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RESEARCH NOTE

IS ORGANIZATIONAL COMMITMENT TO IT GOOD FOR EMPLOYEES? THE ROLE OF INDUSTRY DYNAMISM AND CONCENTRATION[1]

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While research on the consequences of organizational commitment to IT has focused on outcomes of interest to shareholders, such as profitability and firm value, recent research has also considered other stakeholders that might benefit from an increased organizational commitment to IT, especially customers. We extend this line of the literature by investigating the benefits of a firm's organizational commitment to IT for firms' employees, a stakeholder group that uses and depends heavily on IT in its daily work. This exploratory study links a firm's organizational commitment to IT with the nonmonetary employee metrics of job satisfaction and work-life balance and embeds these associations in the industry's dynamism and concentration. We test our research model with a multi-industry dataset of 523 firms from the S&P 500 (2008-2017 period). Our findings indicate that an organizational commitment to IT may facilitate job satisfaction and work-life balance but only when industry dynamism and industry concentration are low. Additional analyses show that IT commitment's influence on these outcomes depends on the firm's commitment to particular IT technologies; for instance, organizational commitments to cloud technology and remote technology are particularly positively associated with work-life balance.

Keywords: Organizational commitment to IT, job satisfaction, work-life balance, information technology, industry dynamism, industry concentration

Introduction

Firms differ in their organizational commitment to IT, which manifests in differences in their IT investments, IT's coordination and collaboration with other business functions (Preston et al., 2008), the inclusion of IT experts in business planning (Kearns & Lederer, 2004), and the degree to which IT is a top management topic (Steelman et al., 2019). The extant research has indicated that an organizational commitment to IT improves metrics of interest to shareholders, such as profitability and firm value (Kohli & Devaraj, 2003; Sabherwal & Jeyaraj, 2015), yet little is known about whether employees, as major stakeholders, also benefit, especially in terms of nonmonetary metrics. Understanding the drivers of these benefits for employees is increasing in importance, as reflected in CEOs' placing employees' well-being at the top of their agendas (e.g., Microsoft's employee experience program), the emergence of company rankings based on these scores (e.g., Forbes' ranking among "The World's Best Employers"), and the increasing power of platforms on which employees can evaluate their employers on these metrics (e.g., Glassdoor) (Bowers & Reuber, 2018).

The question concerning whether a firm's organizational commitment to IT is associated with nonmonetary employee benefits also arises since employees of all levels use and depend on IT to accomplish their tasks (Ayyagari et al., 2011). Employees who engage with their firms' IT are more productive than those who do not (Aral et al., 2012), but whether an organizational commitment to IT is positively or negatively related to its employees' job satisfaction and work-

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life balance is unclear. On the one hand, job satisfaction can increase when repetitive tasks are outsourced to IT, allowing employees to devote time to more interesting tasks (McMurtrey et al., 2002). IT can also create opportunities for employees to do their work temporally and geographically independent of their workplaces, which should facilitate work-life balance (e.g., Diaz et al., 2012). On the other hand, social interactions and work autonomy may decline when digital workflows take over (Ragu-Nathan et al., 2008), negatively impacting job satisfaction. IT can also disrupt work-life balance when employees are always remotely connected to their work and face information overload (Ninaus et al., 2021).

The present research contributes to this discussion through an exploratory study that examines whether a firm's organizational commitment to IT is related to two major nonmonetary employee benefits: satisfaction and work-life balance. We use the resource-based view (RBV) (Barney, 1991) to argue that firms that have high levels of commitment to IT deploy resources and capabilities that help them manage IT in a way that the positive effects on their employees can prevail, increasing employees' job satisfaction and work-life balance. Further, arguments for both positive and negative associations between firms' commitment to IT and these two benefits suggest boundary conditions that we expect reside in the firm's industry environment, particularly the industry's levels of dynamism and concentration (Melville et al., 2007). We test our model empirically with a multi-industry dataset of 523 firms from the S&P 500 (2008-2017 period) using data sources from Compustat, annual reports, and Glassdoor.

Our exploratory research adds to the literature in three major ways: First, we contribute to linking research on organizational commitments to IT with stakeholder theory, which addresses the influence of firm activities on metrics of interest to stakeholders (Harrison et al., 2020). More specifically, we complement research that finds that employees who work with IT create productivity gains (Aral et al., 2012), arguing that IT can also create benefits for employees in terms of increased job satisfaction and work-life balance in some industries. Second, we add to the literature that investigates the role of the industry environment in how an organizational commitment to IT translates into outcomes (Havakhor et al., 2019; Melville et al., 2004; Mithas et al., 2013; Sabherwal et al., 2019), proposing that industry dynamism and concentration are important boundary conditions for whether an organizational commitment to IT can be beneficial to employees. Third, in an additional analysis, we decompose the aggregate IT commitment score into commitments to four specific IT technologies (e.g., cloud and remote technology and collaborative technologies). By highlighting differences in how they affect employee-related outcomes, we contribute to unearthing the nuances of the specific IT technologies that underlie the aggregated IT scores.

Conceptual Background and Hypotheses

Organizational Commitment to IT: A Literature Overview

A firm's organizational commitment to IT is the degree to which a firm dedicates its managerial attention and resources to IT (Preston et al., 2008; Steelman et al., 2019). Studies have indicated that those firms that have a strong organizational commitment to IT tend to invest more in IT, have better coordination and alignment of IT with other functions (Bharadwaj, 2000), have stronger CIOs, dedicate more top management time to IT challenges, and include IT experts in business planning (Kearns & Lederer, 2004; Preston et al., 2008). Based on the rationale of the RBV, firms that have a strong organizational commitment to IT are likely to develop superior resources and capabilities that are often difficult to imitate and that they can employ in pursuing their strategies (Barney, 2001). As the key studies listed in Table 1 (Group A) indicate, an organizational commitment to IT leads to improved profitability and firm value (e.g., Steelman et al., 2019).

The RBV suggests that not all value that resources and capabilities create is necessarily reflected in these financial metrics (Coff, 1999), as value can be appropriated by stakeholders (e.g., through price reductions from which customers profit) before it manifests in financial metrics (Barney, 2018; Rai et al., 1997) or be created for stakeholders in ways that are not part of those calculations (e.g., information benefits for customers) (Barney, 2019). Following stakeholder theory's notion that firms' activities should be positively associated with the metrics of interest to stakeholders other than shareholders (Harrison et al., 2020), some studies indicate that non-shareholder stakeholders, especially customers, also benefit from an organizational commitment to IT (for key studies, see Group B in Table 1).

Studies on IT commitment's effects on employee-related outcomes are less common. While Aral et al. (2012) show that employees create productivity benefits when they engage with IT, such benefits do not necessarily translate into outcomes of personal interest to employees. The economics literature shows that IT innovations can even result in loss of earnings for less skilled employees (e.g., Autor et al., 2008) and that only those who have complementary skills profit in terms of higher wages (e.g., Barth et al., 2016). Tambe et al. (2020) found that IT workers might even accept lower wages to work with new IT systems (see Group C in Table 1).

Table 1. Examples of Studies on IT's Organizational Relevance and Primary Benefits for Stakeholder Groups[a]

Study	Concepts of organizational commitment to IT studied (measurement)	Stakeholder outcomes studied (measurement)	Method	Main findings
Group A: Selected studies that investigate the relationship between firm-level IT constructs and outcomes of primary interest to shareholders as stakeholders[a]				
Aral et al. (2012)	Multitasking (taking on multiple simultaneous projects) (number of projects a recruiter is working on during any given day) IT-enabled knowledge networks (Herfindahl Index of the expertise of an actor's contacts, weighted by tie strength [number of emails])	Productivity/output (number of projects recruiters completed per month)	Longitudinal (2001-2005)	A higher level of multitasking is associated with higher productivity but with diminishing marginal returns. IT-enabled knowledge networks provide access to diverse knowledge, which is beneficial for workers coping with diverse multitasking portfolios.
Brynjolfsson et al. (2021)	Observable and intangible investments (R&D capital and "selling, general, and administrative expenses" [SG&A])	Productivity (total factor productivity [TFP])	Longitudinal (1961-2017)	If the contribution of intangibles to outputs exceeds their contribution as inputs, productivity is underestimated, and productivity is overestimated when the opposite holds.
Havakhor et al. (2019)	IT investments (overall ratio of the firm's annual IT budget to the firm's annual sales [InformationWeek])	Firm performance/ Firm output (Tobin's *Q*)	Longitudinal (1999-2008)	The association between IT investments and firm performance is positive, moderated by environmental turbulence and investments in R&D and advertising.
Jin and McElheran (2017)	IT expenditures (IT capital stock and operating expenses on IT services, software, and equipment)	Survival, growth, firm performance (exit [failure], number of employees, and sales)	Longitudinal (2006-2014)	The associations of IT expenditures with survival, growth, and performance is positive among young firms, while older firms show little or no benefit.
Sabherwal et al. (2019)	IT investments (firm's annual IT budget as a proportion of the firm's annual sales revenue [InformationWeek])	Firm performance (Tobin's *Q*)	Longitudinal (1999-2008)	The relationship between IT investments and firm performance is positive, moderated by strategic IT alignment.
Steelman et al. (2019)	Emphasis on new IT (ENIT) and current IT (ECIT) (number of new [ENIT] and current technologies [ECIT] per firm-year [InformationWeek]) Organizational commitment to IT (OCIT) (ratio of sentences about technologies in firms' annual reports and the specific technologies in InformationWeek)	Firm performance (Tobin's *Q*)	Longitudinal (2000-2007)	The associations among ENIT, ECIT, OCIT, and firm performance are positive, moderated by each other and the firm's business strategy (i.e., prospector, defender, analyzer).
Tambe and Hitt (2014)	IT investments (IT capital stock and IT labor-based measures)	Value added/productivity (sales minus materials [Compustat data])	Longitudinal (1987-2006)	Firms gain productivity benefits from the IT investments of other firms from which they hire IT labor.
Group B: Selected studies that investigate the relationship between firm-level IT constructs and benefits of primary interest to customers as stakeholders				
Mithas et al. (2016)	IT investments (firm's annual IT budget as a proportion of its annual sales revenue [InformationWeek])	Customer satisfaction (American Customer Satisfaction Index [ACSI])	Longitudinal (1994-2006, excluding 1997-1998)	The association between IT investments and customer satisfaction is positive, moderated by the time period.
Mithas et al. (2011)	Information management capabilities (indicator of the quality, accuracy, reliability, and timeliness of information)	Customer-focused results (levels and trends in customer satisfaction, customer retention, positive referral, and product and service performance)	Longitudinal (1999-2003)	Information management capability plays an important role in developing firm capabilities for customer management and customer performance.

Saldanha et al. (2017)	Relational information-processing capability (RIPC) (deployment of CRM systems to support customer service, customer satisfaction, and personalized marketing [InformationWeek]) Analytical information-processing capability (AIPC) (deployment of data mining and data warehousing [*InformationWeek*])	Amount of innovation (number of a firm's patents)	Survey (2002)	Both RIPC and AIPC positively moderate the relationship between customer involvement (i.e., PCI, ICI) and the amount of innovation.
Group C: Selected studies that investigate the relationship between firm-level IT constructs and benefits of primary interest to employees as stakeholders[b]				
Tambe et al. (2020)	Emerging IT (newest technology with which employees were working [text-mining of employee résumés])	Current/target wages (current and target wages on the job board) Employer attributes (employer attributes [Glassdoor reviews])	Field survey (2007)	IT workers accept compensating wage differentials to work with new IT; employers that invest in new IT attract higher-quality technical labor for a given wage.

Note: This table presents selected representative studies published after 2010. We focus only on the concepts of IT commitment (and related constructs) and the studies' stakeholder-related outcomes, although all of the studies examined more variables and interaction effects than are depicted in this table.

[a] See Sabherwal and Jeyaraj (2015) and Kohli and Devaraj (2003) for comprehensive reviews of the literature on IT investments' influence on firm performance.

[b] The economics literature offers insights into how IT and automation generally affect wages across firms and the industry (e.g., Autor et al., 2008; Autor, 2015; Barth et al., 2016). Findings indicate that IT innovation and digitalization typically put wages under pressure unless employees have complementary skills (e.g., Autor et al., 2020; Barth et al., 2020; Song et al., 2019).

Employee-Related Nonmonetary Benefits as Outcomes of IT Commitment

Since the extant research suggests a tendency for IT commitment to have no systematic, positive monetary benefits for employees—at least not for all employees—the question concerning whether employees realize nonmonetary benefits arises. Such benefits can originate from positive emotional states regarding job experiences, especially learning, development, and social integration (i.e., job satisfaction), and the ability to work flexibly, which facilitates reconciliation of private and professional duties (i.e., work-life balance) (Igbaria & Guimaraes, 1993). Reasons to conclude that employees' nonmonetary metrics of interest are affected by their employers' organizational commitment to IT and the resulting resources and capabilities include the RBV's acknowledgment that resources and capabilities influence firms' functioning, including the processes, relationships between departments, and activities (Barney, 1991; Mithas et al., 2011) in which employees' work conditions across hierarchies and functions are embedded. Less clear is whether an increasing IT commitment positively or negatively affects employees' own (nonmonetary) metrics of interest.

Job Satisfaction

Job satisfaction is rooted in the organizational context and the opportunities it provides for improved coordination, social exchange, autonomy, and transparency about the firm's functioning (Judge & Watanabe, 1993). By automating repetitive processes, a firm's IT may free employees for activities that use and extend their skills. For example, in 2012, Amazon launched the "Hands off the Wheel" initiative, which automated many processes and freed employees for more challenging jobs with opportunities for personal development (Kantrowitz 2020). IT-enabled infrastructure can also facilitate information exchange and communication among firm members (e.g., Matusik & Mickel, 2011), which translates into increased transparency about job-related issues and mutual understanding among employees, increasing job satisfaction. However, the implementation of a new IT system can determine how employees must do their jobs, which may reduce their autonomy and have a negative effect on their job satisfaction (Morris & Venkatesh, 2010), as can IT technologies like (cyber)security protections (D'Arcy et al., 2014) and information overload, which resides to some extent in IT infrastructure (e.g., emails, messengers).

On balance, we expect that firms that have organizational commitments to IT employ IT in such a way that the positive effects dominate and job satisfaction is fostered. All firms have to engage with IT to some degree, but firms for which IT is an organizational commitment tend to invest more and coordinate IT with other business functions better than other firms do. Such investment and coordination can help to align job requirements with IT infrastructure (Karimi et al., 2001; Preston et al., 2008) and provide superior work conditions to all employees, which can increase job satisfaction. Firms that have a high level of organizational commitment to IT are also

likely to provide more and better training (e.g., e-learning, digital onboarding) and instructions on how to engage with IT. While such training is relevant to a firm's own objectives (e.g., smooth implementation of IT systems to address customers' needs), it can also trigger potentially inspiring personal development (e.g., learning how to deal with information overload) (Sykes, 2015) and increase the perception that the company cares about its employees. Taken together, these mechanisms, induced by a high level of organizational commitment to IT, should increase the job satisfaction of a firm's employees. Therefore:

H1a: *There is a positive relationship between a firm's organizational commitment to IT and employees' job satisfaction.*

Work-Life Balance

Work-life balance refers to employees' ability to spend sufficient time and energy both at work and in nonwork activities (Clark, 2000). A good work-life balance is fostered when work is well structured and predictable, and employees can decide where and when to work, at least to some extent (Gajendran & Harrison, 2007). Therefore, work-life balance is rooted in the kind of work environment that an organizational commitment to IT and the resulting IT resources and capabilities shape (Ninaus et al., 2021).

Reasons to conclude that IT facilitates employees' work-life balance include its ability to structure information exchanges among organization members (Mithas et al., 2011) in such a way that employees can plan and organize their work effectively. IT enables employees to work on documents and projects irrespective of time and place, which offers employees greater flexibility and work-life balance (Clark, 2000). IT can also provide the resources to develop individualized, innovative solutions that can have a positive effect on work-life balance. For example, when The Gap, Inc. noticed that the lack of personalized schedules for workers in their stores was an issue, they built an app, Shift Messenger, that allowed workers to trade shifts with other workers freely (Oberholzer-Gee, 2021). Further, when IT systems can identify business-related issues early, such as those related to product quality and customer services (Ray et al., 2005), effective countermeasures are possible, reducing the need for the "firefighting" that can disrupt employees' private lives. However, IT can also disrupt work-life balance when employees feel that they are always connected to work (Benlian, 2020). A permanent, IT-enabled connection to work can result in information overload and blur the boundary between employees' private and professional lives. The introduction of a new IT infrastructure can also trigger pervasive changes (Morris & Venkatesh, 2010), resulting in the time-consuming need to learn new technologies, which can disrupt work-life balance.

On balance, we expect that firms that have organizational commitments to IT employ IT in a way that fosters work-life balance, rather than interfering with it. Rare is the company that can avoid at least a minimum level of IT infrastructure, so the potential for negative effects from, for example, setting up messenger systems that can disrupt employees' private lives is ever-present (Benlian, 2020; Ragu-Nathan et al., 2008). However, firms that have a high level of organizational commitment to IT are likely to invest in aligning IT with other business functions (Karimi et al., 2001; Preston et al., 2008). Such investments can give firms access to high-end prediction systems that can help them avoid issues, additional costs, and the firefighting that disrupts employees' private lives. A high level of commitment to IT is also likely to be associated with deploying internal resources to plan for future IT challenges and to include top management's and other business functions' input (Steelman et al., 2019). While also beneficial for the company's own objectives (Newkirk & Lederer, 2006), anticipating future IT-related challenges facilitates the smooth introduction of new IT systems, which reduces the potential for the negative effects on employees that are more likely to occur when a firm has a low level of commitment to IT. Therefore, we expect:

H1b: *There is a positive relationship between an organizational commitment to IT and employees' work-life balance.*

Industry Environment as a Boundary Condition

While we generally expect positive associations between an organizational commitment to IT and employee benefits, reasonable arguments also favor the negative effects of IT on nonmonetary metrics of interest to employees. In some situations, firms that are committed to IT face constraints in employing IT to contain these negative effects. As Melville et al. (2007) point out, IT is a general-purpose technology that can be used flexibly in pursuit of various business priorities. A set of studies indicates that situational restrictions reside in the firm's industry environment which can affect how a firm uses IT (Melville et al., 2004; Mithas et al., 2013; Sabherwal et al., 2019; Xue et al., 2012). We build on this notion by arguing that, by exposing the firm to industry-specific trade-offs, the industry environment affects whether stakeholders' metrics are positively influenced by an organizational commitment to IT. We follow studies on IT's financial performance outcomes (e.g., Melville et al., 2007) in investigating industry dynamism and industry concentration as factors in how the industry determines firms' processes.

Industry Dynamism

The degree of dynamism in an industry refers to the volatility and unpredictability of changes in that industry, especially in terms of customer preferences but also in terms of the products and technologies that are needed to address these changes (Dess & Beard, 1984; Xue et al., 2012). Firms in such rapidly and unpredictably changing industries use IT to deal with challenging demands for information and information processing (Melville et al., 2007).

We expect that, in these highly dynamic settings, firms that have organizational commitments to IT cannot pursue the same smooth planning of IT in alignment with other business functions as they can when industry dynamism is low, since it is difficult to know where to direct their IT investments and how to leverage them (Sabherwal et al., 2019). Unexpected changes in IT systems can be necessary to keep pace with developments in the industry (Havakhor et al., 2019; Sabherwal et al., 2019), so even firms that have strong organizational commitments to IT may not always be able to coordinate IT with other business functions and their employees' requirements when dynamism is high. Further, the necessity of ad hoc decisions related to IT puts employees under regular pressure to deal with new features and data, reducing autonomy and possibly having negative effects on job satisfaction.

The same applies to the potential for negative effects of an organizational commitment to IT on work-life balance. When industry dynamism is high, even firms that have a strong organizational commitment to IT might not be able to plan new IT projects smoothly (Sabherwal et al., 2019) but must embark on them on short notice when an unforeseen development requires realignment of the IT infrastructure. Similarly, necessarily quick responses to changes in the dynamic industry might make protecting employees' work-life balance (e.g., by offering training on how to organize and manage IT systems in a structured way) difficult or impossible, even for firms that are committed to IT, resulting in disruptions of private lives. Therefore:

H2: *The positive associations between organizational commitment to IT and employees' (a) job satisfaction and (b) work-life balance are stronger (weaker) when industry dynamism is low (high).*

Industry Concentration

When industry concentration is high, a few companies dominate the market, which leads to limited competition and reduced dependence on individual stakeholders (Melville et al., 2007). Customers—but also other stakeholders, such as employees, especially those who have industry-specific experience and knowledge—have fewer choices in concentrated industries than they do in less concentrated industries. Further, in highly concentrated markets, resource allocation is often less efficient, and the efficiency of factor inputs declines (Melville et al., 2007). When concentration is low, firms pursue more innovation in products and processes to avoid price battles (Kohli & Jaworski, 1990).

We expect that workers in highly concentrated industries have fewer employment choices, so firms in these highly concentrated industries are under less pressure to apply IT in a way that positively affects employees' job satisfaction and work-life balance. Further, even when a firm in such an industry pursues an IT commitment, the industry's generally lower efficiency might reduce the efficiency of IT's alignment with other functions (Yayla & Hu, 2012), requiring employees to compensate for such inefficiencies and leading to redundant work that can disrupt job satisfaction and work-life balance. Employees who are in industries that are not concentrated have more choices (Fee & Hadlock, 2000), which puts pressure on firms that have organizational commitments to IT to apply IT in a way that also benefits employees. Since innovation is more typical of firms in less concentrated markets, innovative IT solutions might generate such benefits for employees. Therefore:

H3: *The positive associations between organizational commitment to IT and employees' (a) job satisfaction and (b) work-life balance are stronger (weaker) when industry concentration is low (high).*

Method

Sample

The first data source for our empirical study is Compustat's financial data on firms listed on the North American stock market. We retained only the 713 firms and 6,484 firm-years that were listed in the S&P 500 at least once between 2008 and 2017. After dropping missing data on controls, 603 firms and 5,273 firm-years remained. We also use firms' public annual reports (forms 10-k and 10-KSB), which research often employs to explore strategy-related constructs using text analysis (McKenny et al., 2018). Merging data on annual reports with our Compustat data resulted in 594 firms and 4,972 firm-years.

We also used Glassdoor, a major public platform on which employees can evaluate their current and former employers anonymously on criteria like overall job satisfaction and work-life balance (Corritore et al., 2020; Schmiedel et al., 2019). Glassdoor offers a good representation of the population, especially employees who do not occupy top-management

positions (Karabarbounis & Pinto, 2018), an advantage since our arguments focus on nonmanagerial employees. The most common titles in our dataset relate almost exclusively to nonmanagerial jobs (e.g., employee, sales associate).

We matched Glassdoor reviews to Compustat firms using a manual search based on the firms' names. We dropped all firm-years with fewer than three reviews by current employees.[2] We also added data from Execucomp to measure controls that are related to top management. Finally, we dropped all firms with IT-related words in their names (e.g., BMC Software, Inc.), since the measure we use for IT commitment, our independent variable, would otherwise be overestimated. This process yielded data on 523 firms and 3,778 firm-years between 2008 and 2017. A public repository on OSF provides code and detailed descriptions of how to replicate the sample-building process, calculation of variables, and analyses.[3]

Measures

Dependent Variables

We employed Glassdoor's overall employee satisfaction rating to capture job satisfaction and used the work-life balance rating to measure work-life balance (Wolter et al., 2019). Employees who evaluate their employers on Glassdoor use a five-point scale, with five indicating the employee is very satisfied (Jing et al., 2019; Wolter et al., 2019). We focused on reviews from current employees (Jing et al., 2019). Inter-rater reliability is very high, with values ranging from 0.98 to 0.99. We used the average of all ratings for a given firm-year in which at least three reviews by current employees are available. Firms averaged 132 reviews per firm-year.

Independent Variable

As Table 1 indicates, most empirical research on firm-level IT commitment measures this commitment using InformationWeek's surveys. As these surveys were discontinued in 2013, a new measurement was necessary, especially when we matched IT commitment with data that is available only for more recent years, such as Glassdoor's data. Steelman et al. (2019) propose a new measure for firms' commitment to IT that derives from analyzing the texts in the firms' public annual reports (i.e., Forms 10-K and 10-KSB), an approach we apply in our study. Research indicates that top managers invest money, energy, and time in the areas they talk and write about (e.g., Short et al., 2010), so the text in annual reports provides a good match for our understanding of an organizational commitment to IT.

We computed the organizational commitment to IT as the percentage of sentences in the firm's annual report that contain IT-related phrases (e.g., "computer systems," "information technology," "digital"). Consistent with Steelman et al. (2019), we used technologies that are mentioned in the yearly InformationWeek surveys (up to 2007) and added technologies by means of a systematic search for key IT technologies in the years up to 2017 (e.g., hyperautomation, Blockchain)[4] since InformationWeek's surveys were discontinued in 2013. Three academic experts went over the list independently, and we retained the technologies on which all three experts agreed.

Moderator Variable

We measured industry dynamism as the natural logarithm of the standard deviation of the industry's market growth in a five-year rolling window (Crossland et al., 2014). We measured industry concentration using the Herfindahl-Hirschman Index (Hirschman, 1964), which is the sum of all firms' squared market shares in the industry. We operationalize industry as the two-digit SIC code.

Identification Strategy

Since job satisfaction and work-life balance are similarly embedded in the organizational work context, we offer one identification strategy and analyzed the effect of an organizational commitment to IT on these dependent variables according to the following model:[5]

$$Y_{it} = \beta_1 \, x \, Organizational\_Commitment\_to\_IT_{it} + \varepsilon_{it},$$

where Y is the dependent variable. The identification of β_1 is complicated for three reasons. First, our outcome variables might be affected by unobserved, stable variables that also correlate with our independent variable, which can lead to biased estimates of β_1. In particular, corporate culture is a stable construct that changes only slowly, if at all, so a corporate culture like one that reflects an openness to innovation might lead to stronger job satisfaction and work-life balance (e.g., Li et al., 2010) but also to investments in new IT. To account for this potential bias, we introduced a term to capture firm fixed effects.

[2] Of the remaining firms, 447 had more than 50 reviews across all years. 493 firms had more than 20 reviews across all years, and only 30 firms have 20 reviews or less across all years.

[3] https://osf.io/tqj9y/?view_only=c8e7a353136a46cd9c4b1444d49706c9

[4] The full dictionary is provided in the repository on OSF.

[5] Because our moderators are measured on the industry level and can be considered exogenous, our identification strategy focuses on the direct effect of organizational commitment to IT.

Second, temporal variation in organizational commitments to IT and employee-related outcomes might reside in common time-varying unobserved variables. In economic crises, firms might reduce organizational commitments to IT, and the crisis situation could affect employee-related outcomes because of, for example, increased fear and uncertainty. Therefore, we also included year dummies to account for shocks that affect all firms in a given year and arrive at the following equation:

$$Y_{it} = \beta_1 \, x \, Organizational\_Commitment\_to\_IT_{it} + a_i + \eta_t + \varepsilon_{it},$$

where a_i and η_t refer to firm-fixed effects and year-fixed effects, respectively.

Third, time-varying factors may also affect the dependent and independent variables, so we include a rich set of time-varying controls. We controlled for the availability of financial resources, which may be invested in both IT and employees (e.g., Jing et al., 2019). Thus, we included the book-to-market ratio, return on assets, firm size, and organizational slack.

Further, the firm's strategy might influence the importance of IT in the firm and how human resources are addressed. Strategies that include investing more in IT (especially for reasons related to streamlining) and restrictions against deviating from standardization in HR processes can have negative effects on employees. Therefore, we included a measure for the "cost and efficiency strategy" (Eklund & Mannor, 2021). The relevance of innovation to a firm is also likely to play a role, as the more innovative the firm is, the more likely it is to need IT updates. Further, employees' job satisfaction can be driven by the level of discretion they have in how their work is organized, which is likely to be found in firms with innovative strategies. Therefore, we included R&D intensity as a control.

At the top-management level, we controlled for the CEO's age and tenure since younger CEOs and CEOs with short tenure might be more inclined than other CEOs to focus on IT and employees' well-being. We also included the CEO's gender, since women might be more inclined than men to invest in employees' well-being (Adams & Funk, 2012). In addition, we included the presence of a chief information officer (CIO) and the presence of a chief technology officer (CTO) since these top managers are likely to foster IT (innovation) in these firms and influence resource allocations that might affect how employees are treated.

To account for time-varying industry factors, we included industry concentration, dynamism, and munificence (Dess & Beard, 1984). Compared to firms in highly competitive industries, where employees have more options to choose from and successful competition requires the latest IT technology, in highly concentrated industries, firms might not feel as much need to invest in IT and ensure their employees' satisfaction and work-life balance. In dynamic industries, firms might need to invest in IT to keep up with the changing environment, but employees might be negatively affected by the volatility. A high level of munificence indicates an industry context that can support organizational growth (Stoel & Muhanna, 2009), fostering both investment in IT and employee well-being. Overall, then:

$$Y_{it} = \beta_1 \, x \, Organizational\_Commitment\_to\_IT_{it} + \beta_{2\text{-}7} \, x \, Firm_{it} + \beta_{8\text{-}12} \, x \, TMT_{it} + \beta_{13\text{-}15} \, x \, Industry_{it} + a_i + \eta_t + \varepsilon_{it},$$

where *Firm* refers to firm-level proxies, *TMT* refers to TMT-level proxies, and *Industry* refers to industry-level proxies. The repository on OSF provides more measurement details for the variables.

While we included all these controls, we could not exclude the possibility of additional variables, such as specific managerial practices, that may be related to our independent and dependent variables—for which we could not account because of data restrictions. To accommodate this concern, we used Gaussian copulas, which have only recently been introduced (e.g., Bhattacharya et al., 2022; Tan et al., 2021) and discussed in the literature (Becker et al., 2022; Haschka, 2022). This method models the correlation between the regressor and the error term by introducing a control term into the main equation, comparable to a control function approach (Park & Gupta, 2012). We provide a detailed discussion of the method's assumptions in Appendix A.

We calculated the copula term, which is defined as Organizational commitment to $IT^* = \Phi^{-1}(H(Organizational\ commitment\ to\ IT))$, where $(H(Organizational\ commitment\ to\ IT))$ is the empirical cumulative density function of organizational commitment to IT, and Φ^{-1} corresponds to the inverse normal cumulative density function (Papies et al., 2017). Thus:

$$Y_{it} = \beta_1 \, x \, Organizational\_Commitment\_to\_IT_{it} + \beta_{2\text{-}7} \, x \, Firm_{it} + \beta_{8\text{-}12} \, x \, TMT_{it} + \beta_{13\text{-}15} \, x \, Industry_{it} + a_i + \eta_t + \Phi^{-1}(H(Organizational\_Commitment\_to\_IT))_{it} + \varepsilon_{it},$$

where $\Phi^{-1}(H(Organizational\_Commitment\_to\_IT))_{it}$ controls for the correlation between the error term ε_{it} and organizational commitment to IT. We bootstrapped the relevant models with 5,000 iterations.[6]

[6] Since Haschka (2022) cautions against using Gaussian copulas with fixed-effects transformations, we also estimate a pooled OLS model that manually includes firm dummies with the Gaussian copula control function approach. Results remain highly consistent.

Descriptives and Method of Analysis

Table 2 presents the correlations and descriptives. A modified Wald test for heteroscedasticity and Wooldridge's (2010) test for serial correlation indicate group-wise heteroscedasticity and serial correlation in the dataset ($p < 0.001$). Therefore, we used robust clustered standard errors and cluster-level bootstrapping for models that include copula terms.

Results

Outcomes of Hypotheses Testing

Table 3 presents the results that include a Gaussian copula (Models 1-8), while Appendix B shows results without the Gaussian copula (Models 9-18). Since the copula term is significant (at least $p < 0.1$), indicating potential endogeneity, we focus on the results from the models that include the Gaussian copula term. However, the results with and without copulas are largely consistent. Organizational commitment to IT is significantly positively related to overall job satisfaction (2.19, $p < 0.05$; Model 1) and work-life balance (2.40, $p < 0.01$; Model 5); thus, we find support for H1a and H1b. An increase of 10 percentage points in organizational commitment to IT (measured by the share of IT-related words in annual reports) translates into an 0.22-point increase in overall job satisfaction and a 0.24-point increase in work-life balance, as measured on a five-point scale. These increases are sufficient to move from about the lowest 30% of firms to the median in terms of nonmonetary employee-related scores.

Industry dynamism negatively moderates the relationships between organizational commitment to IT and work-life balance (-0.72, $p < 0.01$, Model 8) and job satisfaction (-0.57, $p < 0.10$, Model 4); thus, we find support for H2b and weak support for H2a. When industry dynamism is very low (5th percentile), organizational commitment to IT has strong positive effects on work-life balance (3.14, $p < 0.01$) and job satisfaction (2.79, $p < 0.01$). When industry dynamism is very high (95th percentile), the effect on work-life balance weakens (1.42, $p < 0.10$), and the effect on job satisfaction is not significant (1.45, $p > 0.10$).

Table 2. Descriptive Statistics

	Means	*SD*s	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Job satisfaction	3.41	0.50																
2. Work-life balance	3.44	0.49	0.62															
3. Organizational commitment to IT	0.04	0.05	0.08	0.14														
4. Firm size	3.12	1.30	-0.09	-0.19	-0.03													
5. Book-to-market ratio	0.22	6.72	0.02	0.00	-0.03	0.00												
6. Slack	1.82	1.19	0.07	0.05	0.09	-0.27	0.02											
7. ROA	0.06	0.10	0.07	0.01	0.07	0.09	0.05	0.18										
8. R&D intensity	0.04	0.10	0.12	0.15	0.21	-0.23	0.00	0.31	-0.06									
9. Cost & efficiency strategy	0.01	0.00	-0.02	-0.03	0.10	-0.03	0.03	-0.07	-0.05	0.00								
10. CTO presence	0.11	0.32	0.09	0.11	0.15	-0.02	0.00	0.11	0.04	0.27	-0.01							
11. CIO presence	0.04	0.20	-0.01	-0.02	0.05	0.10	0.00	-0.06	0.02	-0.06	-0.02	-0.02						
12. CEO gender	0.04	0.21	-0.04	-0.01	0.02	0.07	0.01	-0.07	0.01	-0.04	0.02	0.00	0.02					
13. CEO age	56.47	6.17	0.03	0.00	-0.09	0.12	0.00	-0.09	0.04	-0.07	0.01	-0.06	0.02	-0.01				
14. CEO tenure	6.25	6.31	0.04	-0.02	0.10	0.03	0.00	0.08	0.08	0.03	0.01	-0.02	-0.05	-0.09	0.41			
15. Industry concentration	0.08	0.08	-0.13	-0.23	-0.04	0.35	0.01	-0.08	0.05	-0.19	0.02	-0.12	0.12	-0.06	0.06	0.01		
16. Industry dynamism	-2.64	0.68	-0.01	-0.01	-0.16	-0.15	0.02	-0.01	-0.09	-0.05	-0.07	-0.05	-0.03	-0.03	-0.02	0.02	-0.02	
17. Industry munificence	0.03	0.05	-0.08	-0.01	0.05	0.04	0.01	-0.01	-0.03	0.02	-0.03	0.02	0.00	-0.03	-0.02	0.03	0.02	0.09

Note: N = 3,778; 523 firms; years 2008-2017; all correlations greater than $r = |0.03|$ are significant at $p < 0.05$

Table 3. Fixed-Effects Regression Analysis with Gaussian Copulas				
	DV: Job satisfaction			
	Model 1	Model 2	Model 3	Model 4
Organizational commitment to IT	2.19 (0.88) **	2.03 (0.85) **	2.33 (0.85) ***	2.15 (0.83) ***
Industry dynamism	-0.00 (0.01)	0.02 (0.02)	-0.00 (0.01)	0.02 (0.02)
Industry concentration	-0.30 (0.25)	-0.29 (0.25)	-0.01 (0.26)	0.02 (0.27)
Organizational commitment to IT x Industry dynamism		-0.49 (0.32)		-0.57 (0.31) *
Organizational commitment to IT x Industry concentration			-8.25 (3.88) **	-8.95 (3.90) **
Book-to-market ratio	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Slack	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)
ROA	0.30 (0.16) *	0.30 (0.17) *	0.30 (0.17) *	0.30 (0.17) *
Firm size	0.02 (0.03)	0.02 (0.03)	0.02 (0.03)	0.02 (0.03)
CIO presence	0.01 (0.03)	0.01 (0.03)	0.02 (0.03)	0.02 (0.03)
CTO presence	0.05 (0.02) **	0.05 (0.02) **	0.05 (0.02) **	0.05 (0.02) **
Cost & efficiency strategy	-6.03 (5.03)	-5.82 (5.03)	-5.66 (5.13)	-5.38 (5.05)
R&D intensity	0.22 (0.35)	0.22 (0.35)	0.22 (0.36)	0.22 (0.35)
CEO age	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
CEO gender	-0.05 (0.06)	-0.05 (0.06)	-0.06 (0.06)	-0.06 (0.06)
CEO tenure	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Industry munificence	0.44 (0.16) ***	0.44 (0.16) ***	0.45 (0.16) ***	0.45 (0.16) ***
Year-fixed effects	Included	Included	Included	Included
Firm-fixed effects	Included	Included	Included	Included
Copula term	-0.06 (0.03) *	-0.06 (0.03) *	-0.07 (0.03) *	-0.06 (0.03) *
Observations	3,778	3,778	3,778	3,778
R-squared	0.24	0.24	0.24	0.24
Number of firms	523	523	523	523
	DV: Work-life balance			
	Model 5	Model 6	Model 7	Model 8
Organizational commitment to IT	2.40 (0.72) ***	2.19 (0.72) ***	2.55 (0.69) ***	2.32 (0.68) ***
Industry dynamism	-0.02 (0.01)	0.00 (0.02)	-0.02 (0.01)	0.01 (0.02)
Industry concentration	-0.35 (0.27)	-0.34 (0.27)	-0.06 (0.31)	-0.01 (0.31)
Organizational commitment to IT x Industry dynamism		-0.65 (0.29) **		-0.72 (0.28) ***
Organizational commitment to IT x Industry concentration			-8.40 (3.25) ***	-9.31 (3.13) ***
Book-to-market ratio	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Slack	0.02 (0.01) *	0.02 (0.01) *	0.02 (0.01) *	0.02 (0.01) *
ROA	0.13 (0.15)	0.13 (0.15)	0.12 (0.15)	0.12 (0.15)
Firm size	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)
CIO presence	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)	0.02 (0.03)
CTO presence	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)
Cost & efficiency strategy	-0.58 (5.48)	-0.30 (5.44)	-0.20 (5.50)	0.15 (5.37)
R&D intensity	0.22 (0.24)	0.22 (0.23)	0.22 (0.24)	0.22 (0.24)
CEO age	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
CEO gender	0.00 (0.06)	0.00 (0.06)	-0.00 (0.06)	-0.00 (0.07)
CEO tenure	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Industry munificence	0.29 (0.16) *	0.28 (0.16) *	0.29 (0.16) *	0.29 (0.16) *
Year-fixed effects	Included	Included	Included	Included
Firm-fixed effects	Included	Included	Included	Included
Copula term	-0.08 (0.03) ***	-0.07 (0.03) **	-0.08 (0.03) ***	-0.08 (0.03) **
Observations	3,778	3,778	3,778	3,778
R-squared	0.08	0.08	0.08	0.08
Number of firms	523	523	523	523

Note: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$; Clustered standard errors in parentheses were bootstrapped with 5,000 iterations; industry dynamism and concentration are mean-centered for ease of interpretation.

Industry concentration significantly and negatively moderates the relationships between IT commitment and job satisfaction (-8.95, $p < 0.05$, Model 4) and work-life balance (-9.31, $p < 0.01$, Model 8), supporting H3a and H3b. When concentration is very low (5th percentile), organizational commitment to IT has strong positive effects on job satisfaction (2.67, $p < 0.01$) and work-life balance (2.86, $p < 0.01$), but when concentration is very high (95th percentile), it has no significant effects on job satisfaction (-0.05, $p > 0.10$) or work-life balance (0.03, $p > 0.10$). A set of robustness tests for these analyses is presented in Appendix C.

Additional Analyses

Specific IT Technologies

Steelman et al.'s (2019) dictionary and our extensions comprise both basic IT words (e.g., "information technology," "telecommunication") and words that are related to specific IT technologies. To shed light on whether a commitment to specific IT technologies is related to job satisfaction or work-life balance, we built four versions of the dictionary, each consisting of the basic IT words from Steelman et al. (2019) and words related to the specific IT technologies of cloud and remote technology (e.g., "cloud," "remote computer access software"), AI-related technologies (e.g., "artificial intelligence," "machine learning"), ERP-related technologies (e.g., "enterprise resource planning," "business planning and control system"), and collaborative technologies (e.g., "collaborative software," "knowledge management software").

We added these dictionaries to our main regression models, replacing the aggregate IT commitment score, and re-estimated all models. The regressions with job satisfaction as the dependent variable show coefficients and significances that are similar across the four technology-specific dictionaries (1.80-1.90, $p < 0.05$), meaning that job satisfaction might be similarly driven by all four kinds of IT technologies. The regressions with work-life balance show a different picture: The coefficient for ERP (1.30, $p = 0.10$) is not significantly related to work-life balance, while AI and collaborative technologies (1.33-1.42, $p < 0.10$) are weakly related and cloud and remote-working technologies (1.90, $p < 0.01$) are strongly related. These findings are in line with our expectations since cloud and remote-working technologies are most closely linked to flexible working locations, which are associated with work-life balance.

Benefits of Job Satisfaction and Work-Life Balance

Our findings lead to a question concerning whether firms profit financially from increasing employees' job satisfaction and work-life balance. Therefore, we used the Glassdoor variable of "satisfaction with compensation," which we expected to be driven by job satisfaction and work-life balance. In addition to all controls from our main analysis, we controlled for industry-level compensation using the Quarterly Census of Employment and Wages, as well as organizational commitment to IT.

We estimate a fixed-effects model and found significant direct relationships between overall job satisfaction (0.52, $p < 0.01$) as well as work-life balance (0.39, $p < 0.01$) and "satisfaction with compensation." These findings suggest that employees who enjoy job satisfaction and work-life balance tend to be satisfied with their compensation, likely reducing pressure from these employees for higher salaries. We also tested whether job satisfaction and work-life balance translate into increased firm value as a more distal outcome. While work-life balance has a weak relationship with Tobin's Q (0.06, $p < 0.10$), the relationship between overall job satisfaction and Tobin's Q is positive (0.17, $p < 0.01$).

Discussion

Before turning to our research's implications, we acknowledge some limitations. First, while we outlined the benefits of a text-based measure of organizational commitment to IT (Short et al., 2010), this measure has limitations that should be taken into account. Written words and firm behavior may not always correspond, and while this approach enabled us to derive one score per firm, we cannot differentiate IT commitments by department.

Second, while Glassdoor data facilitates investigations of employees' evaluations of many firms, we cannot determine whether the individual employee who wrote evaluations on Glassdoor worked with specific IT technologies. Future studies could complement our work by generating individual-level data for one or more firms, building datasets with more details about each employee in terms of, for example, the specific IT technologies they use, and relating these technologies to employee-related benefits.

Third, we used observational data, so we cannot guarantee causality. In particular, we cannot rule out that other variables might have driven our findings. We did not measure managerial practices like leadership styles that could have affected our findings. We offer various controls, some of which might cover some parts of such variables and the copulas, thus mitigating omitted variable concerns, but some caution should be taken in interpreting our findings.

Fourth, while we focus on industry variables that are often used in research on IT commitment's financial performance outcomes (e.g., Melville et al., 2007), future research might

investigate whether the associations between IT commitments and employee-related metrics depend on other industry-level moderators, such as those that are directly linked to how IT is used in the workplace (e.g., the degree of possible automation in an industry).

Fifth, while we focus on two major employee-related metrics, other variables of interest may be at play. In 2016, Wal-Mart announced its intention to cut about 7,000 jobs because of its automation of invoicing and accounting processes (Nassauer, 2016). In this example, job loss anxiety might be a negative outcome of IT commitments that future research could investigate to complement our analyses.

Implications for Research

We make three major contributions to the literature: First, by adding nonmonetary firm-level employee-related metrics as outcome variables, thereby connecting research on IT's business value to stakeholder theory, we contribute to the literature that investigates firm-level outcomes of organizational commitments to IT. We find that organizational commitments to IT can benefit employees nonmonetarily under some conditions, a useful insight since existing research tends to indicate that employees do not profit (monetarily) from IT investments (e.g., Tambe et al., 2020) unless they have specific complementary skills (e.g., Barth et al., 2016). We find that employees' benefits from a firm's IT commitment might be more realistically found in nonmonetary benefits.

We suggest that when IT commitments lead to job satisfaction and work-life balance, firms appear not to lose value. This notion is in line with our additional analysis that reveals that an (partly IT-enabled) increase in job satisfaction and work-life balance facilitates employees' satisfaction with their compensation, which reduces pressure on the firm to increase compensation. In this way, benefits from IT that are related to employees' job satisfaction and work-life balance differ from other stakeholders' benefits. Some of the stakeholder benefits that the extant literature treats shift value from the firm to the stakeholders, such as when customers pay lower prices because of IT's streamlining benefits (Rai et al., 1997). We expect that both job satisfaction and work-life balance are not (unduly) costly to a firm, suggesting that some thus-far hidden additional benefits to firms from IT commitments may be possible.

Second, our investigation extends accounts of how the industry environment is a boundary condition for IT commitment's effects to unfold (Havakhor et al., 2019; Mithas et al., 2013). We complement research that shows that financial performance effects from IT depend on industry conditions (e.g., Brynjolfsson & Hitt, 1996) and that IT investments can drive either efficiency or innovation at the firm level, depending on the industry environment (Xue et al., 2012). We link to this line of research by showing that whether specific stakeholders (here: employees) profit from IT depends on the industry environment.

Third, using subdictionaries in an additional analysis, we go beyond the aggregated measures of IT commitment that are typically used in research on IT's performance implications to derive more granular insights into how facets of organizational commitment to IT affect firm-level outcomes. In this way, we also unveil an additional possible boundary condition of the association between organizational commitments to IT and employee-related outcomes, as the nature of the IT technologies that are pursued plays a role. Our findings suggest that work-life balance can be driven, in particular, by organizational commitments to cloud and remote-working technologies, while job satisfaction is rooted more broadly in most kinds of IT technologies. These findings suggest that work-life balance tends to come from the organizational options and freedoms that IT commitments create, while job satisfaction (e.g., driven by the degree of development opportunity) can be enhanced by any of several kinds of IT technologies.

Practical Implications

We inform decision makers who are traditionally in charge of organizational commitments to IT, such as boards of directors, CEOs, and CIOs, that the effects of organizational commitments to IT go beyond the financial performance metrics they typically use. IT commitment affects employee-related metrics that are increasingly important in practice, such as job satisfaction and work-life balance. Our findings also extend the typical target group for research on organizational IT commitments to include employees and those who speak for them (e.g., the chief HR officer). These groups may have considered a stronger organizational commitment to IT as a threat because of, for example, the difficulty in adopting new IT systems. Our findings provide a different angle on organizational commitment to IT and provide valuable inputs in areas that are of keen interest to employees and their representatives, as they may facilitate job satisfaction and work-life balance, at least in industries in which dynamism and concentration are low. As a result, these target groups may want their firms to commit to IT for their own purposes.

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Appendix A

Assumptions of the Gaussian Copula Approach

The key identifying assumptions of the Gaussian Copula approach are (1) that the endogenous regressor follows a non-normal distribution, (2) that the error term is normal, and (3) that the error term and the endogenous regressor follow a Gaussian copula correlation structure (Becker et al., 2022). We used the Anderson-Darling test for normality to test the first assumption for the variable organizational commitment to IT, which is highly skewed. Therefore, the null hypothesis of normality is rejected (Anderson-Darling test statistic = 321, $p < 0.001$), as the variable is non-normal. While researchers agree that the Gaussian copula correlation structure is not testable, current research diverges with regard to the testability of the assumption of normality of the error term (Becker et al., 2022; Haschka, 2022). Becker et al. (2022) suggest that the residuals of the regression analysis may give some indication as to the error terms' normality. Visual inspection indicates that the residuals in our models are symmetric but may have a slight positive kurtosis. Based on the simulation results shown in Becker et al.'s (2022) Figure 7, we conclude that this error distribution would mean that the true coefficient is smaller than they are in our models that include Gaussian copulas but still larger than they are in our models that exclude them or that our models that include Gaussian copulas underestimate the true effect.[7] However, in most cases, even when the error is not entirely normally distributed, the Gaussian copula approach seems to move the coefficient closer to the true effect than do models that have no correction, particularly for sample sizes of more than 2,000 observations (Becker et al., 2022).

Finally, while Becker et al. (2022) find that models that include one or multiple intercepts face greater constraints than models that do not include intercepts do, our dataset is close to a sample size of 4,000, for which a bias induced by intercepts is likely to be negligible (Becker et al., 2022). Hence, we see value in applying this approach, despite the constraints described.

[7] Hence, we also show models that exclude the copula terms in Appendix B.

Appendix B

Table B1. Fixed-Effects Regression Analysis without Gaussian Copulas

	DV: Job satisfaction				
	Model 9	**Model 10**	**Model 11**	**Model 12**	**Model 13**
Organizational commitment to IT		1.05 (0.55) *	0.95 (0.53) *	1.14 (0.55) **	1.03 (0.52) **
Industry dynamism	-0.00 (0.01)	-0.00 (0.01)	0.02 (0.02)	-0.00 (0.01)	0.02 (0.02)
Industry concentration	-0.31 (0.24)	-0.33 (0.24)	-0.32 (0.24)	-0.05 (0.25)	-0.01 (0.25)
Organizational commitment to IT x Industry dynamism			-0.57 (0.33) *		-0.64 (0.31) **
Organizational commitment to IT x Industry concentration				-7.74 (3.46) **	-8.58 (3.43) **
Book-to-market ratio	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Slack	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)
ROA	0.31 (0.17) *	0.30 (0.16) *	0.30 (0.16) *	0.30 (0.16) *	0.30 (0.16) *
Firm size	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)	0.02 (0.03)	0.02 (0.03)
CIO presence	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)
CTO presence	0.04 (0.02) **	0.04 (0.02) **	0.04 (0.02) **	0.05 (0.02) **	0.05 (0.02) **
Cost & efficiency strategy	-6.52 (5.08)	-6.91 (5.05)	-6.60 (5.02)	-6.59 (5.04)	-6.21 (5.00)
R&D intensity	0.24 (0.08) ***	0.24 (0.08) ***	0.24 (0.08) ***	0.24 (0.08) ***	0.24 (0.08) ***
CEO age	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
CEO gender	-0.05 (0.06)	-0.05 (0.06)	-0.05 (0.06)	-0.06 (0.06)	-0.06 (0.06)
CEO tenure	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Industry munificence	0.45 (0.16) ***	0.45 (0.15) ***	0.45 (0.15) ***	0.46 (0.16) ***	0.46 (0.16) ***
Year fixed effects	Included	Included	Included	Included	Included
Firm fixed effects	Included	Included	Included	Included	Included
Observations	3,778	3,778	3,778	3,778	3,778
R-squared	0.23	0.23	0.24	0.24	0.24
Number of firms	523	523	523	523	523
	DV: Work-life balance				
	Model 14	**Model 15**	**Model 16**	**Model 17**	**Model 18**
Organizational commitment to IT		0.98 (0.47) **	0.84 (0.45) *	1.07 (0.46) **	0.93 (0.43) **
Industry dynamism	-0.02 (0.01)	-0.02 (0.01)	0.00 (0.02)	-0.02 (0.01)	0.01 (0.02)
Industry concentration	-0.37 (0.26)	-0.39 (0.27)	-0.37 (0.26)	-0.11 (0.30)	-0.06 (0.30)
Organizational commitment to IT x Industry dynamism			-0.74 (0.28) ***		-0.82 (0.28) ***
Organizational commitment to IT x Industry concentration				-7.78 (2.91) ***	-8.85 (2.75) ***
Book-to-market ratio	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Slack	0.02 (0.01) *	0.02 (0.01) *	0.02 (0.01) *	0.02 (0.01) *	0.02 (0.01) *
ROA	0.14 (0.15)	0.13 (0.15)	0.13 (0.15)	0.13 (0.15)	0.13 (0.15)
Firm size	-0.02 (0.03)	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)
CIO presence	0.00 (0.03)	0.00 (0.03)	0.01 (0.03)	0.00 (0.03)	0.01 (0.03)
CTO presence	0.01 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)
Cost & efficiency strategy	-1.31 (5.40)	-1.68 (5.40)	-1.28 (5.34)	-1.36 (5.41)	-0.87 (5.34)
R&D intensity	0.24 (0.05) ***	0.24 (0.05) ***	0.24 (0.05) ***	0.24 (0.04) ***	0.24 (0.04) ***
CEO age	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
CEO gender	0.01 (0.06)	0.00 (0.06)	0.00 (0.06)	-0.00 (0.06)	-0.00 (0.06)
CEO tenure	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Industry munificence	0.30 (0.15) *	0.30 (0.15) **	0.29 (0.15) *	0.30 (0.15) **	0.30 (0.15) *
Year fixed effects	Included	Included	Included	Included	Included
Firm fixed effects	Included	Included	Included	Included	Included
Observations	3,778	3,778	3,778	3,778	3,778
R-squared	0.07	0.07	0.07	0.07	0.07
Number of firms	523	523	523	523	523

Note: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$; Robust clustered standard errors in parentheses; industry dynamism and concentration are mean-centered for ease of interpretation.

Appendix C

Robustness Analyses

Sample selection bias: We were unable to obtain Glassdoor reviews for all S&P 500 firms from 2008 to 2017, so sample selection bias may be present because of truncation of the dependent variable (Certo et al., 2016). Unobserved variables may impact both selection into the sample (i.e., a sufficient number of current employees writing reviews) and the average rating. For instance, if employees are generally very satisfied, they might not feel the need to write reviews. We used a Heckman selection model to account for this potential bias and used the average number of Glassdoor reviews among industry peers as an instrument. (For a similar instrument, see, e.g., Germann et al., 2015.) This variable strongly influences whether a firm has at least three reviews in a given year ($p < 0.01$), indicating sufficient instrument strength. However, the number of Glassdoor reviews among industry peers should not directly impact employees' job satisfaction and work-life balance in a firm (beyond industry effects, for which we control in the first stage, in line with Germann et al., 2015), which suggests that the instrument is exogenous. We first estimated a probit model in which the dependent variable is the selection criterion which takes a value of 1 if there were at least three Glassdoor reviews in the respective firm-year, and 0 otherwise. We included all independent variables and controls from our final models and the instrument as predictors. We replaced firm-fixed effects with industry-fixed effects in the first stage. We included the derived inverse Mills ratio in our final model as a control. The results remain highly consistent with our core models, and the inverse Mills ratio is not significant. When we use Stata's *heckman* command with clustered robust standard errors to estimate the models, results also remained consistent.

As another test, we included in our analyses all reviews from all employees instead of only the current reviews. This test yielded results that are largely consistent with those in our core models. Only the interaction between organizational commitment to IT and industry dynamism is not significant in any model ($p > 0.10$).

Alternative models: Next, we used generalized estimation equations (GEEs) with an exchangeable error structure and robust standard errors and included industry dummies to account for industry differences. The results are largely consistent with our main analyses.

Sensitivity analyses: We ran three additional analyses regarding our text-based measure. First, while our dictionary is based on Steelman et al.'s (2019) focus on the years 2000-2007, our main analyses also included technologies for the years 2008-2017; as a robustness check, we ran our analyses using a dictionary that used only the words based on Steelman et al. (2019). Second, our main analyses included only the firm-years for which at least sixty sentences are available for analyses; as robustness checks, we used only firm-years with at least 150 and at least 200 sentences. Third, while our main analyses relied on the entire report (excluding appendices), we also ran our analyses using only the MD&A sections of the reports, an approach that is particularly useful in assessing firm strategy (McKenny et al., 2018). The results are largely consistent with those of our core models.

We also used three new cut-off values for the number of reviews. While our main models rely on firm-years with at least three reviews from current employees, we re-estimated our core models using 1, 2, and 5 reviews as cutoff values. This change renders consistent results except for the effect of the interactions between industry dynamism and organizational commitment to IT on overall job satisfaction, which is not significant for any of the cutoff values, and the effect of the interaction between organizational commitment to IT and industry dynamism on work-life balance, which is not significant when 5 is used as a cutoff value.