jolt.

## **METHODS**

To address our research question, we employed a nested case study design (Yin, 2008). Our goal was *theoretical extension*, an analytical method proven effective for “broadening the relevance of a particular concept or theoretical system to a range of empirical contexts other than those in which they were first developed or intended to be used” (Snow, Morrill, & Anderson, 2003: 187). Specifically, we aimed to extend existing theory from the literature on organizational paradox to consider how field-level paradoxes emerge and persist (Jarzabkowski et al., 2019; Tracey & Creed, 2017) across inter-organizational boundaries as actors within a community respond to radical institutional and technological change. The embedding case is a 38-year historical analysis of the Swiss watchmaking community. Focusing on this single community’s multiple actors and organizations facilitated collection of data on its historical roots, professional norms, shared technological knowledge, and economic models. Given the Swiss watch community’s norms of secrecy vis-à-vis outsiders, we offer a unique view of paradoxical tensions in the field that influenced the unexpected revitalization of Swiss watchmaking following the introduction of quartz watch technology.

## Empirical Setting

The field of Swiss watchmaking underwent a cycle of decline and resurgence during the period of study. Swiss watches accounted for nearly 55 percent of the world’s export market (in terms of revenue)<sup>2</sup> in the 1970s, a figure that fell to roughly 30 percent the following decade; over the same period, unit volume fell in parallel from 45 percent to 10 percent of global supply (see Figures 1 and 2). Insiders referred to the initial period of decline following the introduction of quartz technology as “the quartz crisis”; it marked a near-collapse of over 200 years of Swiss watchmaking dominance (Glasmeier, 2000). Unlike mechanical watches that housed carefully manufactured and hand-assembled gears, balance wheels, and hairsprings, battery-powered quartz watches relied on a quartz crystal to turn vibrations into electric pulses to measure time; quartz watches were twenty times more accurate. The Swiss were arguably the first to invent quartz-watch technology, but Japanese firms entered the market and reduced the average price of a quartz watch by a factor of 100. By 1983, half of all Swiss watch brands had gone bankrupt and nearly two-thirds of Swiss watchmakers had lost their jobs (Perret, 2008).

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In 1983, export values and unit-production figures began to experience year-over-year growth again, fostered initially by the global success of the Swatch watch, an affordable and colorful quartz watch launched by Nicolas Hayek’s company Société de Microélectronique et d’Horlogerie (SMH, renamed “The Swatch Group” in 1998). Concurrently other watchmakers, including Jean-Claude Biver and his company Blancpain, began to reposition mechanical

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<sup>2</sup> Analysts track the size of the watch industry by *export value*, or the value that companies assign to their watches when they file with the government for export. Swiss watch companies sold approximately 95 percent of their watches outside Switzerland between 1970 and 2008.



watches as craft and luxury items sold at much higher margins; by 2002 sales of mechanical watches were the primary contributing factor to an unprecedented resurgence of Swiss watchmaking (Raffaelli, 2018). Both mechanical and quartz watchmaking had helped sustain the field, persisting side by side.

By 2008, as a result of combined demand for mechanical and quartz watches, Swiss watchmaking again accounted for 55 percent of global export values. Swiss watchmaking enjoyed a reputation for luxury and quality craftsmanship associated with ongoing mechanical watch production (Donzé, 2011b) even as, paradoxically, the majority of watches exported from Switzerland utilized quartz technology. This unexpected turn of events offered an intriguing scenario in which to analyze field-level contradictions and paradoxes that threatened the field's existing traditions, professional norms, capabilities, and economic models in the wake of a technological discontinuity (Tushman & Anderson, 1986).

The study begins in 1970, when the introduction of the first quartz timepiece delivered an environmental jolt to the status quo (Meyer, 1982) that forced the entire field of Swiss watchmakers to respond; it ends in 2008, the beginning of a global economic downturn whose exogenous effect on watch sales extended beyond the scope of this study.

## **Data**

We collected qualitative data from multiple organizations and actors, in a variety of locations. The primary data consist of 143 semi-structured interviews with Swiss watch executives, industry experts, and other influential actors. We selected participants whose involvement in the field collectively spanned the 38 years of our study; we elicited their lived experiences and perceptions of occurrences in the field. Sampling was theoretical rather than random (Glaser & Strauss, 1999), to ensure that we collected data from actors representing

various positions and perspectives across the field. To identify a broad pool of influential people and companies, we relied on two sources. First, one author made multiple visits to the National Association of Watch and Clock Collectors (NAWCC), one of the world's largest horology<sup>3</sup> archives, and contacted the Federation of the Swiss Watch Industry, a private non-profit professional association with over 500 members representing over 90 percent of Swiss watch manufacturers. Representatives of these two organizations provided a list of the companies and individuals they believed to be most relevant to our research. To ensure broad representation, we also interviewed union representatives, company historians, retailers, archivists, museum curators, fashion and luxury-brand executives, auction-house executives, watchmaking school administrators, heads of vintage collectors' associations, and Swiss government officials who had been embedded in the industry during part or all of the study period. In-depth interviews (Spradley, 1979) were conducted between 2010 and 2019; the average interview lasted 95 minutes. Thirty percent (n=43) of interviewees had begun their careers prior to 1990, 26 percent (n=37) between 1990 and 2000, and the remaining 44 percent (n=63) in 2000 or later.

We also performed several types of in-depth field observation. To be able to converse fluently with executives and watchmakers, one of the authors attended a watchmaking course at the NAWCC School of Horology; visited Baselworld, the industry's largest field-configuring event (Lampel & Meyer, 2008); and took private tours of nine Swiss watch factories. The same author also embedded himself for a week in the watch factory of Jean-Claude Biver. The company granted unrestricted access to Biver, his team, and the company's mechanical watchmaking production processes. The author interviewed long-time employees, mentors, business partners, and other industry actors who had worked directly with Biver; he also

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<sup>3</sup> Horology is the science of measuring time.

interviewed multiple individuals who had reported to or worked closely with former SMH CEO Nicolas Hayek (who died in 2010).

Archival data allowed for triangulation to help identify commonalities and differences in findings from different sources (Creswell, 2003). In addition to primary data, we gained access to 27 interviews with Swiss watch-company CEOs conducted by *TimeZone*, a leading industry news source. Later we obtained access to 91 articles about Hayek and Biver published in *Modern Jeweler* and *WatchTime*, two well-known industry periodicals. The editor-in-chief also provided original transcriptions of the associated interviews and reporters' hand-written notes. These interviews and articles, which appeared in print during the 38-year timeframe of our study, enabled us to check for recollection bias and to validate trends in our primary interview data.

Additional archival data included watch-production and employment figures, regulatory documents on "Swissness" trademark-protection policies, historical accounts of Swiss watchmaking, yearly industry certification standards, and auction houses' vintage-watch prices. Most of these data were hand-collected from archives in Europe and the United States.

### **Analytic Approach**

Our analytic approach employed methods of abduction (Behfar & Okhuysen, 2018; Peirce, 1955): we iterated between empirical data and established theoretical constructs for the purpose of facilitating "dialogue across fields and methods...to connote the dynamic processes by which theories emerge, change, and grow" (Snow et al., 2003: 185). The process consisted of several steps. First, during our initial coding of the interview data, we developed preliminary "thick" descriptive codes (e.g., Smith, 2014: 1597). As theoretical themes emerged, we began to familiarize ourselves with various field-level constructs associated with paradox theory (e.g., Smith & Lewis, 2011) and field adaptation (e.g., Hoffman, 1999; Meyer, 1982). This analysis

involved the use of a content analysis package to organize and examine interview and archival data iteratively; we cycled repeatedly between the data, existing theory, and emergent findings (Locke, 2001; Miles & Huberman, 1994). Doing so allowed us to generate a set of abstract and theoretical constructs linked to specific passages from interviews and archival sources by means of a set of nested codes. Specifically, we assigned passages to either preexisting theoretically identified codes or newly created first-order codes. These codes typically relied on language drawn directly from (or very similar to) the original source.

Next, we grouped our provisional first-order codes into broader themes and continued to categorize them theoretically. These theoretical categories helped us to identify constructs of interest in a process best described as axial coding (Locke, 2001). Simultaneously, we compared descriptive evidence with existing constructs and mechanisms identified in the literature. For example, we initially sought to examine how institutional entrepreneurs and custodians (Dacin et al., 2019; DiMaggio, 1988) respond to a technological discontinuity. As we explored how various actors in the Swiss watch community reacted to the quartz crisis, however, we noted several contradictions and tensions in the field as it attempted to define its technological capabilities, the meaning of its past, and the values it associated with the profession of Swiss watchmaking. These often-contradictory tensions came as a surprise, leading us to explore paradox theory as the primary orienting frame for our emergent findings.

In response to recent calls for theoretical and methodological attention to paradoxes and institutional fields (Smith & Tracey, 2016), we aimed to capture what Jarzabkowski and colleagues (2019: 128) call the “dynamically persistent and multi-faceted nature of paradoxes as they surface across time and space” by employing an approach of “zooming in and out” between the field and specific organizational actors. We recoded our data to identify common tensions

that actors throughout the field had mentioned, and also to identify organizational-level actors who espoused alternative visions for the field following the introduction of quartz technology. This process helped us synthesize our field-level perspective with paradox theory, particularly by “conceptualizing the role of the environment” embedded in actors’ experiences of various tensions (Smith & Tracey, 2016: 460). Ultimately, it led us to induce a set of field-level paradoxes (i.e., paradoxes of production, profit, profession, and the past).

In a third phase, we again recoded our interview and archival data to focus on two influential leaders within the field, Nicolas Hayek of SMH/Swatch Group and Jean-Claude Biver of Blancpain; we built case histories for both (e.g., Graebner & Eisenhardt, 2004) that summarized their key actions, decisions, and impact on the field as chronicled in our interview and archival data. This decision was grounded in our data, in that every interviewee mentioned Hayek or Biver when asked to identify individuals who had played a significant role in shaping the field of Swiss watchmaking during the period of our study. Subsequent analysis revealed a series of interactions between Hayek and Biver that evolved in a manner not fully theorized in work on how leaders influence field-level change (e.g., Battilana et al., 2009; Washington, Boal, & Davis, 2008). These insights led us to concentrate on identifying various *dialectics*, a concept advanced in paradox theory suggesting that contradictory and interrelated elements found within a paradox can “morph over time” (Smith and Tracey, 2016: 458). We returned to our data seeking specific dialectics and evidence of Hayek and Biver attempting to accommodate (i.e., morph) paradoxical elements embedded in their respective visions. We then coded how these dialectics had spread beyond their organizations by seeking similar themes in interviews with other actors and in articles about other organizations in the field.

Finally, we returned to the field to conduct a series of follow-up interviews and collect longitudinal archival data to validate our process model’s timeframes. Confirmatory interviews with influential actors and industry analysts present during the period of study served as member checks (Maxwell, 2012), corroborating our field-level paradoxes and our representations of Hayek and Biver and their impact on the field. This iterative process of data collection, analysis, and theory building generated our theoretical model.

## **FINDINGS**

Our data and analysis generated a process model that traces how field-level paradoxes are accommodated in the wake of a radical environmental and technological jolt (see Figure 3). The upper-left quadrant identifies four field-level paradoxes and contradictions that emerged in the Swiss watchmaking community after the introduction of quartz watch technology. It then articulates how two organizational actors with alternative visions, Nicolas Hayek of SMH and Jean-Claude Biver of Blancpain, confronted the crisis by creating new organizations that addressed separate field-level paradoxes (represented in the lower-left quadrant). After both SMH and Blancpain had proven viable, Hayek acquired Biver’s company. In retrospect, it is evident the two men began to create a joint vision by engaging in a series of dialectic debates about the merits of their respective visions. These interactions resulted in an accommodation of symbolic and material paradoxes (in the lower-right quadrant), and eventually defined a viable trajectory for SMH that also pointed the way for other Swiss watchmakers. In short, by embracing and sustaining field-level paradox, Hayek and Biver’s combined vision served as a template for broader field-level change (represented in the upper-right quadrant).

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## The Emergence of Field-Level Paradoxes

The 1970s quartz crisis called into question professional norms, technical capabilities, and economic models that had sustained the field of Swiss watchmaking for over 250 years (Glasmeier, 2000). Low-cost, highly accurate Japanese quartz technology had disproven a centuries-old axiom about watches: that increased accuracy equaled higher cost (Trueb, 2005). One senior executive, who worked at several watch companies and as a foreign-trade liaison for the industry during this period, described how the crisis permeated the entire field:

We saw ourselves on a pedestal for so long. When you said *watches*, everyone knew you meant Swiss, nothing else. No other country had really challenged us. Basically, watches meant Switzerland. The quartz crisis was really difficult. We didn't see it coming, and we were so shocked by what happened. The fact that we had to lay off thousands of people—we were 90,000 and then we were 33,000—it was enormous. There was no future.

As a local investment analyst put it, “Swiss companies had failed to understand that the rules of the game had changed” (Breiding, 2013: 43).

Several tensions emerged under the new quartz regime. Watch-company executives, manufacturers, school administrators, union leaders, and industry-association leaders all grappled with how the community should respond to the crisis. Our analysis unearthed several contradictions and tensions housed within the field. First, *material paradoxes*, which we coded as pertaining to the field's production and economic models (e.g., Meyer & Rowan, 1977; Moray & Clarysse, 2005), raised questions about which technologies and profit maximization strategies to maintain and which to abandon. Second, *symbolic paradoxes*, which we coded as pertaining to taken-for-granted professional norms and belief systems (e.g., Bévort & Suddaby, 2016; Lepoutre & Valente, 2012), called into question the meaning of Switzerland's traditions, practices, and historical success in watchmaking.

The resulting questions transcended any single organization, in part because of strong formal and informal interorganizational ties that had long linked actors in the field. From 1934 until 1971, the community had functioned as a cartel—supported by powerful Swiss government interventions, trade associations, and employee unions (Landes, 1983)—that coordinated all aspects of watch production. For decades such field-level interdependencies had facilitated strong ties. During the 1970s quartz crisis, these relational networks were reactivated to debate material and symbolic contributory factors to the crisis and paradoxically, which such factors it might be necessary to preserve for the field to survive. We will discuss these paradoxes below and offer supplemental quotes in the appendix.

*Material paradoxes of production and profits.* Archival and interview data pointed to two material-based paradoxes that emerged during the quartz crisis. First, a *paradox of production* led watchmakers throughout Switzerland to question the core technical capabilities and modes of production needed to support mechanical and quartz watch technology. In the words of an industry historian, “Although [the Swiss] were proud of having succeeded in conceiving and developing numerous electronic [quartz] watch prototypes, they did not yet possess a production model that would allow them to adequately respond to market needs” (Pasquier, 2008: 309). This tension affected the entire field, because most Swiss brands purchased movements<sup>4</sup> from a limited number of manufacturers. (Brands then assembled the components in their own factories, adding a face, hands, and a case.) Because there were few movement manufacturers in Switzerland, the shift toward quartz forced the community to debate when and how the capabilities associated with mechanical watchmaking should be dismantled in order for the field to survive. By the early 1980s, most believed the future of watchmaking was

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<sup>4</sup> A watch’s movement is its “guts”: the components that calculate the passage of time (Moon, 2004). Mechanical movements consist of springs and gears; quartz movements consist of an integrated circuit and battery.



in quartz. “We realized everybody wanted quartz watches,” one executive recalled. “Mechanical, hand-winding watches no longer had any interest. Wipe [mechanicals] off the map; we needed to readjust the business.” Only a small minority of executives aimed to preserve the capabilities associated with mechanical watchmaking; they hoped to compete directly with Japanese quartz watches by improving mechanical-watch precision and accuracy.

Thus, as the field grappled with how to adapt to the quartz discontinuity (Tushman & Anderson, 1986), a paradox of production evoked tensions associated with exploration and exploitation (Andriopoulos & Lewis, 2009). Typically, such tensions are confined within a single organization (e.g., Gupta, Smith, & Shalley, 2006). For Swiss watchmakers, however, accommodating quartz production on a scale necessary to compete with the Japanese would require field-level capital investments and supply-chain upheavals. Meanwhile, tensions arose in anticipation of dismantling the mechanical manufacturing infrastructure that supported the livelihoods of thousands of employees. According to a Swiss watch historian:

While maintaining an industrial base composed of hundreds of small and medium sized firms, interdependent but autonomous, the [Swiss] watchmaking cartel delayed the industry concentration which was necessary for a rationalization of production and marketing [of the quartz watch] on a competitive world market (Donzé, 2011b: 123).

Second, a related *paradox of profit* emerged: what economic models would be appropriate to sustain future growth in a world of quartz? Some advocated for producing greater numbers of quartz watches at lower prices, reclaiming the low end of the market from the Japanese. As one senior executive asserted, “The only way to survive is to have volume watches in the middle and lower end of the business” (archival document, 1984). That shift would, however, require significant investments in automated production lines that few organizations could shoulder alone, given their recent economic struggles. A journalist who covered the crisis described the difficulty of transitioning away from mechanicals:

Most Swiss executives agreed that quartz was the mission. Convert to quartz. They believed they could master it, but they need economies of scale. They needed to tool up—and the more they could tool up, the cheaper it would be to produce more [quartz]. This is how they could make money. But they needed resources, and they didn't have the up-front money to invest in new manufacturing lines for quartz.

Others argued that the only way to accumulate the necessary capital to invest in new quartz production lines was to focus on the higher end of the market, framing “Swiss Quartz” watches as premium products. As the chairman of a major manufacturing plant argued at the time, “We need better brand images, better leader models... better profit margins and better marketing programs. ...Swiss strength in the high end shows no signs of weakening” (archival document, 1985). Such conflicting views—whether to increase production and lower prices or restrict supply and pursue higher margins—pervaded the field. A difficult strategic paradox emerged: if assorted Swiss brands pursued opposing profit-maximization strategies, analysts and industry insiders feared diluting the potency of both strategies (Glasmeier, 2000).

*Symbolic paradoxes evoking the profession and the past.* Two symbolic paradoxes emerged during the quartz crisis. First, a *paradox of profession* threatened how watchmakers defined their professional norms and the meanings attributed to being a Swiss watchmaker. Some believed that professional norms and training regimens established over the past two centuries continued to be valuable and would help manage the difficult transition. When the Japanese had launched their products in the 1970s, one watchmaker recalled, “*Quartz* became a dirty word among Swiss watchmakers. We called quartz watches ‘cheap electronics.’ We didn't want that; we wanted to preserve the high-value mechanical stuff.” A watch-museum director said, “Some watchmakers held onto a belief that a handmade [mechanical watch] movement was still a better movement in many ways, even if it didn't keep as accurate a time [as a quartz watch].”

As demand for quartz grew, however, more Swiss watchmakers began to question whether professional norms forged during the mechanical-watch era were still relevant. For years, Swiss watchmakers' professional identity had been linked to notions of ingenuity and innovation. Governments had even benchmarked their ability to innovate against that of Swiss watchmakers (United States Tariff Commission, 1947). According to a watch industry historian, "The Swiss had succeeded partly because they built a professional community of Swiss watchmakers. It worked for them." Also, many watchmakers described their professional identity as closely tied to their national identity. "We saw ourselves like the Swiss mountains. Like Swiss chocolate," said one executive. "We were like all the things that are part of Switzerland and we could not let go." The quartz crisis challenged these longstanding assumptions. As existing practices were called into question, paradoxical tensions emerged about how to define the profession. Some believed that adhering too strictly to established professional norms would render the field of Swiss watchmaking obsolete. For others, traditional norms reinforced an identity as a world-class watchmaker. One world-renowned watchmaker described how traditional professional norms had helped him continue to develop new watches during the crisis:

I continued to make research on old watches and clocks. I reconstructed some part of the historical technical aspects of the watch. I focused on the history of the science. This was the most important part for me. Say 80 percent of my work was there. And then I used this knowledge to design watches that incorporated this technical history.

A second symbolic paradox had to do with the role of history in the field: a *paradox of the past* created tension about whether to embrace or abandon the history of Swiss watchmaking. According to one analyst, the quartz crisis was "a dark period where companies lost connection with the past." Many companies distanced themselves from their prior achievements in mechanical watchmaking (Raffaelli, 2018). A journalist reported that "collections of old movements and old watches were thrown out."

Tension about whether to preserve aspects of the past was most salient within watch factories. “Most CEOs [eventually] believed quartz was the future,” one senior executive recalled, but employees often attempted to preserve aspects of the past. During a tour of the Zenith watch factory, we learned how this tension had manifested itself. The company had nearly collapsed during the crisis, and in 1975 the U.S.-based Zenith Radio Corporation purchased the company for its similar name and manufacturing space. Executives limited production to quartz watches; mechanical watchmaking was to cease, and mechanical manufacturing tools were to be scrapped. According to the company’s historian, Charles Vermot, a long-time employee, defied the order; he hid the components of the *El Primero* chronograph (stopwatch) movement in an abandoned storeroom. In 1984 the company changed ownership again, and the new owners expressed interest in producing mechanical watches. Assuming they would have to invest in rebuilding lost machinery and lost knowledge, they were astonished when the retired Vermot unearthed the tools he had hidden in the old factory. Tensions were often intensified when groups of employees at watchmaking factories across Switzerland met at union meetings and shared such stories.

Auction-house executives and watch collectors also reinforced traditional beliefs about the value of Switzerland’s past. In the 1970s and 1980s a group of collectors began purchasing timepieces at auction out of concern that the legacy technology would vanish. “In the 1970s I became very involved with buying up all the good older stuff,” one collector recalled. Many collectors paid above-anticipated market value at auction. According to one auction-house executive, these collectors were known as “the purebreds” because “they could take apart a movement themselves.” To ensure that knowledge of traditional watchmaking did not disappear, some auction houses and collectors published books about mechanical watches and the Swiss

companies that had produced them. “I was very into the history of watches,” one such collector told us. “I wrote an unauthorized book that was considered the bible of Rolex.” Collectors and amateur watchmakers also formed interest groups devoted to maintaining traditions of mechanical watchmaking.

In short, the paradox of the past fostered tensions about whether to preserve documents, tools, and other links to the history of mechanical watchmaking. For some watchmakers and collectors, such artifacts embodied Switzerland’s achievements and its longstanding ability to overcome challenges. As one watchmaker observed, “a watch factory without history was just making fashion watches.” But for many executives, the past was a mere tether to a bygone era. Some worried that focusing on past achievements was a distraction from retooling for the quartz age. In the words of an engineer who had developed several quartz-watch innovations in the 1980s, “Some were still in love with the old history. They were in love with the old profession.”

In sum, the paradox of production and the paradox of profits created material-based tensions about uses of resources and about appropriate profit-maximization strategies to reclaim lost market share. The paradoxes of the profession and the past heightened a set of field-wide tensions about the meanings and values associated with Swiss. As the crisis continued to wreak havoc throughout the late 1970s and early 1980s, two leaders emerged with alternative visions for their respective organizations and for the field of Swiss watchmaking.

### **Organizational Responses and Alternative Visions**

*Nicolas Hayek and SMH.* By the early 1980s, the quartz crisis had reached its apex. Later, when asked to identify those actors responsible for influencing field-level change during this period, every interviewee cited Nicolas G. Hayek. The Lebanese-born CEO of a management consultancy in Zurich, Hayek was hired jointly by several Swiss banks to assess

watch companies in their portfolios that had become insolvent; many such companies were seeking bank loans to cover salaries and bonuses. Hayek's report articulated a vision of massive consolidation and restructuring; he further suggested expanding the capabilities of the field to accommodate quartz watch production at scale. "[We] slept in a criminal way for about 15 years," Hayek commented. "We let the Japanese open the market because we had nothing to offer in terms of quality or innovation" (archival article, 1987).

Hayek proposed merging two of Switzerland's largest watchmaking holding companies, ASUAG and SSIH, which produced movements for many brands (e.g., Omega, Tissot, Longines); the two companies accounted for approximately half of all Swiss watch employment. However, having extended bailout loans to watch companies for nearly a decade, banks were uninclined to oversee a lengthy restructuring effort. Hayek's consulting practice had helped to transform Switzerland's postal system and railway system, and he believed he do could the same for Swiss watchmaking. Against the advice of most financial analysts, he entered into negotiations with the banks to purchase the dying holding companies himself (Breiding, 2013). After Hayek orchestrated deals with over 30 banks, the parties agreed to sell him majority shares of ASUAG and SSIH and to forgive some of the debt they were owed in exchange for shares in the new company. Hayek invested personal capital in the deal (approximately SFr20 million, or \$11million) and proved adept at raising additional funds from outside investors.

Hayek appointed a new board of directors composed of individuals who trusted his vision, and named the new holding company Société de Microélectronique et d'Horlogerie (SMH, renamed The Swatch Group in 1998). The new company's name expressed Hayek's intention to address the paradox of production, with an emphasis on "electronic" quartz technology. He appointed Dr. Ernst Thomke, a well-known industry executive, as CEO and

tasked him with overseeing a transformation of the company's manufacturing capabilities to quartz. Hayek also asked Thomke to maintain the company's mechanical manufacturing capabilities, which still provided some revenue from remnant mechanical watch demand.

Hayek's vision for SMH focused on the paradoxes of profit and production. He aimed to reclaim the low-end and mid-range segments of the market that the Swiss had lost to the Japanese, and to produce affordable quartz watches with much higher quality. Hayek tasked Thomke with retooling the manufacturing lines so that SMH could produce quartz movements at multiple price points. With government support, SMH would supply movements to the company's existing brands and to most other Swiss brands. Hayek was convinced that the Swiss had to rebuild their base by making low-priced quartz watches available to the masses. "[They] told us we must do everything we can to recover from our loss in the [mechanical] market," an SMH employee recalled. "We had to become more industrial and go into this [quartz] system."

The result was the Swatch, a quartz watch whose manufacture required investment in several innovations that deviated from the norms of traditional mechanical watchmaking. In the late 1970s, Thomke had overseen development of the Delirium, a quartz watch designed to satisfy market demand for thinner watches. The Delirium had been plagued with design flaws—its metal body was so thin that it often bent when strapped on—but its basic architecture laid the groundwork for the Swatch. Thomke appointed two young engineers, Jacques Müller and Elmar Mock, to develop a similar watch, encased in a sturdier plastic body, that would offer multiple design options to distinguish it from the aesthetically drab Japanese quartz models. Mock and Müller were also tasked with redefining the company's manufacturing capabilities to produce the Swatch. Mock was initially shunned by the company's traditional mechanical watchmakers. As he recalled:

At that time the company was not in a very good situation economically, so it was like a referendum. Word was getting around about our project. But everyone was keeping their distance from us. Most of them said, “Those two, they will be thrown out of the company in six months. Anyone who works with that shit [quartz] technology, they have no chance.” But for me, the Swatch was an opportunity to give confidence back to the industry and restart it. How can we avoid making the same thing? How can we imagine?

Interviews with Mock and his colleagues revealed that prototyping Swatch designs and developing innovative technologies to support advanced production methods reduced production costs by 80 percent, used 55 percent fewer parts than the typical mechanical watch, and introduced a novel plastic injection-molded case. The first Swatches appeared in Europe and the United States in 1983, at prices low enough to encourage consumers to treat them as fashion accessories. Swatch advertising promoted buying multiple watches for different outfits and activities: “Swatch = second watch.” Rather than invoking Switzerland’s past achievements, the first Swatch advertisements trumpeted “Introducing Swatch. The New Wave in Swiss Watches” and featured a colorful watch with the slogan “Swiss Quartz” emblazoned across its face.

Colorful case designs shifted consumers’ attention from accuracy to fashion (Moon, 2004). In an unprecedented move at the low end of the watch market, Hayek enlisted high-end department stores like Bloomingdale’s to sell the Swatch. To raise awareness, he invested approximately 25 percent of the product’s overall budget in marketing, a percentage previously unheard-of in the industry. The distribution network and market positioning also differed strikingly from those of Japanese watchmakers, who continued to sell their watches in drugstores and discount department stores. By 1988, SMH had produced and sold 50 million Swatches. According to one former industry analyst, “Everybody was wearing a Swatch—the garbage picker and the bank president.” Swatch revenues injected liquidity back into SMH and confidence into the Swiss community. An industry magazine reported:



After Swatch, Swiss fortunes soared. Swatch changed the image of the Swiss watch industry almost overnight. Suddenly the haggard has-beens were hip, on the cutting edge of watch technology, marketing and design. Swatch was a crucial factor in the rise of SMH and the general Swiss renaissance of the 1980s (archival document, 1992).

Hayek and his team had proven that SMH could produce quartz watches on an automated factory floor without requiring extensive human assembly. In addition to espousing a vision for expanding the capabilities of Swiss watchmaking, one executive pointed out, Hayek had produced aesthetically pleasing high-quality Swiss watches that infused “emotion” into quartz technology. An industry analyst remarked that “The inexpensive plastic Swatch became a *cause célèbre* in Switzerland” (archival article, 1984). Hayek hoped that some automated production techniques developed for the Swatch would eventually streamline mechanical production lines housed within SMH and brands like Omega that still struggled to compete.

***Jean-Claude Biver and Blancpain.*** In 1983, the same year that Hayek and SMH formally launched the Swatch, Jean-Claude Biver purchased the rights to the dormant watch brand Blancpain, a company that had gone out of business prior to the quartz crisis because of poor management. Biver, a 33-year-old former Omega executive, and a friend acquired the rights to the Blancpain name for SFr16,000 (\$9,000) and relaunched the brand, heralding it as one of Switzerland’s oldest watch companies. Biver’s vision thus addressed the paradox of the past by aiming to preserve Swiss mechanical watchmaking’s history and manufacturing traditions. “Everyone believed the future was in quartz. They believed that if we reduced the price, we would sell more and more,” Biver recalled. “I disagreed.” He offered an against-the-tide vision, asserting that Blancpain would make only mechanical watches and that the Swiss mechanical watchmaking profession should be celebrated rather than abandoned. At a time when other Swiss brands were distancing themselves from mechanical watchmaking, Blancpain’s first advertising slogan declared, “Since 1735 there has never been a quartz Blancpain watch. And there never

will be.” Biver recalled, “People read our ads and said, ‘How can they say this when everybody thinks the quartz watch will save the industry?’ We were completely contrarian.” An industry veteran recalled the initial response to Biver’s vision:

In 1982 there was literally no market for mechanical watches. And then Jean-Claude comes along and represents this crazy belief that mechanicals had a future. He was a visionary to see the old world was still important. He offered up a *symbolic* point of view that brought back the artistry and the tradition.

Meanwhile Biver also embraced the paradox of the profession. In another symbolic gesture, he housed the company’s new headquarters in an old farmhouse; doing so evoked the eighteenth-century roots of watchmaking in the region, when French watchmakers had introduced the craft to Swiss cattle farmers whose idle hands proved exceptional at building watches during the cold winters. Biver wanted to connect his present-day watchmakers with their ancestors who had founded the profession. Displaced watchmakers who had refused to adapt to quartz technology flooded Blancpain with job applications. A watchmaker who lived through the crisis recalled: “The knowledge to make mechanical main plates, wheels, and parts was disappearing quickly. Biver saw the expertise was there and used it to help launch his business.”

While quartz producers like Hayek attempted to expand output via automation, Biver restricted the supply of Blancpain handcrafted watches and raised their price to communicate the symbolic values of scarcity and exclusivity. In a 1987 interview he asserted: “In a mechanical watch you buy beauty, you buy emotion, you buy a status symbol.” He even personally delivered early models to consumers to explain the painstaking work that had gone into each piece. Rather than releasing multiple collections—an industry norm—Blancpain produced only one model that communicated the brand’s longstanding mechanical heritage.

At the end of its first year, Blancpain had sold 97 watches and reported revenues of \$75,000. Within five years, the company was selling 3,000 watches a year and reporting \$9.4

million in annual revenues. A watch executive described the impact of Biver's vision:

“Blancpain was a miracle. It was the first and only time I'd seen a traditional brand, in terms of product and look, with a young image. Suddenly young people wanted to wear it. Biver made it fashionable to have a mechanical watch again. He built a community.”

Biver's and Hayek's visions ascribed primacy to different field-level paradoxes. Hayek's vision focused on material paradoxes associated with production capabilities and profit-maximization strategies; Biver's vision embraced the symbolic assets represented by the profession and the traditions of Swiss watchmaking. The breadth and scale of Blancpain's sales were significantly less than SMH's, but Biver's and Hayek's visions both appeared to offer viable paths forward. An industry periodical captured the renewed sense of hope that spread across Switzerland in the early 1990s:

The clearest sign of the Swiss watch wave was the array of timepieces on display in Basel's glittering show windows. . . . The Swiss section was brimming with the sleek gold and platinum jewelry pieces, the endless chronographs, stylish quartz sport watches, complicated high-tech timers, new automatic chronometers, and classic, expensive mechanicals that have brought Switzerland back from the brink (archival article, 1990).

### **Dialectics and Paradox Accommodation**

The success of the Swatch had provided sufficient liquidity for Hayek to expand his vision. His initial consolidation plan had created Switzerland's largest quartz and mechanical watch-movement factory (known as ETA). Hayek believed that SMH and ETA's combined factories would be well situated to accommodate additional brands once their production systems had been retooled; beginning in the early 1990s, he began to acquire additional brands and to situate them under the umbrella of a single corporate body, known as a *group*. Hayek hoped the group structure would enable multiple brands to benefit from greater negotiating power with

distributors, capital investments drawn from group profits, and diffusion of new technical and business methods that could facilitate organizational learning across brands.

Having witnessed what Biver had accomplished at Blancpain, Hayek believed that SMH too would benefit from preserving some of its struggling watch brands, such as Omega. In 1992, Hayek convinced Biver to sell Blancpain to SMH for \$43 million (SFr60 million), a transaction that would corral the two alternative visions under the same roof. When SMH announced the acquisition, some industry analysts questioned the compatibility of Hayek's and Biver's views. "They were both strong people and there was a lot of ego," recalled an executive who worked at SMH at the time. "But it was also a turning point. Everything started to be different." Below, we highlight a series of dialectics (Putnam, Fairhurst, & Banghart, 2016) that emerged between Hayek and Biver and began to accommodate the material and symbolic strategic paradoxes embedded in each of their visions.

*Symbolic dialectics.* Biver's focus on symbolic paradoxes had an impact on SMH: a dialectic emerged that eventually led Hayek to embrace Biver's vision for high-end mechanical watches and his appreciation for the past. "History and tradition entered [SMH] through Blancpain," an industry historian later wrote. "Indeed, the takeover provided an opportunity to internalize the marketing skills of Biver and his team, then to apply them to the group as a whole" (Donzé, 2011a: 15). Hayek assigned Biver to report directly to him as head of Blancpain and the newly appointed director of international marketing at Omega, a brand still struggling in the wake of the quartz crisis.

At Omega, Biver insisted on conserving the traditions of mechanical watchmaking and reiterating the symbolic value of the past embodied in the brand. He also developed a new marketing campaign that linked the brand's history with the future: the Omega watches of the

Apollo astronauts who first landed on the moon proved to be effective symbolic marks of distinction and lineage. As one SMH executive noted, “[Omega’s advertisements] were speaking more about the history of the brand on the moon. It was less important that the watch was able to remain precise on the moon. These types of histories were very important in the industry.” Such narratives emphasized Omega’s role in the story of progress enabled by its technology. Biver also secured a sponsorship deal with MGM Studios and the James Bond film franchise; he visited every country where a James Bond movie debuted and met with watch aficionados and collectors to solicit support for his strategy to revive the brand.

Biver also took advantage of SMH’s retooled production lines, investing in such mechanical design innovations as the world’s first silicon hairspring, and thus demonstrating that mechanical watches could benefit from modern manufacturing techniques as they began to recapture the high end of the market. Between 1995 and 1999, Omega’s annual revenues increased from \$350 million to over \$900 million. Within seven years after Biver took the helm, Omega saw a near-threefold increase in revenue. The impact of his vision for Omega also served as a template for other mechanical watch brands within SMH, including Tissot and Longines. A CEO who worked for Hayek and Biver at SMH explained why Biver’s symbolic-based approach proved successful with Hayek:

Hayek was an industrialist. Jean Claude was an artist. And what is an artist? An artist is a sponge who catches everything around them. When an artist tries to draw, write, or sing, they are able to create something new from what they have absorbed.

Hayek himself also came to appreciate Biver’s symbolic-based approach. According to an industry journalist who interviewed Hayek regularly during the CEO’s tenure:

When Hayek arrived in the watch industry he did not want brands. He wanted to buy something with a factory. He loved factories. He didn't give a [expletive] about brands. He used to say, “I have too many brands. I don't know what to do with these damn brands. They are a Swiss regional thing. I don't want these brands.”

But several of Hayek's direct reports recalled that, over time, Biver's vision for Blancpain and Omega had a profound impact on Hayek. This influence was most evident when Hayek decided to acquire and personally oversee Breguet, a celebrated hand-made mechanical watch brand. The same journalist who had interviewed Hayek in the 1980s wrote a later piece that documented the shift in Hayek's outlook. Hayek recalled:

I had a vision of what I could do with [Breguet] under my personal management. It's my business now. I am going to show you what you can do with such a brand... Let me explain to you what Breguet is. Breguet is the best marriage between technology and art. In Breguet, you have both Beethoven and Einstein. Advanced technology, innovation and beautiful art: this is the message of Breguet (archival article, 2005).

Hayek had apparently shifted his focus from automated production systems to the symbolic value of Breguet's artisanal watchmaking techniques. In his words, "The purity of the watches, the complexity of their mechanisms, and [Breguet's] splendid history captured my heart and my imagination" (archival interview, 2005). Many industry insiders attributed this transformation to Biver's influence; in the words of one industry analyst, "Hayek learned about the value of the high-end mechanical market from Biver."

***Material dialectics.*** Having previously served as an industry turnaround consultant, Hayek brought an industrialist's perspective to SMH. According to an industry analyst, "There was the 'financial-Hayek' who would walk into a room with his team. It would take him no more than 10 seconds to spot the one thing wrong on a budget report." Hayek's consulting experience also widened his lens. According to an industry reporter, "Hayek was very outward-looking. He saw the rest of the world was out there, and he knew you had to become familiar with it."

Our data pinpointed multiple instances when Hayek's focus on resolving material paradoxes of production and profits at SMH created a dialectic that influenced Biver's initial symbolic-based vision. According to Hayek's model for the SMH group, each brand would

represent a specific price point in a vertically segmented market, with quartz variants (e.g., Swatch) serving the low and mid-range price segments and mechanical watches (e.g., Blancpain and Breguet) serving the high-end market. A watch industry reporter remarked: “Hayek taught Biver that you had to own the entire market, especially the lower end.” When asked how Hayek had influenced his understanding of the market, Biver answered:

Hayek realized the Japanese were killing us because their watches were so cheap. So we had to respond. He saw we had to adapt by inventing our survival. We had to learn how to make a watch without a human being. Hayek taught me that if you just retreat to luxury mechanicals, you’ll die. The Swiss watch industry was not saved by mechanical watches; *it was saved by quartz watches.*

Biver also described how he began to accommodate Hayek’s vision after joining SMH:

Mr. Hayek gave me Omega because he knew that one day I would feel no more like an entrepreneur; I would feel like an employee. It brought me huge motivation, because for the first time in my life I had to run a company that was not my taste. Blancpain—it was me, it was my vision, it was my product, it was my sex appeal, it was made by my people. But Omega—that was an international brand. It was not my vision, it was not my product, and it was not my people. I had to adapt my vision.

At Omega, Biver agreed to continue producing quartz variants of several women’s models and asked supermodel Cindy Crawford to serve as a brand ambassador. “We felt our brands aligned. It was about quality and timelessness,” Crawford recalled in an interview with one of this study’s authors: “Biver asked if I would tour the factories so he could share his passion for the art of watchmaking with me.” Unlike at Blancpain, Biver relied on a combination of mechanical and quartz production systems to diversify and expand the men and women’s markets. He attributed Omega’s success in part to with the manufacturing investments Hayek had made in the 1980s, which streamlined production of their women’s quartz *Constellation* models. “Biver has become very ‘SMH-minded,’” Hayek observed (archival article, 1993).

In retrospect, Hayek and Biver legitimized a symbiotic relationship between quartz and mechanical technology, thus accommodating paradoxes of production, profit maximization,

professional norms, and notions of past. For Hayek, SMH brands like Breguet benefitted from Biver's symbol-based vision. For Biver, Omega could take advantage of manufacturing-line investments that Hayek had initially made to accommodate Swatch production. Working together, Biver and Hayek benefitted from various aspects of each other's visions—sustained through a series of material and symbolic dialectics—that contributed to SMH's unprecedented success. In the early 1980s, when Hayek had presented his initial vision to banks, he estimated SMH's value as SFr328 million (\$180 million); 20 years later the group reported revenues of SFr6.44 billion (\$6.22 billion), 70 times the original investment (Breiding, 2013: 43).

### **Field-Level Adaptation and Resilience: Propagating Persistent Paradoxes**

Originally, it was SMH's acquisition of Blancpain that triggered dialectics between the material and symbolic paradoxes on which each leader's vision was built. But the resulting dialectics and sustained paradox enabled the renaissance of Swiss watchmaking. SMH's success had several field-level implications for the community of Swiss watchmaking. According to one analyst, Hayek's focus on pursuing both quartz and mechanical technology sparked the unexpected resurgence of Swiss watchmaking:

Hayek got this reputation as somebody who saw the light and knew what to do. He realized that the power of the old company was in the [mechanical] brands like Omega. He had a good looking, high quality watch that was going to be assembled automatically, but at that time it was being all hand-assembled. It was not the quartz Swatch that saved the Swiss industry; it was developing the fully automatic [Swatch] assembly line, which then was very quickly adapted for all other quartz and mechanical movements in Switzerland.

In the service of his vision, Hayek had defied centuries of mechanical-watchmaking production norms. A senior executive recalled the impact throughout Switzerland of Hayek's stance: "There was a lot of dust on the Swiss watch industry. The Swatch shook all that dust away. It was a *revolution*." The success of the Swatch convinced other Swiss brands that they



could compete directly with the Japanese; they began to release products like Tissot’s Rock Watch and Briel’s Pareo, which combined quartz technology within fashion-forward designs.

The survival of SMH also meant that other Swiss watch brands could continue to produce mechanical watches. By the late 1990s SMH’s factory, ETA, supplied 80–85 percent of watch movements to all the Swiss brands, including direct competitors of SMH brands. “Hayek helped supply us with hairsprings,” one competitor’s CEO declared. “But he did something else—he gave confidence back to the manufacturing, to the industry. He gave us back our confidence.” A master watchmaker who had requested parts from SMH when he launched his own brand recalled, “For a watchmaker like me, Hayek made it possible to find parts, calibers, dials, and hands. In the end, part of my success is due to SMH.”

Importantly, Hayek’s group model became a template for field-level corporate governance and ownership. By the early 2000s, many of Switzerland’s dominant brands had been purchased by one or another competing groups (e.g., The Swatch Group, Richemont, LVMH). See Table 1. In keeping with Hayek’s vision of consolidated group manufacturing, these groups too began to manufacture some of their own movements internally. “Few people or few companies have dramatically, positively changed the planet like Hayek and SMH,” said the CEO of a brand who had previously worked for Hayek. In 2013, at a packed field-wide celebration of Swatch’s thirtieth anniversary at Baselworld, Hayek’s son described the impact of SMH’s initial strategy on the broader field:

And then came Swatch. It was an incredible strategy to regain the lower market share. To attack there. [It allowed us] to be able to maintain the creativity and innovation of the upper [mechanical] market segment. To give the possibility to all these other wonderful brands that you see are full of innovation, to continue to develop and be successful. This is what Swatch has done. So thanks to Swatch, all these [other] brands exist.

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Biver's success at Blancpain and at Omega also provided a roadmap for the wider Swiss watchmaking community's adaptation after the quartz crisis. According to watch historian Pierre-Yves Donze, "During the 1990s, Omega's marketing department was a training ground for managers, whose influence was not limited to [SMH]. They were instrumental in moving the entire Swiss watch industry up into the luxury segment." When asked about Biver's impact on the field of Swiss watchmaking, an industry journalist commented:

For the [Swiss watch] industry in the 1980s, Biver is big because he was a pioneer. He was one of the first. He's not riding a wave. He's creating the wave. There was no wave to ride. He was the one who had the instinct to aggressively assert the primacy of classical mechanical watches, and to promote them as valuable and as part of a legacy. He did so in the advertising and the way he did everything. He had distributors everywhere.

Throughout the 2000s, Hayek and Biver's combined vision at SMH served as a template for mimeticism throughout the entire Swiss watchmaking community, including at Hublot, a company that Biver left Swatch Group to run in 2002; he later sold the company to the luxury conglomerate LVMH for over \$500 million. By 2008, Biver and Hayek's protégés had become CEOs of multiple watch brands, jointly accounting for over 50 percent of sales by Swiss watch companies. Even Rolex—which had remained above the fray during the quartz crisis—appointed a CEO who called Biver his personal mentor and had worked closely with Hayek at SMH.

Multiple interviews and archival articles published the mid-1990s to 2000s cited Hayek as a *de facto* spokesperson for the field until his death in 2010. During the 2000s, he regularly wrote articles and appeared on television, commenting on regulatory issues, counterfeiting, and the industry's future outlook. After Hayek's death, several executives observed that Biver became one of the field's most prominent figureheads, especially at Baselworld. Both leaders seem to have relished the role. Reflecting on the period of his collaboration with Hayek, Biver commented, "When we die, we will look back on the trace we left on our industry."

*Field-Level Outcomes.* By 2008, Swiss watchmakers had recorded 19 consecutive quarters of growth and achieved 67 percent growth over the previous five years. The export value of Swiss watches had reached approximately \$15.8 billion, and was estimated to account for 55 percent of the global watch industry. The field of Swiss watchmaking had successfully adapted and repositioned itself in the luxury segment of the global market. The Swiss no longer attempted to compete on global production output, having ceded that title to Asian manufacturers. Instead, the average export price of the Swiss watch was \$563; that of a Asian-produced quartz watch was \$2 (Federation of the Swiss Watch Industry, 2009). Such price premiums helped the Swiss to achieve continued growth in overall export values for both mechanical and quartz timepieces. Hayek had reinvented Swiss watch-production processes, and Biver had conserved the values associated with Swiss historical lineage and craftsmanship; their combined visions had reshaped the field. As one company historian observed, “[Swiss watchmaking] is not only about precision anymore. It’s about a dream, it’s about heritage, it’s about the past.” Four decades after the introduction of the first quartz watch, Swiss watchmaking had proven resilient; the field boasted over 600 brands and significant increases in enrollment at watchmaking schools. According to industry analysts, the Swiss again considered a leading symbol of innovation and prestige throughout the global watch industry (Donzé, 2011a).

## **DISCUSSION**

Our research explores paradox from a field-level perspective, emphasizing its role in a field’s adaptation to an environmental jolt (Meyer, 1982). Using the case of Swiss watchmaking, we identify several field-level paradoxes and trace their evolution and impact to two influential leaders whose divergent visions eventually coalesced in a way that embraced and sustained tensions between the material and the symbolic. Our paper makes three contributions to the

literature. First, we induce four field-level paradoxes that emerge within a community after the advent of a discontinuous technology. We also identify material and symbolic distinctions among them, and the processes that enable them to persist. Drawing on recent work on the pragmatic or “inhabited” experiences of institutions (Hallett & Ventresca, 2006), we then explicate the manifestations of these field-level paradoxes. Relatedly, we examine the role of context in triggering the salience of the various paradoxes and in perpetuating them via a process of field adaptation. Finally, we bring a paradox perspective to bear on field-level agency, addressing the tensions between agents of institutional change and stability and exposing those associated with entrepreneurship and custodianship that surface within individual agents. We will elaborate on each of these points below.

*Field paradoxes and environmental jolts.* In response to calls to explore field-level paradoxes, and to induce them from pragmatic experiences (Smith & Tracey, 2016), we specify four unique paradoxes manifested at the field level after an environmental jolt (Meyer, 1982) (e.g., the introduction of quartz technology and competitive pressures from inexpensive watches from Japan). We also distinguish between paradoxes that are material or symbolic in nature. We identify two paradoxes whose tensions involve issues of materiality (e.g., production and economic models): a *paradox of production*, embodied in field-level adjustments to supply chains and manufacturing that sustain current forms of production while retooling for new forms; and a *paradox of profit*, manifested in a balance between volume and margins in the face of uncertainty and industry turmoil. We also identify two paradoxes whose tensions involve symbolic issues (e.g., tradition, history, national pride): a *paradox of the past*, which entails finding a balance between respecting tradition and accepting the reality of technological

progress; and a *paradox of the profession*, which involves reconciling traditional definitions of craftsmanship, innovation, and quality with evolving standards, values, and training norms.

Importantly, the divergent strategies for adaptation proposed by the leaders featured in our account, Hayek and Biver, focused primarily on material or symbolic paradoxes respectively. Hayek, with his engineering and industrialist background, foregrounded the material realm; Biver, firmly embedded in a Swiss identity, prioritized the symbolic realm. Both leaders initially articulated visions grounded in their own experience, expertise, and authority—visions that each successfully realized through their respective organizations. But only after both visions and their respective manifestations and champions came together in a single organization did they begin to create a template for accommodating all four paradoxes in a way that eventually became a template for field-level resilience and resurgence.

Thus we find that the introduction of a discontinuous technology in an established field elicits a series of tensions manifested across the material and symbolic realms. Progress in the material realm typically destabilizes established symbolic arrangements. The resulting turbulence generates entrepreneurial opportunity that shifts the field's structure and status, and power within it (Sine & David, 2003). In this case, however, the Swiss were able to reinvent the field while preserving their own status, values, and power. Eventually the Swiss watchmaking community responded to quartz technology by accepting quartz as a complement to mechanical watch variants. For Hayek, his firm SMH, and many actors in the field, accuracy had long defined quality; quartz's superior timekeeping ability thus signaled the field's inevitable future. But the presence of Biver, his firm Blancpain, collectors, auction houses, and watchmakers like Charles Vermot—who embraced everyday acts of symbolic resistance and organizational defiance—prevented the field from abandoning mechanical designs. Thus, though most Swiss watchmakers

in the 1980s perceived quartz as the inevitable successor to mechanical watchmaking, the two technologies came to coexist at both the field and organizational levels.

Our findings trace the process that resulted in accommodation of both material and symbolic paradoxes at the field level. We foresee that the distinction between symbolic and material paradoxes, and the interplay between them, will prove useful in other contexts. For example, an extension of Nelson and Irwin's (2014) work on librarians' relationship to internet search might distinguish between material and symbolic tensions facing the profession, and examine how issues of understanding, performing, and innovating search intersect and interact across those realms. Such work would reveal whether mutual accommodation of symbolic and material paradoxes promotes professional resilience in other arenas as it does in this one, and provide practical insights into how to manage field-level and profession-level responses to exogenous threats.

Adopting a field perspective in the context of paradox theory will also encourage research to address more fully the role of power in the management and accommodation of paradox. Within an organization, responsibility for managing paradox often bubbles up to a single responsible entity (e.g., a top-management team or a CEO) (Smith & Tushman, 2005). In a field, however, power is not concentrated (or less concentrated) in formal structures of authority. This configuration qualitatively affects how actors engage with paradox and leverage power to manage it. In our case, the distributed and autonomous nature of the field allowed Biver to manifest his vision at Blancpain despite field-level skepticism. Blancpain in turn served as a beacon of symbolic values, offering a home and a productive outlet for those unwilling to abandon the past and the profession. This scenario sustained the possibility of marrying the past to the future, even as Hayek focused on creating a different future. It is likely that both

flourished only because both were able to commit fully to their divergent visions, providing the foundation for subsequent sustained paradox within SMH.

A corollary to the distributed nature of fields is heterogeneity, both that of the actors—whether individuals or organizations—and their visions and that of their experiences of the paradoxes. Unlike work on organizational paradoxes, a field-level perspective offers opportunities to explore a broader variety of “actors with varying resource endowments” (Fligstein & McAdam, 2011:3) as well as “insights into how organizational members *differentially* experience” (Smith & Tracey, 2016:461) paradox. Hayek and Biver’s dissimilar contextual experiences shaped their divergent responses to the field-level paradoxes that emerged. We will turn next to these distinct “inhabited experiences” of the field and their historical and current contexts.

***Inhabited experiences of paradox.*** Our second contribution is to introduce field-level, and specifically institutional, sensibilities to paradox theory. We pay particular attention to socially embedded actors’ inhabited (Hallett & Ventresca, 2006) experiences of, and responses to, paradoxes manifest in the field. Treating this study as a field-level ethnography (Zilber, 2014), we induced four field paradoxes from our informants’ experiences, informed by one author’s own immersion in the field via trade shows, watchmaking school, ethnographic interviews (Spradley, 1979), and other forms of participation and immersion. We thus answer the call to “develop tensions and contradictions inductively” and to “view the world from the perspectives of [our] informants, rather than assuming a set of tensions at the outset” (Smith & Tracey, 2016: 461).

As our model illustrates, the experiences of paradox were most salient to those who inhabited the field of Swiss watchmaking during the quartz crisis and the field’s subsequent

renaissance. These inhabited experiences elicited emotional as well as cognitive and behavioral responses (Raffaelli, Glynn, & Tushman, 2019). Our findings pay particular attention to Biver and Hayek, who strongly embraced the symbolic and material paradoxes respectively, but others' stories convey the everyday experiences of paradox as messy, overlapping, ongoing, and resistant to tidy categorization. For example, the story of Mock and Müller, tasked with developing quartz watches at SMH, portrays the complexity of social embeddedness in terms of paradoxes of simultaneous belonging, learning, organizing, and performing. The two men developed what would become the Swatch watch—which Biver himself credited with saving Swiss watchmaking—yet colleagues shunned them and predicted they would be “thrown out of the company in six months” for their work with “that shit” (quartz). That this scenario unfolded at SMH, the most quartz-friendly organization in the field, whose very name declared its focus on quartz technology, suggests that acceptance of the inevitability of quartz coexisted in the trenches with battles over belonging and organizing. In other words, despite SMH's accommodation of material paradoxes, the firm was still rife with unaddressed field-level symbolic tensions. The interplay of field-level symbolic paradoxes with organizational accommodations of material paradoxes complicated the experiences not only of Mock and Müller but also of colleagues who viewed their employer as misaligned with the field. The story of Charles Vermot, who insubordinately stashed away mechanical components, demonstrates that experiences of paradox can impel individuals to act in ways that affect both organizational and field-level outcomes. For example, the components Vermot had stowed away were later used to make mechanical movements for several competing Swiss brands (e.g., Rolex) that had discarded their chronograph production tools during the quartz crisis.



Our two visionary leaders' inhabited experiences of paradox manifested in divergent responses. Hayek and Biver both objectively experienced the same field and the same embedded paradoxes, but their responses suggest that subjectively they experienced both differently. This configuration reflects, at least in part, their respective social embeddedness and identity. Hayek entered the field as a Lebanese industrialist only superficially embedded in Swiss national identity and the watchmaking profession. For him, initially, the salient paradoxes were economic tensions grounded in capital allocation and utility maximization in the face of a competitive technological threat. Biver, by contrast, was deeply affiliated with the cultural milieu of the region; the symbolic meanings associated with Swiss watchmaking were part of his identity. These dissimilar lenses made different paradoxes salient and focused the two men's attention accordingly. Thus individuals may experience field-level paradox via a hierarchy of salience associated with the symbolic interactionist perspective on identity (Mead, 1981) and tied to core values that provoke action (Voronov & Yorks, 2015). In addition to adding relational complications to individuals' experience of paradoxes—as in the cases of Vermot, Mock, and Müller—variation in individuals' inhabited, path-dependent embeddedness in nested social contexts (e.g., professional or regional) may shape their experience of paradox and their subsequent responses. Adopting a field-level perspective both requires and enables paradox theory to problematize the role of extra-organizational forces in shaping individuals' unique experience of, and response to, paradox.

***Agency and field resurgence.*** Our final contribution is an examination of the paradox of promoting the type of resurgence, or rebirth, seen in the Swiss watchmaking community. Inherently, reinvention represents a paradox, simultaneously heralding new life and reviving the past. Our research brings an explicitly paradox-based perspective to bear on agency and on

institutions that have experienced an environmental jolt and subsequent resurgence (Kroezen & Heugens, 2018; Raffaelli, 2018). Since DiMaggio's (1988) early work, researchers have fruitfully examined the role of agency in institutional theory. Prolific work on institutional entrepreneurship (e.g., Battilana et al., 2009; Greenwood & Suddaby, 2006; Maguire, Hardy, & Lawrence, 2004; Rao et al., 2003) and recent streams of work on agency employed to propagate or maintain institutions (e.g., Dacin, Munir, & Tracey, 2010; DeJordy & Barrett, 2014; Gill & Burrow, 2018; Lawrence & Suddaby, 2006) offer a broad account of the conditions that promote institutional change and stability, and of the mechanisms by which actors achieve those ends. Work in these areas tends, however, to adopt an either/or perspective—focusing either on changing or on maintaining institutions and fields. Such work typically addresses only one side of the material/symbolic divide. Our work contributes to both by offering a both/and perspective.

Although research on institutional entrepreneurship has acknowledged the exigencies of maintenance and vice-versa (e.g., Barin Cruz, Aguilar Delgado, Leca, & Gond, 2016; Creed, DeJordy, & Lok, 2010; Maguire & Hardy, 2009), little work has concentrated on the resulting dialectic, or on how its resolution affects institutional arrangements (see Suddaby & Greenwood, 2005 for an exception). Our work explores not merely the dialectic between entrepreneurship and maintenance-oriented agency but also between the symbolic and material manifestations of field-level paradoxes in response to an environmental jolt (Meyer, 1982). Without Hayek's entrepreneurial focus on operational efficiency and liquidity, resulting in the commercial success of the Swatch brand, the field could not have modernized enough to leverage the quartz and mechanical technologies that fueled resurgence. It is equally true that, without guardians like Biver to assert the commercial and cultural value of tradition, the field might have capitulated to

competitive isomorphic forces (DiMaggio & Powell, 1983) by abandoning symbolic values in the face of mass-market production and commodification.

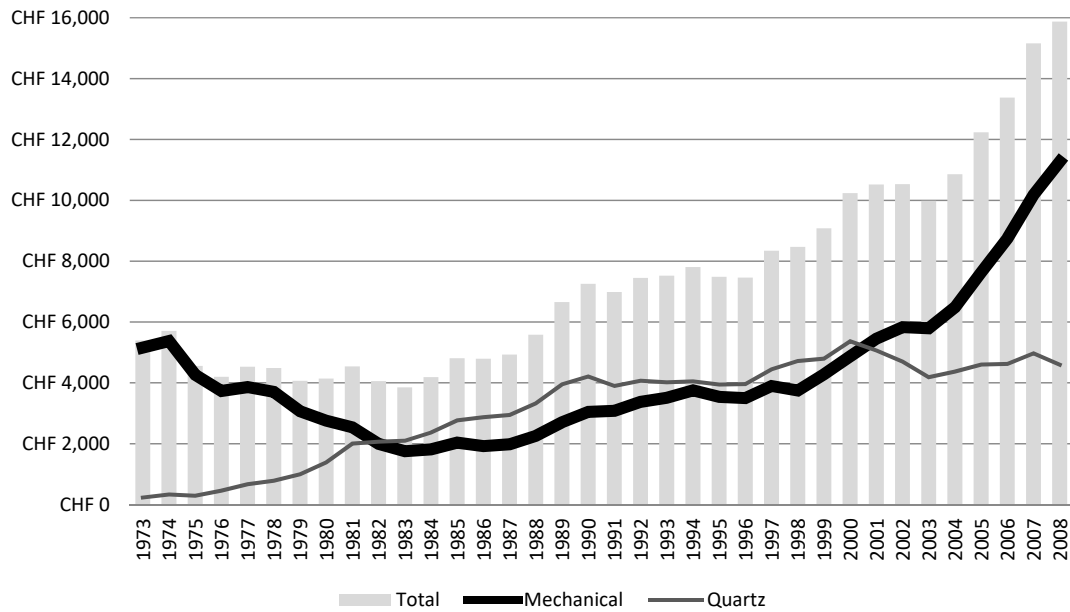
A paradox perspective can also help explore the tensions and dialectics that actors experience when attempting to both preserve and change aspects of their institutional environment. Creed and colleagues' (2010) research on the identity work of LGBT ministers suggests that they experienced tension between embracing some aspects of their denominations' institutional environment and disrupting other aspects that marginalized their sexual identity. Our work documents an even stronger tension between protecting and changing symbolic and material aspects of the institutional context. Biver acknowledged the increased dissonance he faced when he took on Omega within the context of SMH. Defending symbolic values and accompanying practices while embracing a vision and an organization that privileged the material over the symbolic presented a new paradox, which he recalled being motivated by. Future research could look at how actors' internalization of field-level paradoxes affects their engagement in institutional work and their motivation to do so. It could also examine paradoxes arising in other institutionally relevant realms. For instance, scholars could adopt a paradox perspective to explore actors' adoption of both/and perspectives to address tensions between the formal and substantive rationalities (Weber, 1978) associated with many social enterprises (Pache & Santos, 2013), or between logics of consequences and logics of appropriateness (March & Olsen, 1989) in the public domain. Other work has suggested the salience of distributed action by heterogeneous actors in institutional contexts (e.g., Bertels, Hoffman, & DeJordy, 2014); that research focused on theoretical distinctions between field-level actions intended to change or to stabilize a field. Our process-based approach reveals that efforts to embrace and accommodate field-level paradoxes can promote field revitalization.

## CONCLUSION

As the world organizes, it gets smaller. An ever-increasing array of diverse organizations, cultures, and perspectives are coming into immediate contact. Tensions and contradictions naturally arise as advances in communication technologies promote information sharing, and as globalization accelerates our interactions and interdependencies. We anticipate that paradox theory holds abundant promise for exploring tensions that take hold at the societal and even global scale. Our historical treatment of Swiss watchmaking offers a first glimpse into the field-level paradoxes that emerged as quartz technology confronted longstanding community traditions in the region. We anticipate more recent technology transitions, and more diverse organizing contexts, will serve as fertile ground for future scholarly research that attends to the inevitable tensions and contradictions they will yield. Understanding these experiences will be essential to appreciating organizational life in the twenty-first century.

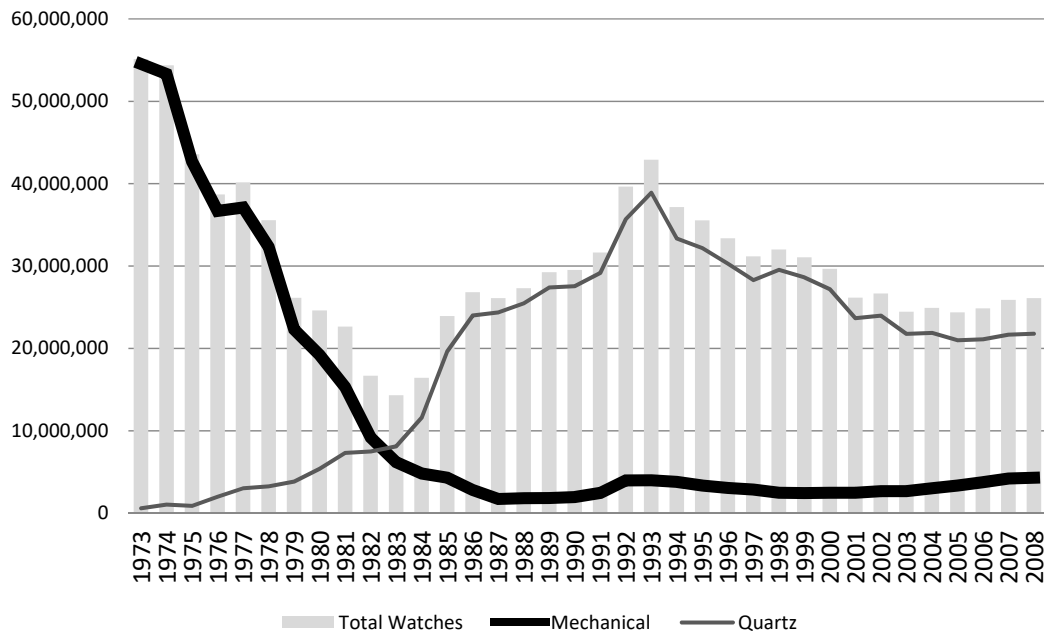
**Figure 1: Export value of Swiss watches, 1973–2008**

(millions; real values, reported in 2008 francs)



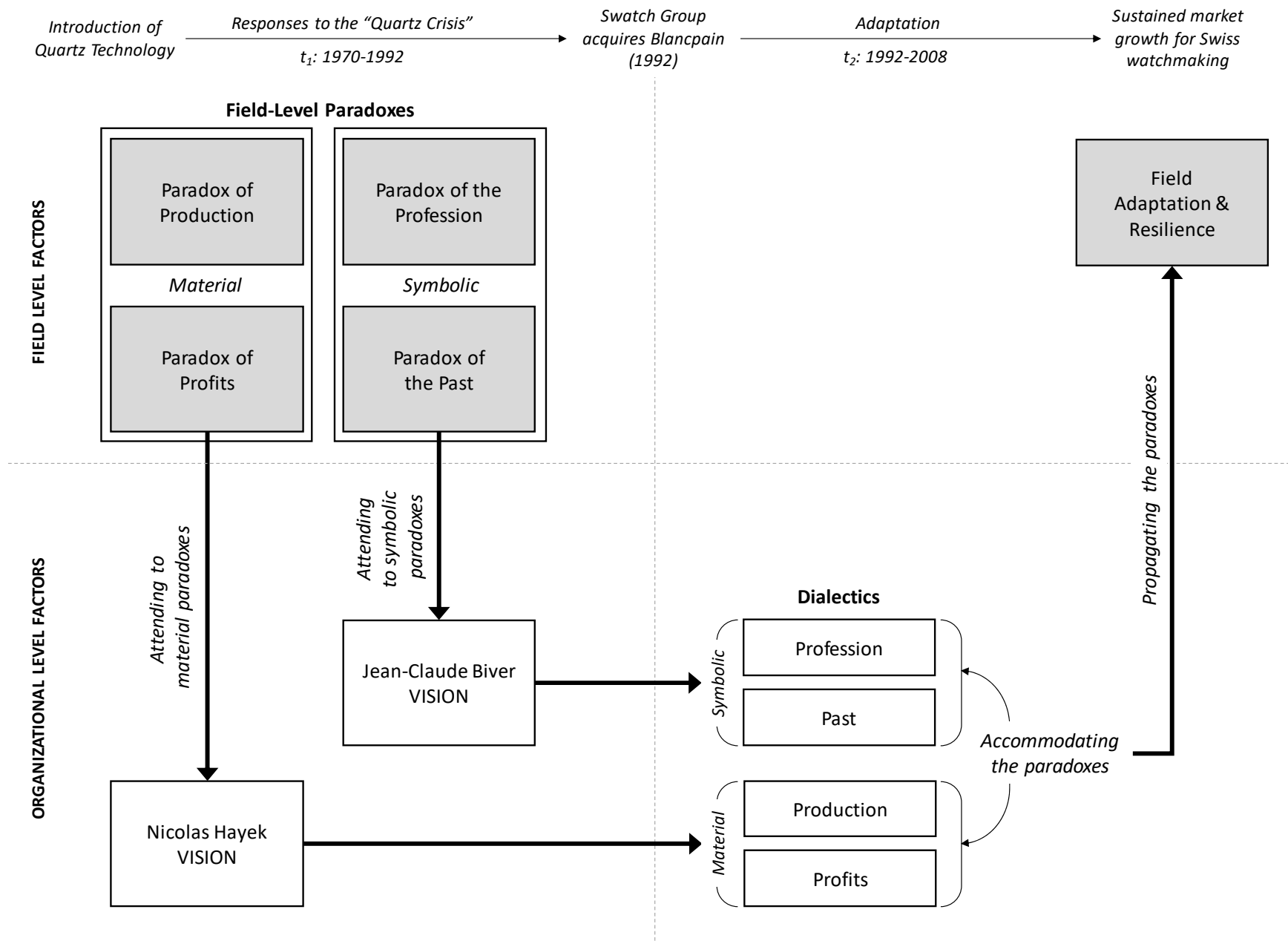
**Source:** Federation of the Swiss Watch Industry; IMF, World Economic Outlook data; analysis by authors

**Figure 2: Swiss watch production (in units), 1973–2008**



**Source:** Federation of the Swiss Watch Industry, analysis by authors

**Figure 3: Field-Level Paradoxes in Response to an Environmental and Technological Jolt**



**Table 1:** Prominent watch “groups” modeled after SMH/Swatch Group (circa 2008)

Groups operating within the field of Swiss watchmaking	
<b>Group</b>	<b>Brands</b>
<i>Franck Muller</i>	Franck Muller, Pierre Kunz, European Company Watch, Rodolphe, Martin Braun, Barthelay, Backes & Strauss, Pierre Michael Golay, Smalto Timepieces, Roberto Cavalli
<i>Kering</i>	Ulysse Nardin, Girard-Perregaux, JeanRichard, Gucci, Boucheron, Qeelin, Bottega Veneta
<i>LVMH</i>	TAG Heuer, Bulgari, Hublot, Zenith, Dior, Fred, Chaumet, Louis Vuitton
<i>Movado</i>	Movado, Concord, Ebel
<i>Richemont</i>	Vacheron Constantin, A. Lange & Söhne, Jaeger-LeCoultre, Roger Dubuis, Piaget, IWC Schaffhausen, Officine Panerai, Ralph Lauren, Baume & Mercier, Cartier, Van Cleef & Arpels, Montblanc, Dunhill
<i>SMH / Swatch Group</i>	Breguet, Blancpain, Glashütte Original, Harry Winston, Jaquet Droz, Omega, Léon Hatot, Longines, Rado, Union Glashütte, Tissot, Calvin Klein, Balmain, Certina, Mido, Hamilton, Swatch, Flik Flak

**Source:** company archival websites.

## Appendix: Representative Supporting Data

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### REPRESENTATIVE DATA

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#### Field-Level Paradoxes

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*Paradox of Production* [In the early 1970s,] Swiss watchmakers did not see the quartz watch as revolutionary, but simply as a rival product [to mechanical watches] dependent on fashion. They were convinced that its success would be very short-lived. Unfortunately, sales volume quickly proved them wrong. (archival industry document, Bujard & Tissot, 2008)

If you were a young watch reporter in the late 1970's, you didn't know much. But you did know one thing—that the mechanical watch was doomed. And you knew it because everybody told you so. (interview with watch industry reporter)

In '80, around '82, if Swiss watch brands mentioned that it's a Quartz technology, they would say it's *Swiss Quartz*. (interview with a CEO)

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*Paradox of Profits* If Swiss watches only compete at prices \$250 and up, Switzerland's manufacturing base will soon die since only 15% of its units sell at those price points." (archival interview, 1984)

Quartz watches got cheaper and cheaper, and the cheaper they got, the more functions you have. You had these cheap digital watches, so why buy a mechanical chronograph for 200 Swiss francs? You could get a multifunction quartz watch with more functions and you had everything. (interview with watch collector)

Switzerland is about to make its long-awaited move on the mid-price market. (archival interview with watch executive, 1984)

Some key executives...see a day in the not-too-distant future when the Swiss industry surges into new prominence on world markets with innovative, eye-catching products in every price range. Such a renaissance would flow from the smaller, more profitable, more progressive industry now emerging in Switzerland. (industry report, 1985)

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*Paradox of the Profession* There was nobody competing with our watchmakers. We were on the pedestal. When you said [mechanical] watches in the world, you meant Swiss, nothing else. Nobody had challenged us. But basically, watches meant Switzerland. (interview with former industry trade representative).

In the late 1970s the Swiss watchmakers themselves as great manufacturers. But they were terrible at marketing. They were just so product-oriented and rigid. (interview with watch industry reporter).

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*Paradox of the Past* The older [a band is], the better you are. If you say you are a 120 years old, that's better than 114. (interview with a company historian)

To many long-time aficionados of vintage and contemporary wristwatches, it is the legendary reference 2499 by Patek Philippe which displays the most perfect combination of mechanical complexity, dial design, and case proportions. And the one and only ever released example in platinum is the holy grail per se to a large community of collectors. (archival document, example from a mechanical watch auction catalogue)

Many brands were in love with the old history. They were in love in the old profession. They had a huge respect about the old way of doing things. They were not very modern oriented. (interview with former watchmaker)

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## REPRESENTATIVE DATA

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### Alternative Visions

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*Nicolas Hayek*

I don't think Hayek initially fell in love with the brands [Rado, Omega]. He was an industrial guy. (interview with executive who worked for Hayek).

In my body, in my blood, in my heart, in my head. I said, 'I am an entrepreneur.' (archival interview with Hayek)

With Swatch [SMH] asked us to produce something in the large quantity with a good quality and make a product affordable and a product by giving pleasure and helping the people to keep contact with the Swiss brand (interview with Elmar Mock, inventor of the Swatch).

*Jean-Claude Biver*

This is why we may consider Blancpain today as the guardian, the curator of the most marvelous culture, a true Swiss patrimony: the Art of traditional watchmaking. We wanted to give life to the fabulous heritage of the art of traditional watchmaking." (archival interview with Biver)

As a hippy we said we need to leave the day we die to traces behind us. And before dying I must see a deep long trace of love. The love I have given to you to my family to my people. To my kids. Because love is eternal. Love never disappears. Money goes and disappears. Love cannot disappear. So if you give love and you have a long long trace of love behind you. (interview with Biver)

We wanted to be very exclusive. We monitored the sellout. So scarcity was always a given. (interview with an executive who worked for Biver)

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### Material Dialectics

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*Production*

Hayek was more commercial. And I believed in authenticity. (interview with Biver)

Hayek ...[and Biver], oh my god, they were like were soulmates. (interview with watch industry reporter, commenting on mechanical and quartz production in SMH)

Swatch group has 150 factories in Switzerland, we are fighting for Switzerland. We need to reinforce the industrial base in Switzerland. The consumer is asking for it. The argument is that if the watch costs 100 frans, you cannot make it in Switzerland. But we can. (archival document, Hayek's son discussing how his father's early vision).

The vision was to say the Japanese, we have to fight against the Japanese where they are the strongest. Where are the Japanese strongest? In cheap watches. That is where we must kill them. I mean, we didn't say kill them. That's where we must attack them. That's where we must get leadership and that nobody understood and nobody said no, we must go where they are weak in the upper segment, in the high luxury watches. (interview with Biver, explaining how Hayek convinced Biver of his vision).

*Profits*

I believed the more we were in the upper segment, the more we could defend our interest. But the main lesson Hayek taught me was that you have to dominate every market segment, or you at least have to be involved in every market segment. If you retreat just to luxury, you'll die (interview with Biver).

Hayek's penetration of the low-end market was a bold, clever, and risky move, but not sufficient to immunize the Jura-based industry from global economic forces. The Swatch strategy may have reached its limit; foreign competition is increasingly eating away at the low-end plastic watch market segment because here, more than any other segment, low wages count. (archival document, Trueb, 2005)

Mergers of... the 1990s were essentially the result of a new marketing strategy born of the crisis. As the Swatch Group embodied it, the key issue was to gather into a *group* enterprises whose brands were positioned in different segments of the market. The main objective of the concentration was not only economies of scale, but also control of the market. (archival document, Donze, 2011)

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## REPRESENTATIVE DATA

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### Symbolic Dialectics

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#### Profession

I was probably the only one that understood Hayek 100 percent. I was the only one who shared his vision. (interview with Biver, responding to a question about the what to do with the watchmaking profession).

Sometimes you have managers coming into an industry and then they destroy it because of a lack of knowledge of the history, a lack of respect of the tradition. I think all my people share with me the incredible respect of our industry. We feel we are the employees of the tradition. We are not just an employee of a brand; we have a mission to respect this culture, to respect the tradition and our boss is the tradition of the culture. So whatever we do must match this culture or this tradition. (interview with Biver)

Biver recalled, "Once Hayek became boss of Breguet, he became more like me." (interview with Biver)

#### Past

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My job is to sit in the bunker with a machine gun defending the distinct messages of all my brands. I am the *custodian* of our messages. (archival interview with Hayek)

We were feeling that we were disruptive. That we were back to the future. By going back to the past, we could become modern. (interview with Biver)

My professional evolution is to mix the tradition with the future, with vision, with innovation. Then you have a new era. (archival interview with Biver, 2006)

We must reinterpret the tradition because if we repeat tradition, our contribution is zero. You don't contribute to something when you repeat it. You have to take something from the past and add a bit of the future. (interview with Biver)

Hayek may not know a lot of history, but he knew enough. Next thing I know, he's recreating the Marie Antoinette [Breguet mechanical] watch at a cost of God knows... he's got a whole team on it. It took them five years. (interview with watch industry reporter who covered Hayek in the 1990s)

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### Field Adaptation & Resilience

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Thank God that the Bivers and the Hayeks had such loud voices, and that they were such big personalities who got the other Swiss brands to pay attention. (interview with a watch retailer)

Hayek taught the entire Swiss watch industry. (interview with Biver)

Swiss horology [has] largely taken refuge in high-end products, and above all mechanical watches. The launching of the Swatch marked the development of a new strategy oriented toward low-end products: the idea was to offer a good quality, "Swiss made" product that was fashionable but inexpensive. The fact that the product was low-end necessitated a well-planned (and expensive) marketing approach, and not just functional and cheap watches. Other makers in turn would exploit the niche (Rock Watch, Le Clip). The launch of the [Swatch] signaled a change in attitude, boosted the confidence of the Swiss horological industry, and restored the prestige of an industry that many believed to be defunct. (archival document, Perret, 2008)

They never forgot to be Swiss. They associated Swiss with the precision watch and the fine engineering and everything else. (interview with a watch association president)

We are radically modernizing the tradition of watches. (interview with watch executive)

In watchmaking. Everything has been done. Everything has yet to be invented.  
(archival interview, CEO of a watch manufacturer, 2009)

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