Employee Incentives and Family Firm Innovation: A Configurational Approach

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Abstract

According to family business theory and practice, family firms often face a paradoxical tension between their anchorage to the past and the need to renew and innovate to remain competitive, which often hampers innovation. Given that innovation is inherently a social process that depends on the knowledge and creativity of an organization's people, employee incentives may be key to managing the tradition-innovation paradox and unlocking a family firm's innovation potential. However, current research has not addressed how family firms can effectively configure incentives to promote innovation. Drawing on a configurational approach and the unique properties of the Qualitative Comparative Analysis (QCA) method, our study reveals that the set of incentives that family firms use to motivate their employees toward innovation differs in relation to whether they are more or less attached to tradition. As such, in line with the principle of equifinality, family firms with high attachment to tradition can be as innovative as those with low attachment to tradition by implementing the right configuration of incentives. Thus, we offer a HRM perspective on innovation that advances knowledge on how family firms can unlock their innovation potential.

Keywords: HRM; Family firms; Innovation; QCA; Human resources.

INTRODUCTION

Because many family firms appear stuck in the past and strongly tied to traditions, 'the power of the past' is often portrayed as limiting their innovation potential (Erdogan, Rondi, De Massis, 2020; Weber & Dacin, 2011). Family firms with high attachment to tradition are characterized by their emphasis on the past; that is, their knowledge, competencies, materials, manufacturing processes, values and beliefs are rooted in their heritage and history (De Massis, Frattini, Kotlar, Petruzzelli & Wright, 2016). However, while it has long been assumed that family firms' attachment to tradition causes them to resist innovation, a growing stream of research is challenging this assumption by recognizing how some of the world's most innovative companies are family owned and controlled (e.g., Kammerlander & Van Essen, 2017; Nieto, Santamaria & Fernandez, 2015). While tradition and innovation are typically seen as antithetical

concepts and their coexistence as paradoxical, studies have revealed that many family firms with a strong attachment to tradition are as innovative as those with a low attachment to tradition (Ingram, Lewis, Barton & Gartner, 2016; Erdogan et al., 2020; Rondi, De Massis & Kotlar, 2019). The tradition—innovation paradox captures the tension family firms experience between respecting their heritage and past, with the need to renew and innovate to remain competitive (Ingram et al., 2016; Erdogan et al., 2020; Rondi et al., 2019). As research increasingly questions the characterization of family firms as resisting innovation, it is critical that studies acknowledge their heterogeneity (e.g., Duran, Kammerlander, van Essen & Zellweger, 2016; Eddleston, Kellermanns & Zellweger, 2012). It is also necessary to determine why family firms that vary in their attachment to tradition can achieve similar innovation outcomes (Erdogan et al., 2020).

Given that innovation is inherently a social process that depends on the knowledge and creativity of an organization's people (Brush, Eddleston, Edelman, Manolova, McAdam & Rossi-Lamastra, 2022; Colombo, von Krogh, Rossi-Lamastra & Stephan, 2017), employee incentives may be key to managing the tradition—innovation paradox and unlocking a family firm's innovation potential. Indeed, researchers have called for studies to investigate how human resource management (HRM) practices, such as incentives, contribute to firm innovation (e.g., Laursen & Foss, 2014; Lin & Sanders, 2017; Seeck & Diehl, 2017). By rewarding employees' for their creativity and motivating them to experiment and share knowledge, incentives have the potential to guide and stimulate employee behavior, thereby fostering innovation (Behrens & Patzelt, 2018; Davis & Hyndman, 2018). However, what types of incentives are most conducive to promoting innovation is debated, with some research emphasizing the benefits of calculative, contract-based incentives and others preferring incentives based on a collaborative, humanistic orientation (e.g., Cregan, Kulik, Johnston & Bartram, 2021; Lee & Meyer-Doyle, 2017). These

two views of incentives make competing predictions about the mechanisms needed to motivate desired employee behaviors. Whereby the calculative approach relies on explicit, contract-based incentives such as pay-for-performance, high salary, and specified work hours, the collaborative approach relies on implicit, relationship-based incentives that support participation in decision-making, flexibility, and work-life balance. Similarly, the family business literature has questioned whether HRM practices that are contract-based and emphasize controls are more effective than those that are relationship-based and emphasize collaboration (Eddleston, Kellermanns & Kidwell, 2018; Flamini, Gnan, & Pellegrini, 2020).

Rather than debate the superiority of calculative- versus collaborative-based incentives, both of which have received mixed support (Lee & Meyer-Doyle, 2017), instead we propose that incentives need to align with a family firm's attachment to tradition to promote innovation. This is in line with research suggesting that HRM practices should align with an organization's culture to most effectively motivate employees toward achieving firm goals (Botelho, 2020; Jackson, Schuler & Jiang, 2014). Family business research also acknowledges the importance of HRM practices being complementary and consistent with an organization's culture to effectively gain employee commitment and productivity (James, Jennings & Jennings, 2017; Madison, Holt, Kellermanns & Ranft, 2016). As such, based on their level of attachment to tradition, there may be different pathways to supporting family firm innovation. In developing an HRM perspective of family firm innovation, we therefore propose that aligning incentives with a family firm's level of attachment to tradition may be key to unlocking their innovation potential. Accordingly, we aim to address the following questions: *What incentives do innovative family firms use to motivate their employees? How do family firms with high versus low attachment to tradition configure incentives to promote innovation? What incentive configurations are most common?*

Adopting a qualitative comparative analysis (QCA) approach, increasingly emerging in top-tier management journals (e.g., De Vos & Cambre, 2017; Dwivedi, Joshi & Misangyi, 2018; Misangyi, Greckhamer, Furnari, Fiss, Crilly, & Aguilera, 2017), our study reveals that the set of incentives necessary for innovation to materialize differs between family firms with high versus low attachment to tradition. Whereas family firms with high attachment to tradition tend to promote innovation by using collaborative-based incentives (i.e., participation and work-life balance), family firms with low attachment to tradition usually combine calculative- (e.g., salary) and collaborative-based (e.g., participation) incentives. Therefore, our research offers several contributions to the literature. First, we push the debate on the tradition—innovation paradox in family firms forward by offering new insight on family firm innovation from an HRM perspective. Our study shows that the alignment of incentives with a family firm's attachment to tradition can help a family firm manage the tradition—innovation paradox, thus unlocking their innovation potential. In line with the principle of equifinality, we find that family firms with high attachment to tradition can be as innovative as those with low attachment to tradition by implementing the appropriate configuration of incentives. As such, our research demonstrates that tradition and innovation can be simultaneously present in a complementary way when the right configuration of incentives is used by family firms.

Second, the family business literature has mainly focused on comparing family firms to non-family firms (De Kok, Uhlaner & Thurik , 2006; Duran, Kammerlander, van Essen, & Zellweger, 2016), or showing that heterogeneity in family firm characteristics leads to heterogeneity in their behaviors (Chua, Chrisman, Steier, & Rau, 2012). Instead, we address recent calls to more closely investigate the heterogeneity of family firms by showing that variation in terms of both incentive configuration adopted and attachment to tradition can lead to

the same behavior (i.e., innovation). Our study highlights how a configurational approach offers unique insights into understanding how heterogeneous firms and firm characteristics can lead to the same outcome. Additionally, by demonstrating that several configurations of incentives can be used by family firms with high and low attachment to tradition, we show that several pathways to innovation exist for family firms.

Third, by drawing on the unique properties of set methodology and utilizing QCA, our study demonstrates how different factors can be simultaneously important (i.e., different configurations of incentives align with different levels of attachment to tradition) to achieve innovation in family firms. Our analysis also shows that innovation can result from the presence or absence of a condition, suggesting asymmetric causality. Finally, while our study focuses on family firms, the most ubiquitous form of business organization in the world (Cesinger, Hughes, Mensching, Bouncken, Fredrich & Kraus, 2016), it contributes to the wider innovation literature by showcasing the strategic role played by HRM in fostering innovation (e.g., Botelho, 2020; Lin & Sanders, 2017; Seeck & Diehl, 2017). As such, it helps answer Laursen and Foss's (2014) call to examine incentives as a system to better understand how HRM influences innovation. Additionally, our study highlights the need to focus on the alignment of organizational culture with HRM practices when assessing their effectiveness in promoting innovation.

THEORETICAL BACKGROUND

Innovation in Family Firms

A key principle in the innovation literature is that innovation requires breaking with the past to develop new competences and skills (Adner & Snow, 2010). In the context of family firms, innovation is essential to remain competitive and ensure long-term survival in increasingly dynamic environments (Rondi, Überbacher, von Schlenk-Barnsdorf, De Massis & Hülsbeck,

2021). There are, however, strong theoretical reasons to believe that family firms may encounter greater difficulties than nonfamily firms in innovating (König, Kammerlander & Enders, 2013). In addition to their aversion to risk (Morris, 1998), conservative posture (Duran et al., 2016), organizational rigidity (Kets de Vries, 1993), and limited propensity to use investment capital to fund innovation (e.g., Wu et al., 2007), family firms are constrained by emotional ties and a generational shadow that complicate their willingness and ability to innovate (De Massis et al., 2016; Rondi et al., 2021; Lorenzo, Núñez-Cacho, Akhter & Chirico, 2022). Because traditions and heritage are passed down through the generations, the 'power of the past' often limits family firms' experimentation, adoption of new strategies, and innovation (Ingram et al., 2016; Erdogan et al., 2020). However, the tendency to characterize family firms as stagnant and resistant to change is in stark contrast with the fact that over 50% of the most innovative firms in Europe are controlled by families (Forbes, 2014; Duran et al., 2016). Additionally, many innovations developed in emerging economies, including countries in Asia, South America and beyond, are championed by family firms (Duran, Van Essen, Heugens, Kostova & Peng, 2019). Therefore, a growing stream of research questions the characterization of family firms as stagnant and resistant to innovation and instead, emphasizes the importance of acknowledging family firm heterogeneity when studying innovation (e.g., Duran et al., 2016; Rondi et al., 2019).

Because most research compares them to nonfamily firms, family firms are often depicted as a special form of business organization subject to identical forces, with similar resources, missions, governance structures, and processes (Chua et al., 2012; Melin & Nordqvist, 2007). Yet, family firms are quite heterogeneous, ranging from multinational conglomerates in Asian metropolises to mom-and-pop stores in small-town America (Dibrell & Memili, 2019). Additionally, when differences among family firms are recognized, studies often assume that

heterogeneity in firm characteristics will lead to heterogeneity in behaviors (e.g., Chua et al., 2012; Schmid, Achleitner, Ampenberger & Kaserer, 2014). Recently, however, research on the tradition—innovation paradox has challenged this assumption by revealing how many family firms strongly attached to tradition can be as innovative as those with low attachment (e.g., Erdogan et al., 2020; Rondi et al., 2019). Such research suggests that different organizational cultures can be associated with innovation and thus, there are likely multiple pathways that support family firm innovation.

Whereas family firms with high attachment to tradition attribute great importance to the family's history and past (Kammerlander, Dessi, Bird, Floris & Murru, 2015), family firms with low attachment to tradition are oriented to the future and consider their past something from which they need to evolve (Rondi et al., 2019). Although tradition and innovation have typically been portrayed as two antithetical concepts (Ingram et al., 2016), more recently, studies have questioned this view by identifying innovative family firms that are strongly attached to tradition (e.g., Rondi et al., 2019; 2021; Suddaby & Jaskiewicz, 2020). While this research makes an important contribution to the study of family firm innovation, future work is needed to determine why family firms that vary in their attachment to tradition can achieve similar innovation outcomes (Erdogan et al., 2020; Rondi et al., 2019; 2021). Given that innovation is inherently a social process that depends on an organization's people (Brush et al., 2022; Colombo et al., 2017), perhaps employee incentives are key to unlocking the tradition-innovation paradox.

Incentives can be an important tool in promoting innovation since employees serve as agents of knowledge creation and change (Fonseca, de Faria & Lima, 2019; Lee, Mazzei & Kim, 2018; Kim, Kumar & Kumar, 2012). However, HRM research suggests that the effectiveness of incentives in motivating employees toward achieving firm goals depends on their alignment with

the organization's culture (e.g., Carroll, Dye & Wagar, 2011; Jackson et al., 2014). Additionally, it has been argued that HRM practices are most effective in promoting innovation when they are adopted as a system, rather than independently (Laursen & Foss, 2014), and complement the organization's culture (Botelho, 2020; Krammer, 2021). As such, in recognizing how employees are an indispensable ingredient for innovation, the importance of designing the right configuration of incentives to spur innovation is likely critical. Without the right configuration of incentives, employees may refrain from trying new things in favor of tried-and-true methods that limit innovation (Manso, 2017). Accordingly, we propose that incentives stimulate employees' overall innovativeness when they are effectively combined and align with a family firm's culture (i.e., level of attachment to tradition).

Although research has acknowledged the significant role incentives play in promoting innovation, which types are most effective is debated (e.g., Lee & Meyer-Doyle, 2017; Manso, 2017). At the heart of this debate is whether calculative, economic-based incentives are better at increasing innovation than ones that are collaborative and relationship-based (e.g., Beugelsdijk, 2008; Davis & Hyndman, 2018). Similarly, in the family business literature, scholars have questioned whether a controlling and contractual approach to HRM is more effective in motivating employees than one that supports collaboration and flexibility (e.g., Eddleston et al., 2018; Flamini et al., 2020). However, research has yet to explore the importance of aligning different types of incentives with a family firm's level of attachment to tradition, which may reveal different pathways to innovation. Thus, rather than debate the superiority of calculative- versus collaborative-based incentives in fostering innovation, we explore how incentives need to be configured in family firms with high versus low attachment to tradition to foster innovation.

HRM: A calculative or collaborative view?[1]

Research on HRM emphasizes two different philosophies: on the one hand, economic, calculative considerations and, on the other hand, a more humanistic, collaborative orientation (e.g., Cregan et al., 2021; Davis, Schoorman & Donaldson, 1997; Gooderham, Nordhaug, & Ringdal, 1999; Lee & Meyer-Doyle, 2017). The calculative approach views the employer-employee relationship as an economic exchange and thus, emphasizes the use of financial incentives and contractual agreements to motivate employee behavior. Applying this model, HRM schemes that prompt employees to be more innovative take the form of contract-based incentives such as pay-for-performance arrangements, bonuses and piece work that offer financial rewards for innovation outcomes (Davis & Hyndman, 2018; Giarratana, Mariani & Weller, 2018). Several studies show the positive effect financial incentives and explicit contractual agreements have on employee productivity (e.g. Lazear, 2000; Shearer, 2004), creativity (Baumann & Stieglitz, 2014; Sauermann & Cohen, 2010), and R&D (Krammer, 2021).

On the other hand, opponents to the calculative approach claim that while financial incentives may be appropriate for routine, repetitive tasks, they are not effective when employees are confronted with open-ended problems that call for innovative solutions (Davis & Hyndman, 2018). A calculative approach is criticized for promoting individualistic behaviors, short-term goals, and a reliance on tried-and-true practices (Bretos, Errasti & Marcuello, 2018; Cregan et al., 2021). Thus, HRM approaches that support collaboration and flexible work practices are viewed as more appropriate in stimulating innovative behaviors. A collaborative approach to HRM views the employer-employee relationship as a social exchange rather than an economic one. This perspective places emphasis on establishing collaborative relationships that promote participation, flexibility, and trust (Eddleston et al., 2018; Flamini, Pittino & Visintin, 2021; Sauermann & Cohen, 2010). In turn, incentives that foster intrinsic satisfaction, participation,

and overall well-being are emphasized (Cregan et al., 2021; Sauermann & Cohen, 2010). Research supporting a collaborative approach to HRM has demonstrated a positive relationship between employee participation and strategic renewal (Eddleston et al., 2012), and flexible work practices and new product development (Beugelsdijk, 2008; Coenen & Kok, 2014).

Because both approaches to incentivizing employees have received support, research needs to go beyond comparing the superiority of calculative- versus collaborative-based incentives to instead focus on *when* each approach is more effective in promoting innovation and *how* the incentives can be effectively combined. Indeed, family business scholars are increasingly looking to reconcile the two views (Eddleston et al., 2018) by suggesting that a firm's style of HRM needs to align with its organizational culture in order to motivate desirable employee behaviors (James et al., 2017; Madison, Daspit, Turner & Kellermanns, 2018). For example, James and colleagues (2017) argued that a family firm's approach to HRM should reflect its view of human behavior. They further suggested that dysfunctional behaviors and resentment can ensue when calculative- or collaborative-based incentives are used in the wrong context. Similarly, Madison and colleagues (2018) argued that if a family firm's behavioral assumptions about employees are inaccurate, then practices may be implemented that trigger undesirable employee behaviors. Therefore, whether incentives align with a family firm's culture may explain why calculative and collaborative approaches to HRM have *both* been shown to increase, as well as decrease, firm innovation. Accordingly, we explore how innovative family firms that vary in their attachment to tradition configure their incentives, thereby aiming to identify if there are different incentive configurations that enhance family firm innovation.

METHOD

Qualitative Comparative Analysis

Our theorizing suggests that incentive systems in family firms are best understood as complex configurations of calculative and collaborative elements. To be effective, these incentive configurations must be aligned with a family firm's level of attachment to tradition. Additionally, in line with a configurational approach, we expect that both the presence and absence of incentives will predict family firm innovation. This suggests that multiple but similarly relevant paths exist through which family firms can realize innovation. Our theory is therefore configurational which requires a methodological approach capable of modeling such relations. QCA is the most appropriate analytical tool for this purpose. QCA rests on the idea that relationships between constructs are "frequently better understood in terms of set-theoretic relations rather than correlations" (Fiss, 2011: 395). Accordingly, the analysis builds on Boolean algebra and aims to identify necessary or sufficient (combinations of) conditions that are associated with an outcome of interest in medium-sized samples (Fiss, 2007). Douglas, Shepherd and Prentice (2020) report that QCA is well-suited to deal with complex phenomena, as it uses an inductive research method based on the principles of conjunction, equifinality, and causal asymmetry (see also, Misangyi et al., 2017). Accordingly, we theorize *causal asymmetry* whereby one configuration of incentives can lead to innovation in one type of family firm, but not necessarily in another type of family firm. We further assume *conjunction*, whereby incentives are examined in concert with organizational characteristics rather than independently, and it is the comparison of equally-effective pathways that builds the center of our analysis. Hence, we focus on uncovering *equifinality*, whereby more than one configuration of causal conditions can lead to the same outcome, or different configurations of incentives can be equally successful for family firm innovation. To exploit the capabilities of QCA fully, it therefore essential that the configurational analysis rests on a sample with a data structure that corresponds

to QCA's capability to process quantitative data while simultaneously taking advantage of rich qualitative data (Ragin, 2008). Our statistical analysis is built on this theory-method-data link as a foundation for reliable results.

Setting, Data and Sampling Strategy

Setting

We chose to concentrate on German manufacturers of parts and accessories for motor vehicles, manufacturers of instruments for measuring, testing and navigation, as well as manufacturers of medical instruments (Piening & Salge, 2015; Schmiedeberg, 2008), as a consistent setting to take into account family firm heterogeneity. These manufacturing firms are in a relatively comparable environment, regarding culture, norms, and political stability. Their HRM context is also comparable in terms of legal framework, labor market conditions, and competition for talent. Additionally, our sample allows for the inclusion of employees belonging to labor unions, which have traditionally influenced German working conditions such as salaries, workplace rights, job security, and employee benefits (Behrens, Fichter & Frege 2003). Furthermore, the labor market for specialized engineers in our industries are tense. While the quality of engineering education in Germany is generally high, the quantity of engineers released into the labor market lags significantly behind demand. As such, the family firms in our sample likely face considerable challenges in attracting these high qualified employees (Thelen, 2019). The labor market conditions under which the firms in our sample operate make HRM an important strategy to compete for talent. Therefore, we are able to trace performance differentials back to the heterogeneity in HRM approaches and attachment to tradition.

To qualify for our sample, six conditions had to be fulfilled, of which the first five conditions are company conditions: 1) family ownership, 2) core operation (>66% of revenues)

in any of the three manufacturing industries, 3) headquartered in Germany since founding, 4) consider innovation a core requirement for competitiveness, and 5) access to company self-presentation data. The sixth condition was an active profile on Kununu website, a provider of employer evaluation data, which we used to assess employees' perception of HRM incentives both qualitatively and quantitatively.

Data

To draw the most complete picture of our sample, we collected data over a three-year period (2015–2017) from three distinct sources. First, the Orbis database published by Bureau van Dijk to identify family firms. Second, family firm self-presentations on company websites, press releases, and other official documents through which a family firm promotes its identity. Our interest was in collecting data on how family firms define their organizational culture, either by building on the family's past traditions, or by detaching from their heritage and being more future-oriented. To assess employee perceptions of a particular firm, we relied on a third data source, Kununu, Europe's leading platform to share information about salary and corporate culture, as well as to rate employers. Founded and headquartered in Austria, Kununu is a German language website that is designed for employees to anonymously evaluate their employer in 32 categories using written text and quantitative measures. Kununu stores more than 5.1 million evaluations with the aim to make working conditions more transparent and fair. Companies are presented on this platform through the lens of their employees. Kununu allows employers to compare themselves with peers and serves as an important source of information for job seekers. Additionally, it allows for the comparison of family firms in the same industry, with similar firm characteristics, for example: employee satisfaction with work-life balance, perceived equality, accessibility of firm location, and health services provided. Using multiple sources of data, we

were therefore able to collect both quantitative data on objective dimensions, such as number of patents, and qualitative data, such as perceived opportunities for career progression (see Table 1).

Insert Table 1 around here

In total, we were able to generate a rather large dataset for QCA by identifying 85 family firms for which we collected a total 2,216 evaluations (mean 15, sd 68.96). Our selection strategy was based on identifying a homogenous sample in terms of industry sector and the importance of innovation in order to keep potential unintended influences as low as possible. Out of the 85 family firms, 65.6% registered at least one patent between 2015 and 2017. Within the three-year period, the mean revenues were 953 million euro (sd 1,230) and the mean number of employees was 3,879 (sd 3,036). Our sample consists of rather large family firms (mean of 3,198 employees for traditionally-attached family firms, and mean of 4,361 employees for traditionally-detached family firms). With mean revenues between 730 million USD (high attachment to tradition family firms) and 1,162 USD (low attachment to traditional family firms), our sample contains those firms that are commonly seen as the ’backbone’ of the German economy. We only considered evaluations from respondents with an employment relation with the firm, and those who were categorized as employees or lower-level managers because in family firms, upper-managers (i.e., middle and top) tend to be related to the owning family.

To evaluate the data distribution and give a more complete picture of our data, we conducted t-tests for equality of means between size classes (revenues and number of employees), as well as firms with many and few evaluations, and differences in the main categories of interest (i.e., innovation outcome, types of incentives). The t-tests were supplemented by a Levene Test of homogeneity of variances (see Appendix A-1 and A-2)[2]. These tests did not identify any non-

expected idiosyncrasies in our data. We further evaluated whether differences can be observed in relation to the data collection year, although no relevant differences emerged. As Kununu collects information in German language only, we had to translate written text into English. To ensure that we retained the initial meaning, two native speakers translated text first in English and then back into German (Abfalter, Mueller-Seeger & Raich, 2021). With this approach we confirmed that the core meaning of employees' statements was not lost in translation.

Coding Case Set Membership and Theoretical Conditions

Set Membership Calibration

In QCA, the outcome condition (in our case, *innovation*) and explanatory conditions (in our case, family firm attachment to tradition, and HRM incentive approach) are each viewed as a set in which each case may have membership. To calibrate our data, we used a four-value fuzzy set calibration approach for all explanatory conditions. Consistent with prior research, we coded crisp-set membership (i.e., 'fully in' or 'fully out') for the binary outcome (Dwivedi et al., 2018). Fuzzy-set membership conditions derived from the qualitative data were coded according to three thresholds: full membership (1.00), the crossover point (0.50), and full non-membership (0.00) (Ragin, 2008). This provides in the Boolean logic four levels of fuzzy-set membership: fully in (= 1), more in than out (1 < and ≥ 0.50), more out than in (0.50 <and > 0), and fully out (= 0) (McKnight & Zietsma, 2018; Misangyi et al., 2017). We utilized the fuzzy-set approach for attachment to tradition and other 'soft' concepts for which we collected rich data. The calibration and analysis were carried out applying the direct calibration method with the fs/QCA software 3.0 (Ragin, 2008). The data calibration and the calibration rules are presented in Table 2.

Insert Table 2 around here

Outcome Condition: Firm Innovation

Patents are a key sign of a firm's innovativeness (Duran et al., 2016) that ultimately lead to superior firm performance (Block, Miller, Jaskiewicz, & Spiegel, 2013; Schmiedeberg, 2008). We therefore captured firm innovation as the ability to develop innovations that were patented (Acs, Anselin & Varga, 2002) within our three-year study period (2015–2017), utilizing information from the Orbis database. Because our sample consists of German manufacturing and engineering-driven companies for which patents play a decisive strategic role (Brenner & Greif, 2006; Motohashi, 2008; for a more critical view c.f. Boldrin & Levine, 2013), we chose patents as a proxy for innovation and contrasted this with the failure to patent innovation (Pavitt, 1985). Indeed, in the industry sectors studied, patents represent a specific, engineering-driven class of innovation. Hence, patents ensure comparability of innovation among our sample firms (Moser, 2013). Consequently, focusing on patents allowed us to overcome challenges associated with comparing firm innovation, while highlighting the strategic relevance of innovation for firm decision-making and the strategic value of motivating employees' innovation efforts. We therefore assigned family firms to crisp-sets coded '1' if patents were introduced, and 0 = otherwise. Those coded as '1' represent the set of innovative family firms (Block et al., 2013).

Explanatory Conditions

The debate around calculative- versus collaborative-based incentives has permeated the HRM literature (e.g., Cregan et al., 2021; Gooderham et al., 1999, 2011; Stavrou, Parry, Gooderham, Morley & Lazarova, 2021). This allowed us to benefit from established conceptualizations of calculative versus collaborative approaches to incentivizing employees. Being rooted in two opposing views, these incentives rely on very different motivational schemes for enhancing employee's creativity and innovation potential. The calculative approach

accentuates contract-based, individualistic behaviors, and the importance of extrinsic motivation. It therefore focuses on tangible and financial incentives that have measurable 'market' value (Gooderham et al., 1999; Gooderham, Parry & Ringdal, 2008). In contrast, the collaborative approach focuses on pro-organizational, collectivistic behaviors, and the importance of intrinsic motivation. It therefore focuses on intrinsic rewards that are not easily quantified, like affiliation, wellbeing, and opportunities for career growth (Cregan et al., 2021; Gooderham et al., 1999). Therefore, based on previous literature we established conceptualizations of calculative versus collaborative HRM approaches.

Incentives based on a calculative HRM approach. According to a calcualtive HRM approach, desirable firm outcomes, such as innovation, should be enhanced by contract-based incentives such as high salaries, pay-for-performance, and other contractual agreements (Gooderham et al., 2008, 2011). Accordingly, we consider three calculative incentives that are formally defined by the employee contract (Cregan et al., 2021; Stavrou et al., 2021): *salary*, *pay-for-performance*, and *contractual work hours*.

S*alary* was measured as the overall satisfaction of employees with salary and additional financial benefits, such as pension schemes. It was measured by the platform which generated our data using a 5-point-Likert-type scale anchored at 5 = fully satisfied and 1 = fully unsatisfied. Additionally, because the platform collects qualitative information, we were able to code and cross-check responses with the qualitative evaluation. For instance, a lower level manager from firm #18 who was not fully satisfied with his firm's salary wrote:

> *"Good [salary], even if not comparable with what is offered at the headquarters. The feeling that those in the headquarters do better is omnipresent."*

Contractual work hours refers to the degree to which a firm contractually defines a specific amount of work hours for employees, suggesting that employees receive a guaranteed minimum

number of work hours per week. We measured this condition as the ratio between the number of employees with contractually defined work hours and all employees. A value close to one suggests that almost all contracts explicitly define employee work hours while a value close to zero implies that contractual work hours are not specified in most contracts. Results show that across all family firms around 50% of work contracts include clear specifications for working hours, meaning that 50% of all employees have fixed working hours. To calibrate these values, we followed the approach of studies employing QCA using the mean as the cross-over point and the 75th and 25th percentile thresholds for fully-in and fully-out membership.

Pay-for-performance reflects the degree to which a firm pays contractually agreed financial rewards for high innovation performance. Pay-for-performance was measured as the ratio between the number of employees with contractual pay-for-performance elements and all employees. Our analysis reveals that around 20% of all employees receive financial rewards (i.e., performance-related pay) when their firm achieves an innovation. To calibrate pay-for-performance, we used the mean as the cross-over point and the 75th and 25th percentile thresholds for fully-in and fully-out membership.

Incentives based on a collaborative HRM approach. According to a collaborative approach to HRM, desirable firm outcomes, such as innovation, should be incentivized through intrinsic rewards that promote participation, affiliation, well-being, and opportunities for career growth (Gooderham et al., 1999, 2011). Such incentives are often difficult to quantify and formalize, making them more trust-based and informal (Cregan et al., 2021). As such, we consider three common incentives associated with the collaborative approach: *opportunities for growth, participation in decision-making,* and *support for work-life balance* (Gooderham et al., 1999).

Opportunities for growth is measured as employees' perception of future career

opportunities in the firm on a 5-point-Likert-type scale anchored at 5 = fully satisfied and 1 = fully unsatisfied. This explanatory condition is conceptualized as employees' perception that the family firm provides multiple opportunities for career advancement and achievement, using quantitative data and cross-checking these with qualitative statements. An exemplary statement scoring low perception of growth opportunities (fully-out) was provided by an employee from family firm #39:

> *"Training is provided and there are some initiatives to develop talent. But at the end of the day, it is not knowledge, skills, or performance that allow you to move up in the hierarchy. If you really want to achieve something, then this is not the right place for you."*

A statement that indicates satisfaction with growth opportunities is provided by an employee from family firm #19:

> *"The company has a clear policy that they want to make you fit for leadership. Of course, not everyone is suitable at the end of the day. But we are in the process of building a corporate HR development department to which in general everyone should have access. So, whether or not you will have a leadership role in the next years is very much up to you."*

To calibrate the opportunities for growth condition, we made use of the Likert-type scale answers which provided extreme positions like fully (un)satisfied as well as qualitative data. Information from qualitative data were used to crosscheck observations in the fuzzy area between the extreme poles.

Participation in decision-making refers to employees' perceived involvement in decision processes. It was measured with a 5-point-Likert-type scale anchored at 5 = fully satisfied and 1 = fully unsatisfied and calibrated and cross checked with qualitative data. We coded employees' perceived participation in decision-making as fully-in, cross-over, and fully-out set membership. Examples of the three set memberships are:

> *"There are weekly meetings, the chief executive encourages everyone to speak, and I feel he does this because he is truly interested in our opinion."* (family firm #47, fully-in)

> *"Luck of the draw. I know that colleagues from other departments can have a say and are heard. My department works differently. It's not really appreciated if you try to push forward your ideas."* (family firm #6, cross-over)

> *"Information is insufficiently provided. Mostly these trickle off at the higher level. There is the attitude that employees only need as much information as is required for the job. Everything else is not their business and should not bother them."* (family firm #66, fully-out)

Finally, we considered *support for work-life balance* as the firm's support for a healthy balance between work and life/family issues (Eikhof, Warhurst & Haunschild, 2007; Sturges & Guest, 2004). In particular, we assessed to what extent employees perceive that their firm supports work-life balance (Beauregard & Henry, 2009) using a 5-point-Likert-type scale anchored at 5 = fully satisfied and 1 = fully unsatisfied. For the calibration processes, we again used both qualitative and quantitative data. For example, a lower-level manager from family firm #51 described how his firm aims to ensure that employees achieve work-family balance:

> *"Here, people really want us to be happy and they recognize that we have a life outside of the office. The point is that if our private life is good, we're more productive!"*

However, not all employees are satisfied with their work-life balance. Several employees made comments similar to the one below from an employee at family firm #75.

> *"It's not a 9 to 5 job even if pay is exactly that. We are expected to make ourselves available if there is work to do. It's not unusual that you see light in some offices after 9 p.m. We can compensate the time later as said, but honestly, I have no clue if such compensation will ever come in my remaining career."*

In addition to studying different incentives rooted in calculative and collaborative HRM approaches, we examined another explanatory condition that relates to family firm organizational culture. Specifically, a family firm's attachment to tradition may strongly influence the way it governs, manages, makes decisions, and deploys resources (De Massis et al., 2016; Kellermanns, Eddleston, Barnett & Pearson , 2008; Madison et al., 2016). Accordingly, the degree of attachment to tradition is a key element in defining a family firm's organization culture.

High vs. low attachment to tradition. To identify if a particular family firm is characterized by high or low attachment to tradition, we developed an evaluation scheme based on three criteria commonly associated with family firms (Arregle, Hitt, Sirmon & Very, 2007; De Massis et al., 2016). We assessed (1) if a family firm's organizational identity is built on heritage and tradition from the past, (2) if the family or family members play a prevalent role in the presentation of the firm, and (3) if corporate values are portrayed as reflecting well-established family values. We then scanned publicly available documents such as written texts, videos, and pictures, analyzed them, and coded them according to our evaluation scheme. Our assessment categorizes data at a nominal level and acknowledges both quantitative (e.g., number of references to the past) and qualitative elements (e.g., the relevance of values and norms to a family firm's identity). We operationalized Criteria 1 (i.e., reference to the past) with a family firm's: i) portrayal of its heritage, ii) emphasis on nostalgia, iii) tying legacy to future products, and vi) signaling tradition as a resource (Erdogan et al., 2020). Criteria 2 (i.e., family member's prevalent role in the firm) was assessed in terms of the dominant display of the founder(s), owning family, or family members in online and printed communication. For Criteria 3 (i.e., corporate values reflect family values), we assessed if family values were referred to in corporate value statements.

We qualified the three criteria as core or peripheral values using a three-point rating scale where '1' indicates absence of a criteria, '2' indicates somewhat or medium presence of a criteria, and '3' indicates strong presence of a criteria. We then multiplied quantitative and qualitative rankings. Theoretically, a dimension could take values between 1 and 9.

The coding process was carried out by the author team. We followed common standards for intercoder reliability (O'Connor & Joffe, 2020). In line with these standards, we used a

numerical measure of agreement between different coders. We assumed sufficient agreement was given based on Miles and Huberman's (1994) suggested standard of 80% agreement on 95% of codes (for a similar suggestion c.f. Neuendorf, 2002). Firms with insufficient agreement were ruled out. Based on this process, we were able to allocate family firms onto a continuum. On one extreme of this continuum are family firms with low or zero reference to the past and their family's values, history, and tradition (operationalized as family firms with values ≤ 2) (Zellweger et al., 2013). These are typically family firms that do not accentuate their family ties and values, but instead, make exclusive reference to the future, the newness of their products, and their ability to generate avantgarde technical solutions (Kammerlander et al., 2015). Membership in the fully-in set of family firms with high attachment to tradition scored aggregated values of ≥ 8. For family firms with scores >2 and <8 that therefore did not qualify for the 'high attachment to tradition' nor 'low attachment to tradition' set, we used the fuzzy-set calibration technique to assign them to the 'more-in-than-out' or 'more-out-than-in' set using the cross-over point. For example, one firm declared its primary operational principle in the following way: "*We will grow in a profitable and self-financed way, and maintain our family-owned company's independence*" (family firm #51). Accordingly, this family firm was coded in the fuzzy area between high and low attachment to tradition.

Analytical Technique

Our QCA starts with the evaluation of the degree to which explanatory conditions are sufficient for observing innovation (i.e., patents). This analysis relies on an examination of subset relations and involves several types of analyses (Ragin, 2008). For this reason, we compared set membership values between the configurations of conditions (combination of calculative- and collaborative-based incentives) and outcome set (innovation). Sufficiency is

attained if the presence of explanatory conditions is always accompanied by the presence of the outcome condition. We used the proportion of consistency – i.e., the number of family firms that are both members of the configurational set and the outcome set – divided by the total number of family firms that are members of the causal set, to assess the consistency of the subset relationship for any specific causal set. We further assessed the consistency of each configuration as well as the overall consistency. We also took into consideration that family firms may have partial membership in all possible causal sets (Ragin, 2008). A consistent subset relation is given if the fuzzy measures for membership scores in each causal set of explanatory conditions are consistently lower or equal to the membership scores for the outcome condition (Ragin, 2008). We made use of the fuzzy-set approach for all conditions except the outcome condition as this condition is operationalized as crisp-set. Besides consistency, we further assessed coverage to indicate how many cases in the dataset have high membership in the outcome condition. This reflects how well firm innovation is explained by each configuration and by the solution as a whole. We ran our QCA analysis twice, first for family firms with high-attachment to tradition, and then for those with low attachment to tradition. With this approach, we produced two sets of configurations that represent two distinct ways of combining calculative- and collaborative-based incentives, so that they are causally relevant to firm innovation.

To set the critical thresholds, we followed the QCA convention and set the minimum raw and proportional reduction in inconsistency thresholds to 0.75 (Schneider & Wagemann, 2012). Like other studies, we further utilized the natural break in raw consistency scores as the threshold for consistency (Dwivedi et al., 2018). For the solution consistency, we set .80 as the minimum acceptable overall solution consistency. To rule out singularities, we only considered configurations with at least three cases, which converts to an inclusion rate of 77% of all cases

with firm innovation (Ragin, 2008). In an additional step, we returned to the qualitative data and examined each case underlying the sufficient configurations through a more in-depth analysis to gain additional insights into how and why the particular combinations supported firm innovation (Dwivedi et al., 2018).

We further conducted an analysis of necessity to identify any conditions without which the outcome (i.e., innovation) cannot occur. Technically, this analytical step assesses whether cases qualifying for the outcome are simultaneously a subset of explanatory conditions (Cooper & Glaesser, 2016). Identifying necessary conditions is important for both theorizing and managerial purpose because necessary conditions are decisive as their presence (absence) makes an outcome possible (impossible). In our study, none of the explanatory conditions is necessary for innovation to occur. This is a critical finding with far-reaching ramifications because it further emphasizes the relevance of sufficiency of conditions for understanding how family firms' incentive configurations motivate their employees toward innovation.

Robustness Tests

The robustness of the set theoretic results – as in every empirical analysis – is critical to the reliability of findings. Therefore, robustness has gained increasing attention among scholars using configurational analysis (Maggetti & Levi-Faur, 2013). We therefore explored the relationships between our conditions by performing multiple robustness checks, such as contrarian case (Appendix B)[3], proportional reduction in inconsistency (Appendix C), necessary conditions and set-coincidence (Appendix D), and subset analyses (Appendix E), altering the calibration threshold values. In addition, because there are likely innovative firms that lack patents, we decided to conduct a second analysis examining productivity as the outcome variable (i.e., operational revenues divided by number of employees), in order to increase the reliability of

our results (Appendix F). We were able to confirm the significance of our findings.

FINDINGS

Table 3 reports the intermediate solutions of our QCA analysis. The presence of an explanatory condition is denoted as (●) while its absence as (○). There are configurations which are indifferent to either the presence or absence of a condition. This is denoted with '—'. We use the intermediate solution in Table 3 to discuss our findings. In addition, we ran a counterfactual analysis using all logically possible configurations for which no cases exist in the dataset. Because we did not propose specific contributing conditions, and our intermediate solutions do not contain other information on parsimonious solutions, we decided to not distinguish between core conditions and contributing conditions in our analysis (Fiss, 2011).

Insert Table 3 around here

Table 3 contains five configurations that are all sufficient for observing firm innovation. In total, we identified two sufficient configurations of incentives for observing innovation in family firms with high attachment to tradition, and three configurations for family firms with low attachment to tradition. Both models performed well regarding solution consistency (0.86 high tradition-attachment; 0.92 low tradition-attachment) and solution coverage (0.48 high tradition-attachment; 0.57 low tradition-attachment).

In addition, we ran a negated analysis[4] where we altered the outcome 'innovation' to 'failing to produce innovation' (see Table 4). We performed this test for two main reasons. First, this allows us to explore the relationship between explanatory conditions and a consequence condition and identify if a configuration of explanatory conditions can lead to both positive and negative outcomes. In such cases, a configuration would not be explanatory, as it could produce both success and failure to innovate. Second, a negated analysis can demonstrate how close or

distinct the pathways are that lead to success versus failure. As such, this analysis would reveal how sensitive innovation success or failure is to the configuration of explanatory conditions.

Insert Table 4 around here

Configurations Sufficient for Innovation in Family Firms with *High* Attachment to Tradition

Our analysis assesses the explanatory conditions for observing innovation in family firms with high attachment to tradition. We observe two different sets of configurations: *guardians of the past and people,* and *guardians of the past and professional boundaries*. In the first one (*guardians of the past and people*), *participation in decision-making* and *support for work-life balance* must be jointly present to achieve firm innovation, while this configuration is indifferent toward the presence of *pay-for-performance* and *contractual work hours*. In the second configuration (*guardians of the past and professional boundaries*), *contractual work hours* and *support for work-life balance* are relevant for firm innovation. The two configurations, however, differ in terms of raw coverage (*guardians of the past and people*: rcov = 0.43, *guardians of the past and professional boundaries*: rcov = 0.18) and unique coverage (*guardians of the past and people*: ucov = 0.30, *guardians of the past and professional boundaries*: ucov = 0.05), indicating different relevance of each configuration. In particular, 42.9% of all family firms with high attachment to tradition foster innovation by encouraging *employee participation* in major decisions and offering support for *work-life balance*. The configuration *guardians of the past and professional boundaries*, which includes *contractual work hours* and *support for work-life balance*, is adopted by only 18% of innovative family firms with high attachment to tradition.

Guardians of the past and people (Configuration I): Participation in decision-making and support for work-life balance

Configuration I shows that almost 43% of family firms with high attachment to tradition do not use the *salary* incentive, which is typically associated with a calculative HRM approach. Other incentives like *pay-for-performance* and *contractual work hours* are indifferent, meaning that they might play a role for some family firms, but their presence or absence is not characteristic of the *guardians of the past and people* configuration. To incentivize employees toward innovation, a combination of promoting *participation* and *work-life balance* builds the core for family firms with attachment to tradition. To gain deeper insight into the workings of this combination of incentives, we further analyzed the family firms adopting this configuration by examining the company websites and the Kununu dataset to review employees' perceptions. This deeper qualitative analysis helped to identify important information on the functioning of these incentives. The *participation in decision-making* incentive was commonly reflected through the assignment of positions of responsibility to nonfamily members and/or including nonfamily managers in challenging roles that rendered them pivotal in strategic decision-making. These firms also encourage collaboration in decision-making and problem-solving by frequently using teams composed of employees from different functional areas. Thus, employees in these family firms are motivated to participate in decision-making and perceive that they have direct impact on business strategies.

For Configuration I (*guardians of the past and people)*, a recurring theme found in our data is that employees report taking ownership of innovation activities in their effort to preserve the family's heritage. Since the preservation of tradition is a fundamental trait that shapes the mission of these firms, it appears that these firms aim to increase employees' sense of belonging and attachment to the firm's heritage by sharing responsibility for innovation while upholding traditions. The owner of a family firm states on the company website (family firm #11):

> *"It is only by closing the gap between the family and the business that you can succeed. They* [the employees] *should not feel the separation, but should feel part of the family, and as such, be involved in all strategic processes intended to preserve our long tradition."*

Thus, reinforcing the link between tradition and employee participation is at the heart of incentivizing employees in these firms, as it appears to increase employees' identification with the firm's mission. This was confirmed by employees, as seen in quote below (family firm #14):

> *"For over 100 years, we have been at the forefront in developing new, successful products in our industry. The values upon which our company was built, has been a key driver. Being a part of this success is a privilege. Nobody wants this trend to end."*

According to the second incentive of this configuration (i.e., *support for work-life balance*), we found general agreement among the employees that their family firms aimed to provide good working conditions while showing respect for their personal lives. Our data revealed that this was often achieved through the adoption of incentives that support well-being and flexibility, such as practices that help employees manage family demands. One example is the possibility of bringing a child to work when something unexpected happens at home (e.g., childcare cancelled, school closure). One employee speaking about this incentive (family firm #12) explained:

> *"It is the opportunity that is there that makes the difference and motivates me to give my best. I'm part of the "family" and I sense a very helpful attitude toward my situation. It has become a kind of implicit agreement: I give you my best commitment and you [top management] pay me back with your understanding when private problems occur."*

The qualitative data indicate that firms with high attachment to tradition are consistent in the importance they place on family values. While their business is very much centered on instilling tradition into services and products, these family firms also want their employees feeling cared for and part of the 'family' by helping them to balance work-life demands. In turn, employees appear to reciprocate via commitment and behaviors that support innovation.

Further, in such an environment, the absence of the calculative-based incentive *salary* likely confirms the importance of trust, flexibility, and care in these family firms. In contrast, the calculative-based incentives *pay-for-performance* and *contractual work hours* appear to play a role in the incentive structure of some g*uardians of the past and people* family firms, as indicated by their indifference condition. *Pay-for-performance*, for example, is not consequential to the configuration but may fullfil a purpose for some family firms as it can compensate for a perceived low salary and reward employees for adopting family values and upholding the firm's traditions. Therefore, family firms in the *guardians of the past and people* configuration have remained innovative due to their close cooperation with employees who highly respect the family firm's heritage. Such firms have created a symbiotic relationship with their employees and consider them a wider part of their family.

Guardians of the past and professional boundaries (Configuration II): Contractual work hours and support for work-life balance

The configuration *guardians of the past and professional boundaries* captures a second path to innovation for family firms with high attachment to tradition. Configuration II highlights the successful combination of incentives that are formally established by contractual agreements (i.e., *contractual work hours*) with more intrinsic incentives (i.e., *support for work-life balance*), thereby combining calculative- and collaborative-based incentives. Given the absence of the calculative-based incentives *salary* and *pay-for-performance* as well as the absence of the collaborative-based incentives *opportunities for growth* and *participation in decision-making*, family firms in this configuration promote innovation through setting clear and well-defined professional boundaries. While employee perceptions of *support for work-life balance* mirror the ideas expressed in Configuration I (i.e., offering greater flexibility to employees results in better

innovation performance), *contractual work hours* appear to provide consistency to one's work week and schedule, thereby contributing to innovation. Thus, the combination of *support for work-life balance* and *contractual work hours* may help employees to better manage their time by specifying the number of work hours they are obligated to perform each week and using the flexibility offered through support for work-life balance to meet both work and life/family demands. One employee explains (family firm #22):

> *"You have the freedom to organize your work day as it fits you best. No one will punish you due to unexpected private situations that keep you away for a while. I am the boss of my schedule. Of course, this does not mean that you do not have obligations and you don't take others into consideration. This is something you wouldn't do in your family, right? I know that 37.5 hours of my week are spent here. There is a nice understanding like in a family, but some fixed rules like in a business. It is a good balance."*

The effect of combining these incentives is clearly visible in the case of a third generation company that is built on traditional manufacturing practices and family beliefs handed down from one generation to the next, but with the addition of some modern processes and machineries, such as the use of digital technologies and innovative materials. Here, a company employee stated (family firm #26):

> *"I would describe the business as 'respectful.' They respect family traditions and the importance of work-life balance. The managers believe in 'family first', and this prompts us to give our best to ensure that our processes and products remain innovative."*

Regarding incentives absent from the *guardians of the past and professional boundaries* configuration, both calculative- and collaborative-based incentives that do not specifically focus on setting well-defined boundaries between employees' private and professional life might be counterproductive as these conditions distract from the actual focus of their incentive system. In this respect, calculative-based incentives related to financial motivation, and collaborative-based incentives aimed at increasing participation and training opportunities were all missing in these family firms.

Configurations Sufficient for Innovation in Family Firms with *Low* Attachment to Tradition

Three sets of configurations represent the paths to innovation for family firms with low attachment to tradition (*modernizers with compensated engagement*: cons = 0.93, *modernizers with employee transactions*: cons = 0.79, *modernizers with professional boundaries*: cons =.80), and two of them significantly differ from those of family firms with high attachment to tradition. Notably, *salary* in family firms with low attachment to tradition tends to be associated with greater satisfaction, which is at odds with those characterized by high attachment to tradition. The configuration *modernizers with compensated engagement* is based on the presence of *salary satisfaction* and *participation in decision-making. Pay-for performance and contractual working hours* are indifferent and *opportunities for growth* and *work-life balance* are absent. The configuration *modernizers with employee transactions* is built on the *salary* and *contractual work hours* incentives while all other conditions are absent. In comparison, the configuration *modernizers with professional boundaries* is the same as the configuration *guardians of the past and professional boundaries* (i.e., *contractual work hours* and *support for work-life balance),* which indicates that there is one set of incentives that works for family firms with both high and low attachment to tradition. However, there are differences in terms of raw coverage (*modernizers with compensated engagement*: rcov = 0.49, *modernizers with employee transactions*: rcov = 0.08, *modernizers with professional boundaries*: rcov = 0.06) and unique coverage (*modernizers with compensated engagement*: ucov = 0.44, *modernizers with employee transactions*: ucov = 0.04, *modernizers with professional boundaries*: ucov = 0.03). As with family firms high in attachment to tradition, one configuration (*modernizers with compensated engagement*) is the most common among family firms with low attachment to tradition, with a

coverage of 49%. The other two configurations are less common, although equally relevant. The configuration *modernizers with professional boundaries* accounts for only 6.2% of family firms with low attachment to tradition.

Modernizers with compensated engagement (Configuration III): Salary and participation in decision-making

The first configuration for family firms with low attachment to tradition combines *salary satisfaction* and employee *participation in decision-making*, while *pay-for-performance* and *contractual work hours* are still relevant elements of their incentive structure but without being consequential to this configuration. Family firms in this configuration are very much future-oriented, and almost ignore the symbolic capital linked to tradition. This was clearly reflected in the qualitative data we analyzed. While documents, webpages, and other material from family firms with high attachment to tradition repeatedly mention the origins of the firm, the founder(s), and the different generations, the statements of employees of family firms with low attachment to tradition rarely mention tradition, family values, or their heritage. Indeed, there is a clear inclination to focus on market requirements and the need to stay ahead of the competition with new products and services. Both family members and employees show an evident transactional and economic approach, as expressed in an employee's statement (family firm #59):

> *"The salary is comparable with other firms as long as the KPIs are delivered. You help the company and the company helps you with sufficient monetary reward. If everyone understands this, I do not see much trouble ahead in our unit."*

In this case, family firms pursue innovation by relying on one of the most common incentives of a calculative-based view: *salary*. Emphasis in these firms is placed on offering salaries that are more satisfying than at competitors, which in turn, is believed to increase employee behaviors that foster innovation. Some family firms accelerate the effect of *salaries* by

adding *pay-for-performance* elements to their incentives structure. Those elements are meant to attract and retain the best employees and together with the absence of *work-life balance*, they represent a clear competitive mindset of *modernizers with compensated engagement*. In such organizations *opportunities for growth* are absent as monetary goals dominate firm values and expectations towards behaviour. In turn, these family firms are willing to honour innovation success monetarily above industry standard. The prevalent opinion in these family firms is that a focus on tradition is no longer a competitive asset in a market that changes its preferences quickly and is characterized by strong competition.

The second present incentive in this configuration is employee *participation in decision-making*. However, while the *guardians of the past and people* configuration use participation to foster a sense of 'family' and heritage that guides employee behavior, *modernizers with compensated engagment* use participation to align employees' work with firm strategy and hold them accountable for decisions and outcomes. As an employee of a second-generation family firm emphasized (family firm #63):

> *"My workplace is very forward thinking and generous toward employees. When the firm does well, so do we. The family managers encourage employees to voice their opinions and experiment. The business also attracts highly skilled employees because of the salaries it offers, and this motivates everyone to pursue change and look to create new products."*

As such, the combined use of *salary* and *participation in decision-making* incentivizes employees by making them responsible for innovation and compensating them well for their engagement and success. This was also depicted by a lower level manager (family firm #34):

> *"What I get here is above average, I guess, but the firm is doing well. But I spend day and night thinking about strategies to do better than competitors. I'm actually responsible and that's why my salary is pretty high."*

Because *modernizers with compensated engagement* rely on salaries and employee *participation* to promote innovation, other incentives aimed at improving work-life balance or

providing bonuses for performance are not taken into account in these family firms. With this configuration, it appears that incentives aimed to *support work-life balance*, limit excessive *work hours* or provide intermittent *pay-for-performance* bonuses would be inconsistent with the firm's organizational culture that appears to stress competition through ideas and salaries.

Modernizers with employee transactions (Configuration IV): Salary and contractual work hours

The second configuration for family firms with low attachment to tradition includes *salary satisfaction* and *contractual work hours* as present conditions to achieve firm innovation. However, it accounts for only for 8.3% of cases. This configuration confirms the importance of *salary* to innovation for family firms low in attachment to tradition. Here, however, the presence of *contractual work hours* and the absence of *pay-for-performance*, *opportunity for growth*, and *participation in decision-making* suggest a clear transactional relation between the family firm and employee; both working hours and compensation are clearly defined. Beyond this, employees cannot expect further accommodations, although they can trust that salaries are satisfying. As with *modernizers with compensated engagement*, qualitative data show a strong emphasis on market competition and little regard for tradition. Qualitative data also reveals the perceived need to offer employees *satisfying salaries* and competitive contracts with explicitly defined *work hours* in order to attract and retain the 'best' employees. As a manager reported (family firm #67):

> *"We are a family firm, but business competition does not care about family culture: it's the price and the quality of our products that make the difference! To remain competitive, we have to offer what our employees would get elsewhere. Otherwise, it's over."*

This way of innovating is epitomized in the words of a nonfamily employee of a fourth generation family firm, when he noted (family firm #30):

"This family business is run like a modern corporation. There is nothing old fashion about the business and everyone knows what is expected. I like how everything is spelled out in our employment contracts and nothing is left to misinterpretation. This constantly stimulates me to do my utmost to contribute to change and innovation"

Therefore, for *modernizers with employee transactions*, the incentives used to foster innovation rest on formal contractual conditions that favour a calculative rather than collaborative approach. Incentives fostering collaboration and participation do not fit in this transactional view, as they jeopardize any clarity gained through predefined work hours and financial compensation.

Modernizers with professional boundaries* (*Configuration V): Contractual work hours and support for work-life balance

The configuration *modernizers with professional boundaries* captures the last path to innovation for family firms with low attachment to tradition, but accounts for only 6.2% of cases. This combination of incentives is identical to the configuration *guardians of the past and professional boundaries* for family firms with high attachment to tradition. Hence, setting boundaries through *contractual work hours* and *support for work-life balance* is a suitable configuration for family firms with both high and low attachment to tradition. For both types of family firms, the absence of all other incentives enforces these boundaries. However, this configuration is more common – in terms of raw coverage – by family firms characterized by high attachment to tradition. This configuration highlights the positive effect that this set of incentives has in general, independent of a family firm's specific organizational culture. In other words, our results show that family firms can benefit from HRM practices emphasizing a combination of calculative- and collaborative-based incentives. Our qualitative data support this evidence in family firms with both high and low attachment to tradition. Illustrating this

configuration type in an informal conversation, the employee of a fourth-generation business in the automotive industry, reported (family firm #19):

> *"I think we are so innovative because we are flexible and employees are encouraged to manage their own time. The business places a lot of value on work-life balance, which makes the workplace less stressful and also more creative."*

Similar to the *guardians of the past and professional boundaries* configuration, *modernizers with professional boundaries* also put emphasis on supporting employees' *work-life balance*. However, in comparing qualitative statements, the two types of family firms appear to differ in their motives. With *guardians of the past and professional boundaries*, the support for *work-life balance* is based on respect for employees' personal lives and wellbeing, which is believed to foster innovation. In contrast, *modernizers with professional boundaries* support *work-life balance* in an effort to offer greater flexibility, which is intended to improve intrinsic motivation, thus increasing firm competitiveness. Therefore, although family firms with both high and low attachment to tradition were found to combine contractual *work hours* with support for *work-life balance*, qualitative data suggests that how these incentives are perceived by employees differs.

A Model of How Heterogenous Incentive Configurations and Organizational Culture Foster Homogeneous Innovation Outcome

Our findings suggest five different paths to firm innovation. Considering the *modernizers* (i.e., firms with low attachment to tradition), offering satisfying salaries appears critical for two out of three pathways to innovation. Salaries that produce high satisfaction should then be accompanied by fixed contractual work-hours or employee participation in decision-making to successfully incentivize employees toward innovation. It is worth highlighting that the vast majority of family firms with low attachment to tradition achieve innovation by *compensating engagement* (i.e., by combining satisfying salaries with participation in decision-making), thus

demonstrating that the presence of both calculative- and collaborative-based incentives is beneficial to innovation. Additionally, our findings revealed that some family firms with a low attachment to tradition (6.2%) are able to foster innovation by offering support for work-life balance, rather than emphasizing salaries, thus *defining clear professional boundaries*. We also found contractual work hours to be an important incentive for family firms with high and low attachment to tradition, offering further evidence that HRM practices that balance calculative- with collaborative-based incentives may offer an advantage in promoting innovation.

Regarding the *guardians* (i.e., firms with high attachment to tradition), our study reveals that family firms should focus on incentives beyond salaries and instead direct their attention toward collaborative incentives that support participation, flexibility, and work-life balance. Indeed, providing a good balance between job-related duties and private life represents a necessary condition for incentivizing employees and achieving innovation in firms that have a high attachment to tradition. Specifically, the path most commonly used by family firms with high attachment to tradition (43%) emphasizes *care for people,* by combining support for work-life balance with employee participation in decision-making (*guardians of the past and people*). The second most common path used by family firms with high attachment to tradition centers on *clear professional boundaries,* by combining support for work-life balance and contractual work hours (*guardians of the past and professional boundaries*). Therefore, contrary to family firms with low attachment to tradition, when tradition permeates a family firm's culture, a set of incentives fully rooted in the collaborative approach (i.e., support for work-life balance, participation in decision-making) is the most common configuration used to promote innovation. Family firms with low attachment to tradition, in contrast, most commonly rely on a mix of calculative- and collaborative-based incentives. Only 8.3% of modernizers apply a purely

calculative-oriented approach to incentivize employees (e.g. salary and contractual work hours). Thus, for modernizers, it appears calculative-type incentives like salary are often balanced with incentives that reflect the collaborative approach to promote innovation.

Interestingly, we were able to identify clearly pronounced incentive structures that included a limited set of incentives, as indicated by the absence or indifference of conditions in each configuration. Our study thus reveals that a greater array of incentives is not necessarily required or effective in promoting family firm innovation. Rather, it appears that offering a narrow set of incentives allows a family firm to offer a clear and recognizable profile that provides direction and motivation to employees. Our results also suggest that adding incentives can actually harm employee motivation to innovate because they can clash with the family firm's culture and weaken the benefits of a coherent incentive system. Indeed, a statement from an employee of a non-innovative family firm explained (family firm #2):

> *"Sometimes it is overkill – the different incentives they push. Yes, everyone agrees, innovations are important if we want to still be here in 5 years' time. But it really does not help if they tell us about this day after day."*

Therefore, our study suggests that a HRM policy built on a clearly focused and pronounced incentive strategy that complements a family firm's attachment to tradition is most conducive in motivating employees toward innovation.

Negated Results

Our negated outcome analysis supports and extends our findings. Specifically, we found that the incentive configurations used by innovative family firms are distinct from those used by family firms that lack innovation. Thus, well-designed incentive systems matter to family firm innovation. However, our findings also revealed that there is a thin line between success and failure since innovation is highly sensitive to the way incentives are configured. Small

differences in incentive configurations can therefore have severe performance implications for innovation. For example, configurations IV and VII differ only in the presence of support for *work-life balance* in the negated outcome. This is a marginal difference with significant ramifications for innovation success. As such, whether a family firm is amongst the most or least successful innovators might be attributed to a minor difference in incentives.

DISCUSSION

The aim of this study was to provide new insights on family firm innovation from an HRM perspective. Our study challenges past family business research grounded in the tradition-innovation paradox by introducing the role of HRM practices, and more specifically, incentive systems. We explored how family firms tied to the past versus those that are more forward-looking can both be innovative with the right configuration of employee incentives. In line with the principle of equifinality, we identified viable configurations of incentives (Meyer, Tsui, & Hinings, 1993), that support innovation in family firms. Additionally, our findings revealed asymmetric relations (Ragin, 2008); the most common incentive configurations used by innovative family firms strongly attached to tradition differed from the incentive configurations utilized by those with low attachment to tradition.

Our research was guided by three questions: *What incentives do innovative family firms use to motivate their employees?; how do family firms with high versus low attachment to tradition configure incentives to promote innovation; and what incentive configurations are most common?* To answer the first question, our findings showed that family firms can use both calculative- and collaborative-based incentives to promote innovation. However, the set of incentives necessary for innovation to materialize differs between family firms with high versus low attachment to tradition. Our study also identified the specific configurations of incentives

family firms with high versus low attachment to tradition use to promote innovation, thus addressing the second research question. Whereas the vast majority of family firms with low attachment to tradition (i.e., modernizers) achieve innovation by combining calculative- and collaborative-based incentives, firms with high attachment to tradition (i.e., guardians) tend to utilize collaborative incentives that support participation, flexibility, and work-life balance. Finally, our study revealed which configurations of incentives are most commonly used. In the case of modernizers, the most common configuration combines salary and participation in decision-making as the family firm fosters innovation through compensating employee engagement. In the case of guardians, most family firms use a collaborative-based HRM approach, where participation and work-life balance are promoted to incentivize employees toward innovation. Furthermore, we discovered the importance of a minimalistic approach in incentivizing employees toward innovation, as the presence and absence of incentives were found to characterize the configurations. This suggests that a judicious and directed approach in offering incentives is necessary to foster innovation since an abundance of incentives not aligned with a firm's culture may fail to motivate employees and direct their behavior toward innovation.

Taken together, our findings demonstrate the importance of HRM in reconciling the tradition-innovation paradox. Our study also offers a key theoretical contribution, as our findings show that incentive configurations need to align with a family firm's level of attachment to tradition in order to foster innovation, thus demonstrating the complexity of family firm innovation. As such, the incentive system can be a valuable and effective tool to unlock family firm innovation potential, even when they are highly attached to tradition. Indeed, we find that family firms characterized by different degrees of attachment to tradition can be equally innovative by implementing different configurations of incentives. Therefore, the set of

incentives most conducive to innovation appears to depend on whether the family firm is more anchored to traditions and the past or focuses more on modernity and the future.

Contributions

Our study advances the family business and innovation literatures in a number of important ways. First, we contribute to research on the tradition-innovation paradox (e.g., Block, 2012; Erdogan et al., 2020; Rondi et al., 2019) by demonstrating how incentives need to be appropriately configured to support innovation in family firms with high versus low attachment to tradition. We demonstrated that employee incentives are key to unlocking the innovation potential of family firms that vary in their attachment to tradition. Our findings clearly indicate that tradition and innovation can be simultaneously present in a complementary way when employee incentives are aligned. Additionally, our study reveals that different incentive configurations are necessary to support innovation in family firms with low attachment to tradition. As such, family firms with different degrees of attachment to tradition can be equally innovative by implementing different incentive schemes.

Unlike the vast body of extant work produced to understand innovation in family firms, we have used an QCA approach based on set-theoretic methodology that, we believe, fits the underlying HRM mechanisms through which family firms achieve innovation. Whereas prior research largely based on standard statistical models tends to assume that the 'power of the past', manifested through traditions inherited through successive generations, hampers family firm innovation (e.g., Dacin, Dacin & Kent, 2019; Weber & Dacin, 2011), our approach relaxes this assumption, portraying a more nuanced view of family firm innovation from an HRM perspective. By revealing the important role of incentives for family firm innovation and treating incentives as configurations of interdependent factors, we believe our findings represent a more

accurate story of the mechanisms that drive innovation in family firms. Our results underscore the value of examining innovation in family firms more holistically from an HRM perspective and offers the foundations for reconciling the mixed findings in prior family firm innovation research. By demonstrating that family firms strongly attached to tradition promote innovation primarily through collaborative-based incentives while those with low attachment to tradition tend to balance calculative-based incentives with collaborative-based ones, our study highlights the importance of aligning employee incentives with a family firm's culture. As guardians of the past, those with high attachment to tradition appear to foster innovation by demonstrating respect for employees' personal lives and ideas. In contrast, family firms with low attachment to tradition, referred to as modernizers, foster innovation by combining high salaries with employee participation in decision-making or fixed contractual hours. Accordingly, our study shows that there is not one superior incentive 'pathway' for achieving innovation in family firms, opening up new lines of inquiry bridging HRM and innovation management.

Beyond contributing specifically to the literature on family firm innovation, we believe our study contributes, more broadly, to family firm research by challenging the prevailing assumption that family firms are homogenous entities (Chua et al., 2012). Family firms have been described as a particular type of organization combining two different systems: the family system and the business system (De Massis et al., 2016; Sirmon & Hitt, 2003). In turn, the presence of the family in the business context – a particularly salient and unique trait of family firms – has often led researchers to assume that family firms share similar resources, governance structures, missions, and processes (Chua et al., 2012; Distelberg & Blow, 2011). For example, the idea of the "institutionalization of the family business" (Melin & Nordqvist, 2007, p. 321) describes the tendency of many scholars to refer to family firms as a special form of business

organization subject to identical forces, without considering the many differences inherent in this category. Part of this issue is likely due to the preponderance of research comparing family firms with non-family firms (De Kok et al., 2006; Duran et al., 2016), placing excessive emphasis on searching for similarities in the characteristics and challenges of family firms as opposed to understanding their heterogeneity. Furthermore, when heterogeneity is recognized, the literature often assumes that heterogeneity in family firm characteristics leads to heterogeneity in their behaviors (e.g., Schmidt et al., 2014; Chua et al., 2012). In contrast, our study advances the understanding of family firms by showing that family firms can be quite heterogeneous with respect to firm characteristics and that this heterogeneity does not inherently lead to heterogeneity in their behaviors. Specifically, we demonstrate that variations across family firms in terms of both the incentive systems adopted and their attachment to tradition can lead to the same behavior (i.e., innovation output). Accordingly, we hope our research inspires a more critical lens in the study of family firms by encouraging scholars to consider their fundamental uniqueness due to the idiosyncrasies of the family, the business, and their HRM practices, and how these idiosyncrasies can be an exclusive source of competitive advantage.

We also contribute to the debate about the interaction between organizational culture and HRM practices, going beyond the different perspectives that conceive, in one case, HRM practices affecting culture, and, in the other case, culture affecting HRM practices (Botelho, 2020; Carroll et al., 2011). The results from our study demonstrate that organizational culture and HRM practices are inter-dependent and thus, considering one without the other could diminish innovation. Accordingly, HRM practices need to align with a firm's cultural orientation in order to achieve its goals (Den Hartog & Verburg, 2004; Jackson et al., 2014), such as promoting innovation. Further, our study shows the benefits of considering HRM practices and

culture conjointly, through a configurational approach.

More specifically, by using QCA our study offers a contribution to the literature. Drawing on the unique properties of set methodology, we demonstrate both the configurational nature and the equifinality of innovation in family firms. Since QCA is intended to identify the sets of elements leading to an outcome, rather than isolate the independent effects of single factors (i.e., explanatory factors), future research should consider adopting this more comprehensive methodology. By utilizing a configurational approach, we relaxed some assumptions typically associated with quantitative studies of family firms, thus offering three important methodological contributions. First, to achieve innovation in family firms, our findings reveal that different factors are simultaneously important (i.e., different types of incentives align with different levels of attachment to tradition). Second, more than one set of incentives promotes innovation in family firms with high and low levels of attachment to tradition. Finally, we show that innovation in family firms can result from the presence or absence of a condition. For example, in the case of family firms with high attachment to tradition, we observed innovation in the presence of the work-life balance condition and in the absence of the salary condition. In addition, QCA allowed us to explore the nature of equifinality by identifying how different configurations of calculative- and collaborative-based incentives combine with family firms' level of attachment to tradition to achieve innovation. Moreover, our research is one of the first to illustrate the value of accounting for asymmetric causality when studying innovation. We therefore demonstrate the utility of using set-theoretic methodology in an inductive, theory-building study, complementing the efforts of Fiss (2011), who showed the value of set analysis for testing established theoretical models, as well as Misangyi and Acharya (2014), who applied it for exploratory, inductive purposes.

Practical Implications

Our study also offers some practical implications, particularly for managers who seek to reinforce the strategic role played by HRM. First, we provide insight into how incentives can be configured to achieve innovation. Our findings alert managers of family firms that incentive structures are a key mechanism to foster innovation, although which configuration of incentives is most effective depends on the firm's attachment to tradition. Additionally, because a strong attachment to tradition can inhibit family firms from embracing change (Rondi et al., 2019), identifying incentives that can promote innovation in these firms is critical. Similarly, it is important to understand when calculative-based incentives, such as perceived salary, do not contribute to innovation in family firms. Our findings should therefore offer guidance on how incentives should be configured to align with a family firm's orientation to tradition in order to promote innovation.

While our study only takes into account family firms, our findings should provide insight for different types of organizations by highlighting that incentive systems are a key mechanism to foster innovation and the need to align incentives with an organization's culture. Accordingly, our study encourages practitioners to adopt a holistic approach when designing their firm's incentives, highlighting how configurations of incentives jointly result in innovation. In addition, rather than viewing incentives based on a calculative or collaborative HRM approach as 'good' or 'bad', our findings suggest that under some circumstances a balanced approach may be more conducive to promoting innovation. Therefore, balancing calculative-based incentives with those that support collaboration may offer firms the 'best of both worlds,' helping them achieve their goals (Eddleston et al., 2018; Sundaramurthy & Lewis, 2003).

Finally, our insights should inform policymakers seeking to support firms with their

innovation activities. Programs dedicated to increasing firm innovation, especially among SMEs, are flourishing. Our findings emphasize that there is more than one configuration of incentives that promote innovation and the importance of aligning incentives with a firm's organizational culture. Extending our findings beyond family firms therefore suggests that firms with a more conservative culture and long-established strategies would likely benefit from collaborative-based incentives whereas those with a more contemporary culture and evolving strategies would likely benefit from a blend of calculative- and collaborative-based incentives.

Limitations and Directions for Future Research

Our study offers a useful first step toward developing a configurational theory of innovation in family firms from an HRM perspective. However, it is also subject to limitations that we hope other researchers can take as a starting point for future inquiry. First, we recognize that the way and extent to which an incentive configuration interacts with organizational culture (i.e., attachment to tradition) to generate innovation may differ across different types of firms. Accordingly, we welcome future studies to extend our framework to other types of organizations, including nonfamily firms, cooperative ventures, widely-held corporations, and state-owned firms. In addition, studies should expand upon our work by considering different boundary conditions. For instance, we call for future research on the distinctive strategies and processes – other than HRM practices – that lead organizations anchored to the past to succeed through innovation. Likewise, we encourage scholars to consider a wider spectrum of aspects associated with a firm's past, history and tradition (e.g., Ge, De Massis & Kotlar, 2022). Indeed, we believe our study builds a new paradigm in family business innovation research from an HRM perspective that we hope inspires future research.

Second, we examined attachment to tradition as an aspect of organizational culture which may not generalize to nonfamily firms, particularly new ventures. Additionally, there are likely other aspects of organizational culture that characterize family firms. We therefore encourage future scholars to consider different aspects of organizational culture when exploring which incentive configurations are most effective in supporting innovation.

A third limitation concerns our focus on an innovation outcome (e.g., patents) rather than an innovation input (i.e., R&D investments) or additional innovation activities. Future research could benefit from investigating if the interaction of incentives and organizational culture shapes innovation inputs and activities in the same way that it shapes the innovation outcomes of our study. Additionally, our study focused on patents but did not distinguish between different types of innovation, for instance radical versus incremental innovation (Dewar & Dutton, 1986), continuous versus discontinuous innovation (De Brentani & Reid, 2012), or process versus product innovation (Branzei & Vertinsky, 2006). Future research should therefore examine if and how our identified mechanisms and incentive configurations change when different types of innovation are considered.

Fourth, our study examined a sample of family firms from Germany, operating in an industry with highly developed policies for innovation, which prevents us from generalizing to other institutional settings. We encourage scholars to examine whether the findings from our study translate to other settings that have different characteristics, both in terms of the socio-economic factors at the country level and the specific industrial sector the firms belong to that might deeply affect regulations, routines and organizational processes.

A fifth limitation concerns coverage values given that some coverage values in our study are moderate or relatively low. Coverage in QCA assesses the proportion of the sum of cases in an

outcome that a particular configuration explains. High coverage scores indicate that a particular set of configurations applies to many observed cases. Low coverage scores, however, indicate that even if the causal configuration is consistent with the outcome, its application is not common. Our moderate coverage scores suggest that besides the investigated combination of conditions, other pathways to innovation exist. While this is not surprising given the complexity of innovation, it is nevertheless a limitation of our study's findings. At the same time, it is a call for further research as incentive systems only partly explain innovation in family firms.

Finally, a further limitation comes from our data distribution. Specifically, employees from lower-level management positions were overrepresented in our sample of family firms with high attachment to tradition. As such, our data has a slight bias towards the perception of employees with management responsibility. While this might have no influence on the perception of salary – as salary was comprehended based on the position held – it could affect perceptions of support for work-life balance since it can be more difficult to attain with increasing responsibility.

CONCLUSION

This study has developed a configurational theory of family firm innovation from an HRM perspective, offering new insight on the tradition-innovation paradox. Our aim was to explore what incentives family firms use to motivate their employees toward innovation, and examine whether those incentives vary depending on the family firms' level of attachment to tradition. Utilizing QCA, our study takes into account two important ontological principles: equifinality (i.e., the existence of multiple paths), and asymmetric causality (i.e., the paths to high innovation being qualitatively different from the path to low innovation). We identified five different configurations that promote family firm innovation, highlighting how innovation depends on the alignment between a family firm's attachment to tradition and incentives. As

such, our study offers a richer understanding of why family firms strongly attached to tradition and those that are more forward-looking can *both* be innovative, contributing to theory and practice, and paving the way for an HRM perspective of family firm innovation.

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FOOTNOTES

[1] The HRM model contains an inherent duality (Gooderham et al., 1999; Cregan et al., 2021). The two views have been labeled in several different ways, although the practices and incentives characterizing them are consistent. We opted for calculative and collaborative (Gooderham et al., 1999), but, for example, Legge (1995) distinguished between 'hard' and 'soft' HRM, and Arthur (1994) referred to control and commitment.

[2] The Appendix can be found at the following DOI: 10.6084/m9.figshare.21836331

[3] All the Appendixes can be found at the following DOI: 10.6084/m9.figshare.21836331

[4] One critical relation between explanatory conditions and a consequence condition is when a configuration of explanatory conditions leads to both positive and negative outcomes. In such cases, a configuration is not explanatory as it could produce both success and failure to innovate. In such circumstances, the difference maker is not captured in the set of explanatory conditions. In classical regression analysis we would term this as omitted variable bias. To ensure that our findings have no potential lack of causal symmetry, a supplementary test of the core model but with negated outcome (failure to innovate) is suggested (Woodside , 2013). Results of our negated analysis show that configurations that produces the innovativeness in family firms are explanatory because they are significantly different from those configurations that produces failure to innovate (see Table 4). Thus, we conclude that solutions in our core findings are reliable regarding negated outcomes.

TABLES

Table 1. Data sources and data structure

Level of data	Dimension	Description	Rational/explanation
Family firm	Source	*Orbis*	*Bureau Van Dijk*
	Type of data	*Quantitative*	
	Selection criterion	*FFs*: 50.01% family ownership	Restricted definition of FFs as entities were a family is the largest vote holder (Villalonga & Amit, 2006). For robustness, we consider alternative approaches based on board of director membership, size of the family's ownership stake relative to other blockholders, and family equity holdings as a fraction of outstanding shares (Anderson, Mansi, & Reeb, 2003).
		Size: Number of employees between 2.500 and 10.000	Securing a sufficient number of firm evaluations. Homogeneity, avoiding comparing large with small firms.
		Industry: NACE Rev. 2 Core code (4 digits) 2932 (Manufacture of other parts and accessories for motor vehicles); 2573 (Manufacture of tools); 2551 Manufacture of instruments and appliances for measuring, testing, and navigation; 3250 Manufacture of medical and dental instruments and supplies	Homogeneity regarding innovation activities with comparable industries.
		Location: Headquartered in Germany	Exposure to the same economic, social, legal, and political environment.
Patents	Source	*Orbis*	*Bureau Van Dijk*
	Type of data	*Quantitative* (binary 1 for patented innovation with the years 2015 to 2017, 0 otherwise)	
	Selection criterion	*Patents*: Family has or has not patented an innovation	We used patents as innovation outcome (i.e., dependent variable) to assign set membership scores.
Firm tradition attachment	Source	*Company webpage*	We used the firms' self-presentation on the website, firm descriptions, and other official presentation material.
	Type of data	*Qualitative*	
	Selection criterion	High vs low attachment to tradition	We evaluated to what extent a firm incorporates family values in its self-concept. We used a fuzzy-set approach to not only define the extremes (i.e., fully oriented toward family values and fully oriented toward innovation), but also graduate differences within this continuum.
Employees experiences	Source	*Kununu*	Firm evaluation platform. Contains information on 70,000 companies, serving career communities in Austria, Germany, and Switzerland.
	Type of data	*Qualitative and quantitative*	Qualitative data on perceived formal and informal incentives to cross-check quantitative evaluations.
	Selection criterion	*Number of evaluations*: greater than 15	Reduce biases by generating a balanced set of evaluations.
		Position: Employee hold either worker, staff or lower management	Ensuring same exposure to organizational structures.

Table 2. Data calibration and rules for full set, cross-over, and full-out set membership

			Set membership calibration		Measurement descriptive			
Type of variable	**Condition**	**Content**	***Set membership score***	***Calibration rule***	***Mean***	***SD***	***Max***	***Min***
Outcome	Patents	Firm developed and registered at least one patent between 2015 and 2017.	Fully in = 1.00 Fully out = 0.00	Fully in = patents introduced. Fully out = no patents introduced.	0.66	0.48	1.00	0.00
Family firm attachment to tradition	High vs low tradition attachment	Extent to which family firm organizational culture is based on patterns of belief, customs and symbolic practices that are transmitted from generation to generation (Shils, 1981; Suddaby & Jaskiewicz, 2020).	Fully in ≥ 4.75 Cross-over = 2.50 Fully out ≤1.50	Fully in = Firms with no particular reference to their family heritage, but explicit focus on products. Cross-over = Firms with equal emphasis on tradition and products. Fully out = Firms with no particular reference to products, but explicit focus on family heritage.	2.75	0.19	5.00	1.00
Incentives	Salary	Overall satisfaction of employees with salary and additional social benefits, like pension schemes.	Fully in ≥ 3.77 Cross-over = 3.51 Fully out ≤ 3.05	We used the 25th/75th percentile to anchor the fully-out/fully-in set membership. The cross-over point was anchored at the 50th percentile.	3.51	0.60	4.68	1.54
	Pay-for-performance	Degree to which a firm pay contractually agreed financial rewards for high innovation performance	Fully in ≥ 0.32 Cross-over = 0.18 Fully out ≤ 0.09	We used the 25th/75th percentile to anchor the fully-out/fully-in set membership. The cross-over point was anchored at the 50th percentile.	0.18	0.02	0.78	0.00
	Contractual work hours	Degree to which a firm contractually defines a specific amount of work hours.	Fully in ≥ 0.71 Cross-over = 0.61 Fully out ≤ 0.41	We used the 25th/75th percentile to anchor the fully-out/fully-in set membership. The cross-over point was anchored at the 50th percentile.	0.61	0.25	1.00	0.00
	Opportunities for growth	Employees' perceived career opportunities in the firm.	Fully in ≥ 3.59 Cross-over = 3.14 Fully out ≤ 2.81	We used the 25th/75th percentile to anchor the fully-out/fully-in set membership. The cross-over point was anchored at the 50th percentile.	3.14	0.07	4.55	1.33
	Participation in decision-making	Employees' perceived involvement in the firm's decision processes.	Fully in ≥ 4.05 Cross-over = 3.58 Fully out ≤ 3.83	We used the 25th/75th percentile to anchor the fully-out/fully-in set membership. The cross-over point was anchored at the 50th percentile.	3.58	0.04	4.67	1.57
	Work-life balance	Employees' perceived support for work-life balance.	Fully in ≥ 3.66 Cross-over = 3.34 Fully out ≤ 3.00	We used the 25th/75th percentile to anchor the fully-out/fully-in set membership. The cross-over point was anchored at the 50th percentile.	3.34	0.06	4.40	1.77

Notes: Max and min values measured on the firm level. The outcome was operationalized as crip-set. All other conditions were perationalized as fuzzy-sets.

Table 3. Two sets of distinct configurations of innovative firms with high vs. low attachment to tradition

		Configurations for Firm Innovation				
		I	**II**	**III**	**IV**	**V**
HRM approach	**Conditions**	**Guardians of the past and people**	**Guardians of the past and professional boundaries**	**Modernizers with compensated engagement**	**Modernizers with employee transactions**	**Modernizers with professional boundaries**
	Tradition Attachment	**HIGH**	**HIGH**	**LOW**	**LOW**	**LOW**
Incentives in a calculative approach	Salary	○	○	●	●	○
	Pay-for-performance	—	○	—	○	○
	Contractual work hours	—	●	—	●	●
Incentives in a collaborative approach	Opportunities for growth	○	○	○	○	○
	Participation in decision-making	●	○	●	○	○
	Support for work-life balance	●	●	○	○	●
Cases		11	5	18	4	3
Raw Coverage (rcov)		0.43	0.18	0.49	0.08	0.06
Unique Coverage (ucov)		0.30	0.05	0.44	0.04	0.03
Consistency (cons)		0.85	0.91	0.93	0.79	0.79
Overall Solution Consistency		0.86		0.92		
Overall Solution Coverage		0.48		0.57		

Notes: N=85: We calculated two separate models, one for family firms with low tradition attachment (LOW) and one for family firms with high tradition attachment (HIGH). Family firms with low tradition attachment, frequency cut-off: 1; consistency cut-off: 0.824; family firms with high tradition attachment, frequency cut-off: 1; consistency cut-off: 0.789. Central conditions are represented by ● (presence) and ○ (absence); indifference, i.e., either presence or absence of a condition, is denoted with —.

Table 4. Results of negated outcome analysis

HRM approach	**Conditions**	**Configurations for Firm Innovation**									
		I	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**	**IX**	**X**
	Tradition Attachment	**HIGH**	**HIGH**	**HIGH**	**HIGH**	**HIGH**	**HIGH**	**BOTH**	**LOW**	**LOW**	**LOW**
Incentives in a calculative approach	Salary	○	●	-	●	○	○	●	●	○	○
	Pay-for-performance	○	-	●	○	●	○	○	○	●	●
	Contractual work hours	-	○	-	○	○	●	●	○	○	○
Incentives in a collaborative approach	Opportunities for growth	○	●	○	○	○	○	○	○	○	○
	Participation in decision-making	-	-	●	○	○	●	○	○	-	●
	Support for work-life balance	○	●	●	○	●	○	●	●	○	○
Raw Coverage (rcov)		0.25	0.33	0.31	0.10	0.10	0.05	0.05	0.02	0.12	0.09
Unique Coverage (ucov)		0.12	0.05	0.03	0.02	0.04	0.01	0.02	0.02	0.00	0.00
Consistency (cons)		0.98	0.99	0.99	1.00	0.81	1.00	1.00	0.65	1.00	1.00
Overall Solution Consistency		0.74									
Overall Solution Coverage		0.94									

Notes: The negated analysis uses the same model in our core analysis; the only difference is that we altered the outcome from positive (= successful introduction of innovation) to negative (= failure to introduce innovation). Results show that the paths to success are different from the paths that lead to failure to innovate.