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Organizational Mindfulness towards Digital Transformation as a Prerequisite of Information Processing Capability to Achieve Market Agility

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Abstract

Firms are increasingly transforming themselves into agile enterprise by integrating and exploiting digital technologies. Prior research has suggested organization mindfulness would help proactively manage digital technologies and reduce the possibility of rigidity resulting from digital technologies. Although the key role of organizational mindfulness has been increasingly recognized, the impact of organizational mindfulness towards digital transformation on developing digital technology enabled information processing capacity (IPC) has not been empirically examined. In this study, we conceptualize digital technology enabled IPC based on the information processing view (IPV) and examine the relationships among organizational mindfulness, IPC, and market agility. Empirical findings from our survey of 102 managers of US companies indicates that digital transformation-mindful organizations are more likely to effectively establish a digital technology infrastructure; digital technology-enabled external and internal relationships and digital technology-business strategic alignment which, in turn, enhances their ability to respond to environmental turbulence in the markets promptly.

Keywords: Organizational mindfulness, digital transformation, information processing view, information processing capacity, market agility

1. Introduction

Firms encounter intense competition, market turbulence, and ever-changing technological innovation in a dynamic business environment. Overcoming this challenge requires firms to transform themselves to be agile in the market by integrating and exploiting information technology (IT). Venkatraman (1994) labels this business transformation as "information technology (IT)-enabled business transformation" and defines it as the sequential changes where organizations improve their operations; internally integrate through IT functionalities and then redesign business process to transform IT capability into competitive advantage and financial performance. As for the arrival of the age of digitalization, digital technologies such as social media and the Internet of things, analytics and artificial intelligence (AI) have been intensively used in contemporary businesses. Vial (2019) provides a new definition of IT-enabled business transformation to reflect this trend. He redefines it as digital transformation (DT) that "aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies" (p. 118).

Digital transformation has been recognized as a necessary strategy in facilitating market agility (Bharadwaj, 2000; Hess et al., 2016; Lu and Ramamurthy, 2011; Wang & Hajli, 2017). Market agility is defined as the ability to "collect and process extensive amounts and a variety of information to identify and anticipate external changes" and to "monitor and quickly improve product/ service offerings to address customer needs" (Lu and Ramamurthy, 2011, p. 935). It is acknowledged that firms embracing digital technologies are most likely to sense and react to internal and external opportunities and threats, identify and evaluate current and potential competitors in the business environment very quickly. In fact, an organization's market agility heavily relies on its ability to access information and then act on it due to the information overload issues in the current big data era (Srinivasan & Swink, 2018; Park et al., 2017). Information processing capacity (IPC) is defined as the ability to gather, interpret and synthesize information in the context of organizational decision-making (Tushman and Nadler, 1978). Digital transformation lies at the heart of this process as it has the potential to increase firms' ability to collect, disseminate, store, analyze and display information, all of which strengthens firms' ability to process information (Roberts and Grover, 2012). However, there is a paucity of

research to explain how digital technologies can be deployed to develop information processing capacity (IPC), thereby achieving superior market agility.

According to the information processing view (IPV), IPC needs to closely match the information processing needs of the company in order to improve a firm's performance (Moser, Kuklinski, Srivastava, 2017; Tushman and Nadler, 1978; Wang, 2003; Winkler, Kuklinski and Moser, 2015). However, a high-level of IPC does not happen by chance (Overby, Bharadwaj and Sambamurthy, 2006; Swanson and Ramiller, 2004). Organizations need to adjust their digital technology portfolios or even introduce new digital technology in order to reach the desired IPC (Hess et al., 2016). More importantly, organization mindfulness toward digital transformation would help proactively manage digital technologies and reduce the possibility of rigidity resulting from digital technologies (Cram and Newell, 2016; Dernbecher and Beck, 2017; Swanson and Ramiller, 2004).

Organizational mindfulness is defined as "the extent to which an organization captures discriminatory detail about emerging threats and creates a capability to swiftly act in response to these details" (Vogus and Sutcliffe, 2012, p. 723). The presence of organizational mindfulness raises the opportunities that an organization will make digital transformation decisions and effectively deploy their organizational resources to better implement digital technologies. Although the key role of organizational mindfulness in digital transformation has been increasingly recognized, the impact of organizational mindfulness towards digital transformation on developing IPC has not been empirically examined. To fill these gaps, we aim to address the following research questions:

RQ1: How can digital technologies be deployed to develop information processing capability?

RQ2: Does organizational mindfulness, towards digital transformation as a prerequisite of information processing capability, achieve market agility?

This study contributes to the organizational agility, mindfulness and IT literature. First, we consider the enabling role of organizational mindfulness and IPC in developing a firm's market

agility. This is, to the best of our knowledge, among the first attempts to examine the effects of organizational mindfulness toward digital transformation, IPC, and market agility. Second, the findings suggest firms need to be mindful about new digital technologies and pay full attention to identify opportunities for realizing value from a digital transformation. Third, the empirical evidence shows that digital transformation-mindful organizations are more likely to effectively establish a digital technology infrastructure, digital technology-enabled external and internal relationships, and digital technology-business strategic alignment, which in turn enhances their ability to respond to environmental turbulence in the markets promptly.

The remainder of this paper is structured as follows: the next section serves as our theoretical background, which leads to the development of the research model and associated hypotheses; followed by our research method, findings, and discussions, contributions to research, implications for practice and recommendations, then limitations and future research directions are discussed as our conclusion.

2. Theoretical Background and Research Model

2.1. Market agility

In the organizational agility literature, market agility is the firm-wide ability to stay alert to changes that occur in the dynamic business environment and quickly deploy resources to respond creatively (Goldman et al., 1995; Dove, 2001). Market agility focuses on the reaction to market changes at the strategic level to ensure the development of the organization, such as strategic direction and decision-making in turbulent conditions. Market agility is comprised of two parts: alertness and the response. *Alertness* refers to a firm's ability to detect environmental changes and notice the underlying opportunities (Dove, 2011). These often unpredictable changes raise the level of uncertainty and prevent firms from being able to forecast market conditions accurately and plan their business activities accordingly. In this paper, environmental change includes variations in the general and task environment dimensions, namely, technology, politics and regulation, economics, international situations, suppliers, customer preference, labour market and competitor actions (Daft and Marcic, 2012). Response relates to a firm's ability to perform proper activities after receiving signals from the environment. Decisions have to be made based on the information collected and the knowledge accumulated in the organization, and then the

firms deploy or acquire resources, such as labour, finance and IT, in order to carry out those decisions appropriately. In general circumstances these responses are not pre-designed and may vary considerably (Sambamurthy, Bharadwaj and Grover, 2003; Van Oosterhout, Waarts and Van Hillegersberg, 2006). Firms ideally vary their decision-making processes to match these changes triggered by different business situations.

In a business context, agility is not the same as flexibility, which is a different concept that is often related to a firm's success in a turbulent environment. Flexibility has been defined as an organization's various managerial capabilities for dealing with a dynamic market. Firms build flexibility by encouraging diversity in resources and management options, for example by creating a variety of products that target different customers. This allows them to react effectively in response to change (Grewal and Tansuhaj, 2001). Flexibility is a predesigned feature of resource configurations in organizations. When designing an organization's structure and business processes, managers must embed flexibility in both the structure and processes that will be capable of dealing with the forecasts of future changes and organizational needs. Therefore, a firm's flexibility tends to solve changes that are somewhat predictable, and the response is likely programmed within the processes and the given structure of the organization (Van Oosterhout et al., 2006).

However, not all of these changes have elements of predictability with a probable response. Organizations often need to deal with radical changes that cannot be planned for beforehand. This is when agility is required. In other words, agility supplements organizational flexibility by enabling firms to quickly and easily react to changes caused by novel or unpredictable catalysts (Overby et al., 2006; Van Oosterhout et al., 2006). The ability to rapidly implement an effective response to unforeseen opportunities and threats is the source of sustainable competitive advantage in most of today's organizations, especially in turbulent business environments (Pavlou and El Sawy, 2010).

2.2. Information processing capacity

Information processing view (IPV) emerged in the context of organizational structure design assumes that the human cognitive limit is an inevitable constraint for any activities that involve information (Simon, 1957). However, information is necessary for all kinds of

organizational operations, from daily routines to strategic decision-making. Thus, it is important for organizations to cope with this limitation, which can be achieved through the design of the organizational structure. According to IPV, two factors contribute to the human cognitive limit, which indicates the information process requirements (IPR): uncertainty and equivocality. Uncertainty is created by inadequate knowledge and information (Karimi et al., 2004), while equivocality is created by the ambiguity of the information (Tushman and Nadler, 1978; Daft and Macintosh, 1981). Within a turbulent business environment, for example, the changes in regulations, consumer preference and demand can cause unexpected impacts on the business. Firms need to continuously monitor the environment, notice the changes and evaluate them. Organizational decision-making is governed by great uncertainty and equivocality (Melville and Ramirez, 2008). As uncertainty and equivocality increase, organizations must alter their task completion processes because of the various unforeseen changes and misunderstandings. Managers need to constantly seek additional information or resources or devote extra time and effort to clarify the situation, both of which increase the number of activities related to information processing (Tushman and Nadler, 1978; Daft and Macintosh, 1981). Thus, organizations need to develop strong IPC to address the high IPR generated by the turbulent environment.

According to the IPV, an organization can be considered as an imperfect information processing system because of its inevitably incomplete information and limited IPC (Galbraith, 1974). Incomplete information, largely due to limited IPC, results in poor decision-making and a firm's performance. Because of this, organizations are continuously developing strategies and refining their organizational structures to increase their ability to gather complete information and improve performance (Kohli and Grover, 2008). High IPC indicates an ability to collect and process external and internal signals and thus provide timely alerts to managers (Wang, 2003; Premkumar et al., 2005). With sufficient information, managers can quickly recognize the importance of these signals from both internal and external environments and take prompt and appropriate action (Park et al., 2017).

IPC consists of two components: IPR reduction and information processing. IPR reduction refers to a firm's design processes to reduce the uncertainty and equivocality in the information by reducing the amount of irrelevant information included and the vagueness of the information.

Information processing relates to a firm's ability to act on the information collected, including the collection, organization, and exploitation of the information, as well as its use to support business operations. Organizations that possess a high level of IPC monitor the environment better and are more sensitive to market changes and events.

IPC has been applied in various research streams, such as the design of organizational structures and control mechanisms (Shockley, Roth and Fredendall, 2011), and IT adoption (Gattiker and Goodhue, 2004; Premkumar et al., 2005). IT applications, such as resource planning systems, can link various stakeholders in an organization; more closely and effectively increase the accuracy, reliability, and timeliness of the information needed for tasks such as forecasting and planning (Banker et al., 2006). For example, Banker and colleagues (2006) found that higher IT capacity is associated with higher production flexibility and agility in manufacturing plants. However, Pavlou and El Sawy (2010) found firms with high IT leveraging capabilities are more likely to be agile in new product development and are able to move into new competitive positions in a very short period when facing discontinuities in the environment. These studies illustrate the role of IT capability in providing relevant information when agility is needed by the adopting organization (Chen et al., 2014). Recently, the adoption of digital technology has been considered as a means for improving firms' IPC. For example, the adoption of Web 2.0 and big data analytics tools improves the information dissemination, increases the information source, and enhances the utilization of different types of data (Irani et al., 2017; Wang, Kung, and Byrd, 2018). However, notwithstanding the considerable research in IPC, there has been little attention given to improving our understanding of the impact of IPC on organizational performance, particularly in market agility.

IPC is reflected by the external and internal relationships and digital technology resources within an organization. These lateral relationships and resources not only create additional information exchanging, which improves the richness of the information and knowledge creation, but also reduce the equivocality in the information, which lowers the IPR and improves information processing. Meanwhile, digital technology determines the way organizations collect, store, analyze, and disseminate the information (Wang and Byrd, 2017). Digital technology also shapes the way of communication and collaboration among different individuals and parties within and across firms. Research has found that information sharing and dissemination made

possible by digital technology could reduce the uncertainty (Premkumar et al., 2005). In this study, therefore, we conceptualize the information processing capacity of an organization as a multidimensional construct (Hilbert, López, and Vásquez, 2010) and justify the inclusion of key components of IPC based on the IT business value generation framework (Melville, Kraemer and Gurbaxani, 2004). Melville et al.'s (2004) argue that business value of IT can be intensified by the bundling of internal IT resources (e.g., technology IT resources and human IT resources), the synthesis and integration of business processes and IT resources, and external resources and relationships (e.g., trading partner resources), and industry and country characteristics. Following this logic of thought, IPC is comprised of four components: digital technology infrastructure management, digital technology-enabled external relationship management, digital technology-internal relationship management, and digital technology-business strategic alignment.

Digital technology-enabled external relationship management refers to the ability to manage inter-organizational relationships between a firm and its external stakeholders such as customers, suppliers, and partner firms to deliver high value IT applications. Digital technology-business strategic alignment refers to the creation of a shared vision between digital technology and business strategies and activities in the firm. Digital technology-enabled internal relationship management represents the ability to cultivate effective internal partnerships between digital technology's providers and digital technology's users in an organization to promote positive interaction and rich dialogue among the parties to deliver desired digital technologies. Digital technology infrastructure management represents the ability to establish and maintain a flexible digital technology infrastructure that supports the current business and provides an agile foundation for business modifications in support of dynamic firm strategies. We posit that digital technology enabled information processing capacities can not only reduce the equivocality in the information but also shorten the information processing time by reducing unnecessary information flow within the organization.

2.3. Organizational mindfulness toward digital transformation as a prerequisite of IPC

Organizational mindfulness includes activities such as routine checking and evaluating potential threats and opportunities, identifying reliable options for response, and acknowledging the existence of the error. It is necessary when organizations face great turbulence in the

business environment. Research has found that organizational mindfulness is related to better market innovation (Ray, Baker, and Plowman, 2011; Vogus and Welbourne, 2003) and better operation performance (Madsen et al., 2006).

When it comes to digital technology, the speed and variety of technological innovation are high; new hardware, software, and applications emerge frequently, and their impact on business is not always predictable. Therefore, in order to fully take advantage of digital technology in leveraging organizations' performance, organizational mindfulness towards digital transformation is necessary. In the context of digital transformation, organizational mindfulness represents the activities of actively searching opportunities of digital transformation, anticipating and evaluating the business transformation, providing alternatives for decision-making, and deferring to IT experts when making decisions. The key aspects of this dimension include the anticipation of digital technology change by using the firm's superior market intelligence to stay alert to future technology changes (Swanson and Wang, 2005), the firm's strategic plan of digital technology emphasizes change, for example, choosing platforms (including hardware, network, and software standards) that can accommodate technology change, and informing management about valuable option before a strategic change decision of digital transformation is made.

We elaborate on the research model presented in Figure 1, which illustrates how IPC enhances market agility and how organizational mindfulness towards digital transformation can help firms develop their IPC.

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Insert Figure 1 here

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3. Hypothesis Development

3.1. Digital technology enabled market agility

Research has demonstrated that incorporating digital technology into firms' operations enhances their market agility for competitive advantage (Sambamurthy et al., 2003). Digital technology can increase a firm's speed and effectiveness with which it can generate relevant market intelligence concerning emerging opportunities or changes in the competitive

environment, disseminating such intelligence across departments and responding with speed to the learning outcome from the firm's intelligence (Bharadwaj, 2000). Integrating digital technology with business processes and networks enables firms to stay alert proactively to the market and obtain critical information ahead of competitors (Zaheer and Zaheer, 1997; Mathiassen and Pries-Heje, 2006). The deployment of appropriate digital technology can enhance corporate analysis, communication, and capability development. In order to achieve digital technology enabled market agility, firms need to possess the ability to act quickly and provide fast delivery of digital technology solutions in response to changes in market conditions (Feeny and Willcocks, 1998). This includes collecting and acting on information about the influence of customers, technology, competitors, users, and other environmental forces — all of which relate to the IPC of the organization. Therefore, this research argues that the realization of digital technology enabled market agility is influenced by firms' IPC.

3.2. The effect of IPC on market agility

3.2.1. Digital technology-enabled external relationship management

Digital technology-enabled external relationship management allows the development of customer-oriented applications and builds durable customer relationships in the business process (Bharadwaj, 2000). The relationships with partners aims to leverage the digital technology capabilities of the firm's partners to the ultimate benefit of both. Entrepreneurial digital technology collaborations with external partners also ensures the development of appropriate IT systems and infrastructure among all the participating firms (Feeny and Willcocks, 1998) and encourages longer-term relationships that deliver higher-value returns. Furthermore, digital technology enabled external relationship management can generate outsourcing solutions that meet business, and IT needs by effectively managing externally supplied services provided through outsourcing (Benjamin and Levinson, 1993).

Digital technology-enabled external relationship management affects the level of information exchange among different parties. As inter-organizational relationships become stronger, firms develop tighter bonds with their external stakeholders. This implies the formation of lateral relationships and improves the feedback from different parties, bringing different views together. Digital technology-enabled external relationship management also creates a highly

connected IT network that facilitates sophisticated interactions with suppliers and customers and fosters sharing of knowledge and customer information (Bradley et al., 2012; Zaheer and Venkatraman, 1994). Thus, firms that have a high ability to harness these external relationships obtain timely and comprehensive information sharing through effective IT resources. This has been suggested as an important facilitator for fast and efficient decision-making, which allows firms to respond to the dynamic environment rapidly (Mani, Barua and Whinston, 2010). Thus, we propose:

H1: Digital technology-enabled external relationship management has a positive effect on market agility.

3.2.2. Digital technology-business strategic alignment

Digital technology-business strategic alignment enables firms to develop a proper strategic alignment between a firm's IT experts and business managers (Clemons and Row, 1991) and ensures that digital technology could contribute to business value within the firm's strategic framework (i.e., IT-business strategic vision) (Bharadwaj, Sambamurthy and Zmud, 2002). A well-developed strategic alignment allows IT and business managers regularly consulting with each other on decision-making and possessing a mutual understanding of IT and business responsibilities (Feeny and Willcocks, 1998; Ross, Beath, and Goodhue, 1996). Through IT and business integration, partnership and synergy between IT and business managers is created, which improves the effectiveness of IT-business joint decision-making and IT implementation (Lu and Ramamurthy, 2011).

Greater digital technology-business strategic alignment is associated with higher IPC of the organization for a few reasons. First, involving both IT managers and business managers in a firm's top management team can reduce unnecessary information flows by creating a lateral relationship between IT managers and other top managers. Such lateral relationships increase the speed in processing digital technology related information, thus increasing the efficiency and effectiveness of decision-making. Second, the collaboration between IT and business managers encourages frequent contact, teamwork and other formats of a lateral relationship process, which facilitates greater exchange of information and knowledge. According to IPV, this exchange

reduces the uncertainty in information processing and allows for the rapid development and the implementation of digital technology resources to address both opportunities and threats (Mani et al., 2010). Third, a high level of participation and interaction between IT experts and managers increases the accuracy of information interpretation, which reduces the level of equivocality in information processing (Srinivasan and Swink, 2018). Furthermore, a clear vision and open discussion about the strategic role of digital technology (i.e. IT-business strategic vision) facilitates mutual understanding between IT and business managers, such as each party's responsibility for implementation of digital technology in the firm. Close collaborations between managers and IT experts increases the trust between IT and other business departments, all of which reduces the cognitive conflict in processing IT-related information. Therefore, we argue that digital technology-business strategic alignment is an important part of creating high - value IPC that can address the IPR of the organization. This argument is consistent with previous research, which has shown that a well-established business partnership provides smoother decision-making and more effective implementation of digital technology, especially when radical changes in business are required in turbulent markets (Mani et al., 2010) and early environmental diagnosis. Therefore, we posit:

H2: Digital technology-business strategic alignment has a positive effect on market agility.

3.2.3. Digital technology-enabled internal relationship management and digital technology infrastructure management

An important characteristic of digital technology-enabled internal relationship is the ability of IT providers to understand the overall business terminology, goals, processes, and concerns to help digital technology's users explore new ways that the application portfolio of digital technology can effectively be applied to support and enhance business functions (Feeny and Willcocks, 1998; Ross et al., 1996). A high level of understanding and support for digital technology's users by digital technology's providers can increase respect and cooperation and reduce conflicts and misunderstandings between them (Feeny and Willcocks, 1998). Other facets include the blending of business and technology expertise through the use of multi-disciplinary

teams (Schlosser et al., 2015), and users of digital technology sharing digital technology project risk and responsibility with digital technology's providers by sponsoring and supporting digital technology initiatives.

Building strong internal relationships between digital technology's users and digital technology's providers increases the IPC by helping to bridge the gaps that tend to exist between digital technology and functional areas. An enhanced collaboration not only reduces cognitive conflicts but also enhances lateral relationships. Such activities improve communication and trust among users and providers, which leads to better decision-making that ensures performance advantage, such as developing innovative and strategic applications (Wade and Hulland, 2004).

The impact of digital technology-enabled user management on market agility can be identified by its effect on digital technology infrastructure management. It has been suggested the impact of operational level performance on enterprise level performance can be identified through middle level contributions. User management is an operational level action, and market agility is a strategic level firm performance. Therefore, the contribution of this lower level digital technology management activity on market agility is likely to proceed via an intermediate level impact, in this case, digital technology infrastructure management.

Digital technology infrastructure management focuses on harnessing the infrastructure effectively to secure the firm's information (Marchand, Kettinger, and Rollins, 2000), ensuring superior storage and transmission, data processing capacity, and response times (Chen, Chiang, and Storey, 2012), and enabling a superior overall technology that is both appropriate for the business and reasonably consistent across the firm (Ross et al., 1996). Additional aspects of this dimension include the formulation of policies that can provide the proper integration and flexibility of digital technology services throughout the organization (Ross et al., 1996). All of these features facilitate decision-making by improving information collection and storage, as well as communication among different parties. Thus, the organization's IPC is increased.

Digital technology infrastructure management could be manifested as increasing collaboration between users and digital technology specialists. It has been suggested that a shared understanding among users and providers affects the selection of digital technology (Endsley, 2012). By closely working with each other, digital technology providers gain better insight into business needs that enable them to develop more appropriate infrastructure to deliver

the desired digital technology services and formulate policies that establish the flexibility needed to anticipate future demands. With digital technology infrastructure management, firms are able to quickly reconfigure or implement the new digital technology resources they need to deal with unexpected changes more easily. Hence, we present the following:

H3: Digital technology-enabled internal relationship management has a positive effect on digital technology infrastructure management.

H4: Digital technology infrastructure management has a positive effect on market agility.

3.2.4. Organizational mindfulness towards digital transformation and IPC

Through anticipating, planning, and managing technology change, organizational mindfulness towards digital transformation influences the relationships between those responsible for digital technology and the other functional areas of the firm (McAvoy, Nagle and Sammon, 2013; Zha et al., 2015). In order to be mindful about digital technology applications, digital technology experts need to evaluate the potential benefit and impact they can bring to the organization and work with other managers in order to form accurate assessments of what is expected of them. Organizational mindfulness towards digital transformation also includes the restructuring of the business and/or digital technology work processes to accommodate and allow for needed changes or to take advantage of strategic opportunities (Lu and Ramamurthy, 2011). It encourages rich communications between business and digital technology. Thus, the relationship between digital technology and business should be increased by mindfulness activities. Thus, we argue:

H5: Organizational mindfulness towards digital transformation has a positive effect on digital technology-business strategic alignment

Firms with organizational mindfulness towards digital transformation are most likely to seek new digital technologies or exploit current ones constantly in order to optimize the utilization of digital technology. These activities enhance the outreach of a firm's external

networks, such as partners and customers. It has been suggested that transformation through digital technologies is diffused through different individuals or organizations (Hess et al., 2016; Singh and Hess, 2017). Therefore, it is important for a firm to build connections with external stakeholders, such as direct contacts or liaisons, in order to keep up with the development of digital transformation. These activities not only enhance the relationships between a firm and its external stakeholders but also seeking and exploiting activities provides more opportunities for inter-organizational collaboration. Therefore, we can propose:

H6: Organizational mindfulness towards digital transformation has a positive effect on digital technology-external relationship management.

Organizational mindfulness towards digital transformation implies a firm control change based on new digital technology opportunities and experimentation with new digital technology advances (Swanson and Ramiller, 2004). An open culture of searching for new digital technology opportunities prompts a close collaboration of digital technology providers and users to leverage the utilization of digital technology and exploration of new potential benefits from the firm's investment in digital technology. In such an environment, users are more familiar with digital technology, and digital technology specialists have a better sense of business needs. In this way, firms are supported by proper digital technology for sensing and collecting data from the changing environment. Thus, organizational mindfulness towards digital transformation facilitates the build-up of connections between digital technology providers and users. Hence, we propose:

H7: Organizational mindfulness towards digital transformation will improve digital technology-enabled internal relationship management.

4. Research Method

4.1. Instrument Development

This study utilized a new, multidimensional instrument to measure each construct in the research model, as there is not an existing scale for a multidimensional IPC. It was, therefore

necessary for the pre-test and pilot test to be conducted appropriately to ensure proper development and refinement of the instrument. After the items were generated, they were subjected to an assessment of content validity. Ph.D. students in the management department of a large south eastern US university were chosen as appropriate candidates for the pre-test. Following relatively minor revisions to the instrument resulting from the pre-test feedback received, a pilot test was conducted to further assess and revise the instrument. Because of the increased difficulty and expense in obtaining CIO survey responses at the time of this study, the pilot test involved appropriate surrogates for IT senior executives. The use of appropriate surrogates for such testing is an accepted practice in the literature (e.g., Anderson and Gerbing, 1991), especially when it is not desirable to use a portion of an already limited response population, as was the case with this study. Thus, professional IT consultants employed by a well-known international consulting firm were asked to answer the questions in the survey. The data gathered through the pilot test was very useful in guiding the further refinement of the instrument. In addition, the data gathered from the pilot-test was used to conduct preliminary principle components analysis to provide additional guidance in evaluating and refining the instrument. Based on the results of the pre-test, pilot-test, and CIO interviews, 20 items were identified for the six constructs.

4.2. Data Collection

The goal of this empirical study was to empirically examine the links between the organizations' IPC, organizational mindfulness towards digital transformation and market agility of the firm. To accomplish this, a cross-sectional field survey involving a mix of medium-to-large, publicly-held companies was employed to gather data for use with the independent variables. When considering the generalizability of the results of this research, it makes sense to center the study on larger firms that are more likely to possess both the capability and the need to form high IPC, and as a result, are more likely to benefit from the findings of this study. Therefore, this study targeted medium-to-large firms. In addition, past literature has shown that the most senior IT executive (e.g., CIO, CTO, vice president of IT, director of IT) represents the most accurate source of information regarding digital technology in an organizational setting

(Segars & Grover, 1998). This study focused on gathering the survey data from the most senior IT executive at each of the publicly held corporations selected for the study.

Standard & Poor's Compustat database was chosen as the source of the companies that would comprise the sample frame of this study. All organizations within the Compustat database are publicly owned corporations, so the criteria of only including publicly owned corporations in the sample frame of this study was accomplished by default. Three criteria were used to screen qualified companies:

(i) Companies that are registered as US corporations;

(ii) Companies that listed the US as their primary physical location; and

(iii) Companies with net sales greater than or equal to US$500 million (i.e., one-half billion) and also less than or equal to US$10 billion (i.e., 0.5 billion ≤ Net Sales ≤ 10 billion).

A total of 1655 corporations listed in the database meet these three criteria. The list of Top Computer Executives compiled by Applied Computer Research was used to identify the contact information for the most senior IT executive in each of the firms in the sample frame; 1303 of the original 1655 corporations had confirmed matches and were retained in the sample frame. Two options were provided for participants to complete the survey in the mailout: a paper-based questionnaire and a web link to a computer-based questionnaire on the study website. After accounting for returned and undeliverable mail, 811 surveys were effectively mailed out. A total of 102 responses were received via both the regular mail and the Web-based survey for an effective response rate of 12.58%, which is considered acceptable for survey research involving senior IT executives.

5. Data Analysis and Results

The methodology concerning the data analyses used in this study began with the appropriate procedures for data preparation and screening. The 102 responses collected during the field-testing phase of this study were screened for missing data, outliers, departures from normality, and other appropriate checks for problems or anomalies within the data. The missing data was checked first, and then Mahalanobis' distance was used to check for outliers. Inspection of bivariate correlations and scatterplots helped identify other data characteristics such as the degree

of multicollinearity and linearity in their relations to one another. The results of this screening revealed no major problems with the data, thus confirming 102 usable responses. As desired, the set of respondents represented the most senior information technology executives within the firms represented. A breakdown of the various titles and other basic demographics of the respondents are presented in Table 1.

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Insert Table 1 here

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To assess non-response bias, we compared respondent and non-respondent firms using a variety of data gathered from the Compustat database (e.g., sales, operating income, net income, number of employees). Analysis of variance techniques and t-tests were both employed for testing these comparisons. No significant differences were found relative to any of these key comparisons, suggesting that the non-response bias was not a factor in the sample. In addition, similar comparisons were conducted among those participants who responded online using the web-based survey versus those who responded by regular mail using the paper-based survey. The results of these comparisons indicated the two groups were statistically similar on all key demographic and study variables. Thus, non-response bias, response bias, and the method of response were not found to provide any statistically significant bias within the sample.

As all the measures used five-point Likert scales and responses were from a single informant of an organisation, the potential threat of common method bias (CMB) was assessed by following the suggestions of Podsakoff, MacKenzie, Lee, & Podsakoff (2003) and Bagozzi, Yi and Phillips (1991). First, Harman's single factor test was conducted (Podsakoffet al., 2003). The result showed that six distinct factors with eigenvalues greater than one explain 76.910% of the total variance and the amount of variance explained by the first factor is only 15.569%, which is not the majority of the total variance. Second, we compared correlations among the constructs (see Table 2). The results revealed no constructs with correlations over 0.7, whereas evidence of CMB ought to have brought about significantly higher correlations ($r < 0.90$) (Bagozzi, Yi and Phillips, 1991). Consequently, these tests indicate CMB is not a threat to this research.

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Insert Table 2 here

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5.1.Measurement model analysis

As stated above, the pre-test, pilot-test, and interviews with CIOs resulted in a final survey instrument totalling 20 items. These 20 questions were allocated across six separate factors. First, factorial validity was assessed with an Exploratory Factor Analysis (EFA), which for this study was implemented using a Principal Components Analysis (PCA) (Gefen & Straub, 2005). Hair, Black, Babin, and Anderson (2009) offer as a rule of thumb that a measurement item loads highly if the loading is above 0.60 and does not load highly if the coefficient is below 0.40. On this basis, all items with cross-loadings above 0.50 were retained in the model. The results of the PCA analysis are shown in Table 3. None of these items is outside the guidelines discussed previously. Thus, all 20 items should be retained in the model.

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Insert Table 3 here

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A confirmatory factor analysis (CFA) with the use of PLS was performed to test convergent and discriminant validity. The factor loadings and Average Variance Extracted (AVE) are presented in Table 4. The results indicate that each of the expected factor structures was obtained. In addition, the item-total correlations for the six constructs were examined in order to provide further evidence of discriminant and convergent validity in the measurement model. The results of the analysis of item-total correlations are presented in Table 5.

Moreover, the unidimensionality in the six constructs was also examined for discriminant validity among the factors. A chi-square difference test was used to evaluate two nested models

within AMOS. The results of the nested model comparisons for the measurement model found the chi-square difference test was significant (p = 0.000, alpha = 0.05). This result implies that all six factors are needed in the model, and each factor is indeed different from the others.

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Insert Table 4 here

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Insert Table 5 here

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The reliability of the measurement model was investigated using Fornell and Larcker's (1981) measure of composite reliability. The results are included in Table 4. A reliability score of 0.70 or above is deemed an acceptable value for internal consistency for exploratory research. Thus, all of the constructs of the measurement model exhibited acceptable levels of reliability. Considering the overall results of these tests for factorial validity and reliability, the collective evidence suggests the six latent constructs of the measurement model all possess good measurement properties. Subsequent analysis of the full structural model was performed with PLS.

5.2. Structural model analysis

The results of the full structural model analysis are shown in Figure 2. These results include the structural path loading between the six constructs and the R-square value for each construct. Because the PLS method does not provide significance tests as a part of the general estimation procedure, the PLS bootstrapping technique was used to assess the significance as denoted by t-values in the PLS output. This approach is consistent with recommendations and usage in previous studies published in information systems journals (e.g., Ravichandran and Rai, 2000).

The structural model measurement results indicate seven significant positive relationships among the six factors, confirming that organizational mindfulness towards digital transformation

does indeed appear to have a positive influence on the relationships between digital technology and business, external stakeholders, and users. The relationships between digital technology and business and external stakeholders have a direct impact on market agility. Furthermore, these results support our contention that the relationship between digital technology and users will impact market agility via its influence on the performance of digital technology infrastructure management. Thus, all seven of the hypotheses are supported by these results. These findings are discussed in the next section.

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Insert Figure 2 here

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6. Discussion

The current study uses an information processing view to develop a multidimensional information processing capacity and empirically test how it can affect market agility and identify its prerequisite, which is mindfulness towards digital transformation. Seven hypotheses were proposed, and all of which were supported by the empirical data collected for the study. Overall, our results indicate that the mindful organizations are more likely to anticipate, plan, manage changes on digital technology, and develop a better digital technology infrastructure and relationships between digital technology and other business stakeholders, which in turn enhances their ability to respond to environmental turbulences in the markets promptly.

The significant positive relationship between organizational mindfulness towards digital transformation and digital technology-business strategic alignment demonstrates that activities such as actively anticipating, planning, and managing changes on digital technology can lead to the development of relationships between digital technology and other business functional areas. For example, such activities provide rich opportunities for digital technology and business managers to work closely together, which increases the mutual understanding between digital technology and business managers and thus reduces the equivocality in the information process. According to previous research, mutual understanding is necessary to build business-IT strategic alignment (Gregory et al., 2018; Huang et al., 2012; Newkirk, Lederer, & Johnson, 2008). Therefore, this result could also be interpreted as suggesting that digital technology needs to be

carefully planned in order to achieve the optimum alignment between technology and business (Newkirk et al., 2008).

Our finding indicates that organizational mindfulness towards digital transformation is an enabling factor for a firm's connections with its external stakeholders. Managing digital transformation proactively consists of continuously pursuing new external digital technology opportunities. Such activity stimulates contacts and collaborations between firms and external stakeholders beyond regular business transactions. This finding is in line with Hinings, Gegenhuber and Greenwood's (2018) suggestions that a well-maintained relationship with external stakeholders depends on constant contact and partnership in the context of digital transformation.

We also provide evidence that organizational mindfulness towards digital transformation leads to improve digital technology-enabled internal relationship management. The mindful organizations are able to develop a sound plan for changes in digital technology because they encourage providers and users to work together to take advantage of the current resources or explore new investments in order to identify the desired solution. This creates an open culture that prompts collaboration between IT experts and users, which increases the mutual understanding between the two parties (Hatzakis et al., 2005). By enhancing partnership, internal relationship management can be improved.

The support for these three hypotheses provides strong overall validation that organizational mindfulness towards digital transformation does indeed increase the firm's IPC. Organizational mindfulness towards digital transformation facilitates the development of lateral relationships among digital technology, business, external stakeholders and users. As these connections develop, communication, trust, and information sharing are heightened (Hatzakis et al., 2005). Previous IPV research has pointed out the importance of communication as a way to process information and reduce uncertainty and equivocality (Wang, 2003). It has also noted that trust may also be attributable to higher IPC by reducing cognitive conflicts. Thus, our findings provide further support for these arguments.

These results also reveal that a well-established relationship between IT and businesses can strengthens market agility. Strong digital technology-business strategic alignment tightens the connection between IT and other functional areas. Strategic alignment and shared vision reduce

the equivocality in the decision-making process, which in turn improves a firm's effectiveness in responding to environmental changes. Effective digital technology-enabled external relationship management also enhances a firm's outreach network. With such networks, organizations are able to maintain a close relationship with their external stakeholders, which leverages both information sharing and communication (Pavlou and El Sawy, 2010). All these activities improve effectiveness in processing information and reduce the IPR generated by uncertainty and equivocality that is all too common when working with external organizations. Therefore, the advantages gained through the close collaborations that result from this reduction of uncertainty and equivocality allow firms to address the changes that occur almost constantly in our present business environment with their combined digital technology resources. In our study, this was also shown to increase digital technology-enabled market agility.

Another interesting finding in this research is the effect of digital technology-enabled internal relationship management on market agility. A close relationship between IT experts and users increases the level of communication between the two groups, resulting in better design and development in digital technology infrastructure. Advanced infrastructure management could allow firms to implement organizational changes quickly and deliver desired services more effectively. This result validates previous researchers' findings that sound communication between IT personnel and end-users can improve the flexibility of a firm's digital technology infrastructure. Our results suggest that this also leads to an improvement in the firm's market agility.

6.1. Theoretical Implications

This research advances the theory of IPV by deploying the digital technology resources in forming IPC. It has been suggested that IPV is one of the most significant contributions to the contingency literature in recent years (Galbraith, 1974; Wang, 2003; Premkumar et al., 2005). Unlike most IPV research, which focuses on IT adoption and organizational structure design (Premkumar et al., 2005; Melville and Ramirez, 2008), this study focused instead on the development and enhancement of lateral relationships and their relationship with digital technology management. Although it has been widely believed that lateral relationships that exist alongside the regular organizational structure tend to improve a firm's IPC and results in better

performance, few empirical studies have been conducted to examine this assumption. Most of the current IPV studies focus on understanding the relationship between technology and IPC (Melville and Ramirez, 2008; Wu et al., 2013). These studies are generally based on an important assumption that the value of technology is already realized by the firm. Little has been done to examine the role of a firm's digital technology capability in IPC, which is necessary to realize the value of technology. This study addresses this lack by proposing that digital technologies can be considered as a form of IPC that includes both IT implementation and digital technology related lateral relationship management and arguing that by improving its digital technology capability, a firm will gain a higher IPC and thus improve its ability to address the IPR generated by the turbulent business environment, thus leading to better organizational performance.

Second, this research extends the research on market agility from RBV to IPV and suggests it is equally important to consider market agility as a result of high IPC. We contend that market agility is an information-intensive activity and should thus be analyzed via IPV in addition to RBV. In order to do so, we analyzed the relationship between organizational mindfulness towards digital transformation, IPC and market agility based on IPV, and empirically validated the argument. Our findings revealed that mindfully anticipating, planning and managing changes in the functions of digital technology as an antecedent of a firm's IPC by creating digital technology related lateral relationships. Its impact on market agility is thus realized via its influence on IPC. This result addresses the research argument that the mindful management of digital technology is necessary in order to support organizational information processing capability (Swanson and Ramiller, 2004). These results also confirm that business value of digital technology does indeed extend beyond its use as a tool to support the operational process; it also functions as a part of the business for various business capabilities (Kohli and Grover, 2008).

6.2. Practical Implication

Besides its contributions to academic research in this area, this study highlights a number of interesting implications for practitioners. First, the use of IPV in analyzing market agility reveals a new way to look at the value of information to a firm. With the development of emerging

technologies such as big data analytics and AI, firms are faced with assimilating large amounts of information coming from a wide variety of sources (Wang et al., 2019; Wang et al., 2018). The challenge is to reduce unnecessary information processing, which leads to uncertainty and equivocality, as this influence not only effectiveness but also the efficiency of an organization's reaction toward the environment. Managers interested in developing market agility should focus on reducing the impact of uncertainty and equivocality in business processes through better use of their digital technology resources and developing lateral relationships within their organizations, especially those involving IT personnel.

Specifically, this research emphasizes the importance of information processing capacity in creating digital technology enabled market agility. Better relationships between digital technology specialists and executives can improve the firm's digital technology related decision-making at a strategic level, such as the adoption of certain digital technology enterprise applications or the strategic role of digital technology. The relationship between digital technology experts and users improves decision-making at an operational level, such as digital technology's function and structure design. We recommend that firms create more opportunities to encourage their digital technology experts to work with other employees, for instance via shared project responsibility. The advantage here is obvious; digital technology experts develop better insights into business needs and are thus able to deliver the required digital technology services with the development of appropriate digital technology infrastructure and applications. One thing leads to another; improved flexible digital technology infrastructure management allows firms to accommodate changes in digital technology resources more easily, thus enabling them to respond to market changes more quickly

Furthermore, firms need to acknowledge the importance of reaching out to external stakeholders in promoting digital technology-enabled market agility. Networking is an important source of obtaining information. Information is transferred through different nodes in the network. Firms should leverage their connections with external shareholders through various activities, such as shared digital technology resource creation and joint digital technology development. These activities ensure good communication and flexible connections between the firm and its external stakeholders; this could allow firms to obtain information more quickly and accurately.

7. Limitation and Conclusions

As with all studies designed to develop and assess digital technology-based metrics and models, this research has endeavored to bring a theoretical and operational perspective to a rather complex concept. Undertakings such as this are ambitious in nature and therefore inevitably suffer from some inherent limitations. One potential limitation of the present study is the range of indicators used to reflect each of the constructs in the research model. Several studies have concluded that no psychometric technique can adequately address the ultimate breadth or completeness of a measure (e.g., Segars & Grover, 1998). Although the research design of this study incorporated multiple rounds of theory building through a comprehensive literature review, expert opinion, pre-testing, and pilot-testing, it is certainly possible that other dimensions of IPC exist but are not included within the current conceptualization and models.

Another potential limitation is the use of a single key informant for the collection of data involving each of the independent variables in this study. The data collected represents the views of senior IT executives, who are likely to provide valid representations of the digital technology activities and related initiatives in their organizations. While the key informant method is typical of IS research, it is by no means an ideal approach. Future research could adopt methods involving multiple informants and structured approaches for triangulation to ensure the most accurate data. In addition, a longitudinal, follow-up study that compares the changes in the IPC and market agility of these firms between the time the data was collected and at some point in the future may help reveal essential information concerning why some firms are better than others at developing superior market agility and how IPC and market agility evolve over time and under varying environmental conditions. Meanwhile, future research could explore how organizational mindfulness, IPC, and environmental condition simultaneously combine to achieve improved market agility (Wang et al., 2019). Lessons learned from these critical processes would provide valuable knowledge for both research and practice. In future studies, we are also interested in understanding the variations of the effects of organizational mindfulness towards digital transformation across different industries. This is constrained by the sample size of the current survey dataset.

In conclusion, the findings of this research provide empirical evidence in support of the idea that firms leverage market agility by managing relations of digital technology with the firms' other stakeholders to create superior IPC. This result also demonstrates that in order to reduce the inherent rigidity that digital technology can bring into an organization, firms need to manage digital transformation proactively. In keeping with the idea of a cumulative research tradition, it is hoped that this research will provide a useful foundation for future empirical studies that employ information processing as a lens to examine the more comprehensive conceptualization of digital technology business value. Practitioners could use this research as a starting point for developing a model for diverse digital technologies that could increase a firm's market agility, and hence its prosperity.

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Appendix A. Items and Measures

Q1: Digital technology-enabled external relationship management

1. Work with external stakeholders to leverage shared digital technology resources to create a high level of digital technology capabilities
2. Work with external stakeholders to encourage a high level of digital technology entrepreneurial collaborations
3. Work with external stakeholders to generate a high level of digital technology solutions among the firms

Q2: Digital technology-business strategic alignment

4. Integrate digital technology and business strategy to attain strategic alignment
5. Create a shared vision of the role of digital technology in the business strategy
6. Jointly plan how digital technology will enable the business strategy
7. Confer with each other before making strategic decisions

Q3: Digital technology-enabled user relationship management

8. Build respect between digital technology's providers and digital technology's users.
9. Build internal partnerships (shared project responsibility) between digital technology's providers and digital technology's users
10. Build internal working relationships between digital technology's providers and digital technology's users

Q4: Digital technology infrastructure management

11. Provide a digital technology infrastructure that is responsive to current business needs
12. Provide a flexible digital technology infrastructure that allows for quick modification in support of the digital technology plan
13. Provide a digital technology infrastructure that allows for the seamless integration of digital technology services across the firm

Q5: Organizational Mindfulness towards digital transformation

14. Accurately anticipate digital transformation that is relevant to the firm
15. Make sure that the firm's strategic plan identifies value from digital transformation
16. Inform management team about valuable options of digital technology before a digital transformation's strategic change decision is made

Q6: Market agility

17. Constantly gather external information for strategic responses ahead of the competition by integrating digital technology with other resources to enhance systems for proactively staying alert to market
18. Quickly interpret market information for strategic responses ahead of the competition by integrating digital technology with other resources to enhance systems for competitive analysis
19. Quickly decide among strategic alternatives for market responses by integrating digital technology with other resources to enhance systems for decision support

20. Deliver a fast solution for a strategic response ahead of the competition by integrating digital technology with other resources to enhance systems for rapid development and implementation

Figure

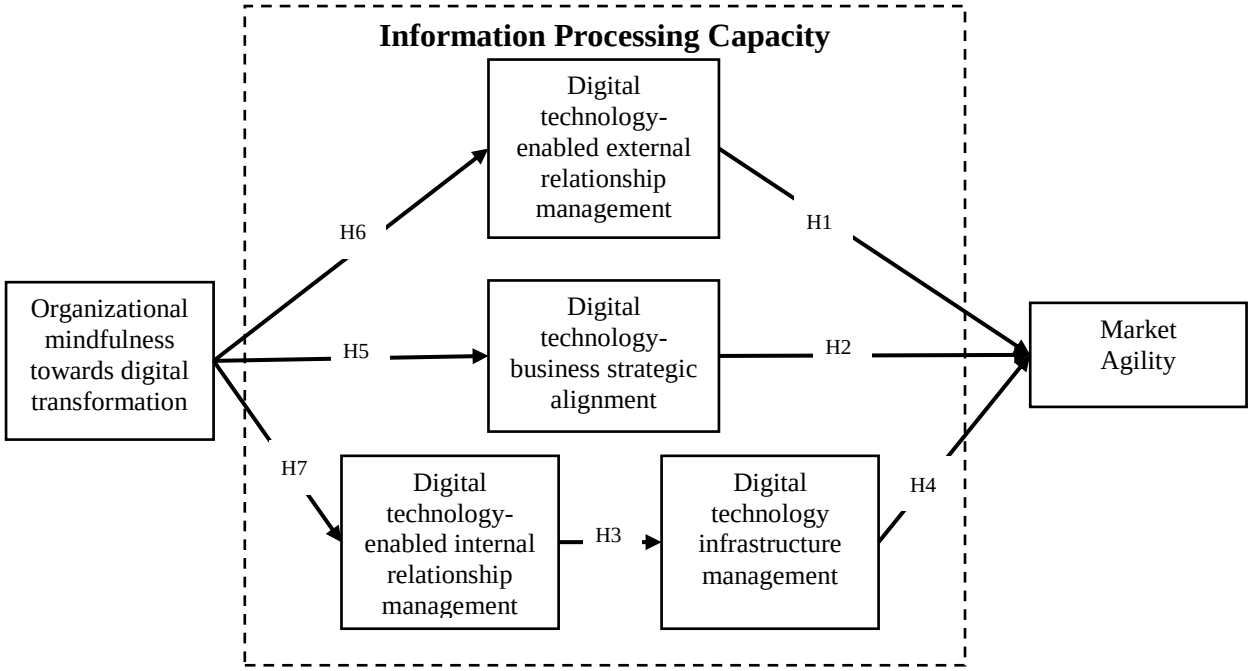

Fig. 1. Research model

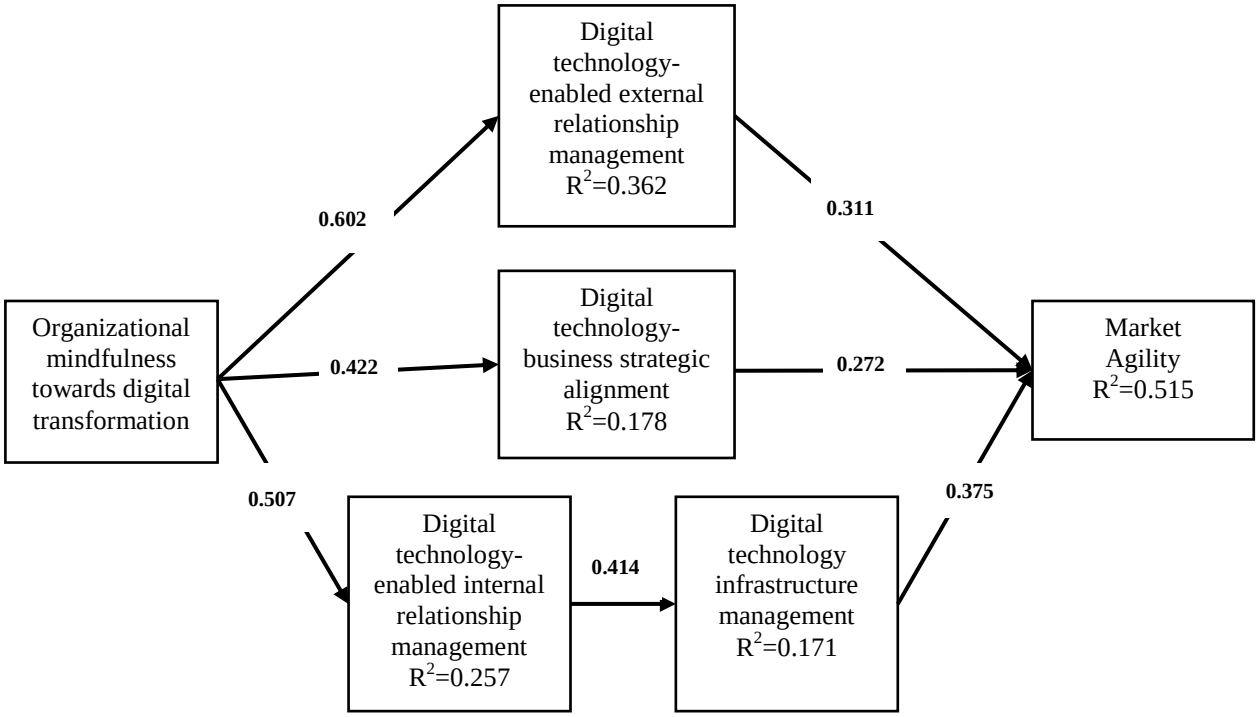

Fig. 2. The structural model results
Note: all path loadings are significant.

Table 1. Demographics of Respondents

Demographics		Percentage
Gender	Male	92.2%
	Female	7.8%
Job title	Chief Information Officer (CIO)	37.3%
	Senior Vice President	24.5%
	Vice President	28.4%
	Director, or Manager	9.8%
Management level	Senior Executive	64.7%
	Upper Management	33.4%
	Middle Management	0.0%
	Corporate, International	1.9%
Working experience	1 to 5 years	38.2%
	6 to 10 years	24.5%
	11 to 15 years	13.7%
	>15 years	23.6%
Industry type	Banking	3.9%
	Financial Services	7.8%
	Insurance	6.9%
	Manufacturing	28.4%
	Retail	14.7%
	Transportation	8.8%
	Energy and Utilities	12.8%
	Food Processing and Services	9.8%
	Other	6.9%

Table 2. Descriptive Statistics and Correlation Coefficients

	Mean	S.D.	1	2	3	4	5	6
DT-external relationship management (Q1)	3.25	0.80	1					
DT-business strategic alignment (Q2)	3.38	0.85	0.356**	1				
DT-internal relationship management (Q3)	3.85	0.76	0.454**	0.489**	1			
DT infrastructure management (Q4)	3.72	0.79	0.303**	0.345**	0.412**	1		
Organizational mindfulness (Q5)	3.58	0.62	0.414**	0.596**	0.505**	0.472**	1	
Market agility (Q6)	3.17	0.76	0.479**	0.518**	0.366**	0.547**	0.650**	1

Table 3. Results of Exploratory Factor Analysis

Items	Factors					
	1	2	3	4	5	6
Q2_03	0.854	0.123	0.054	0.052	0.162	0.161
Q2_02	0.817	0.185	0.300	0.114	0.058	0.147
Q2_01	0.718	0.209	0.249	0.107	0.049	0.088
Q2_04	0.692	0.093	0.111	0.095	0.020	0.293
Q6_02	0.168	0.727	0.014	0.225	0.232	0.357
Q6_03	0.260	0.695	0.070	0.233	0.257	-0.042
Q6_01	0.040	0.647	-0.066	0.132	0.145	0.395
Q6_04	0.333	0.597	0.231	0.173	0.113	0.073
Q3_02	0.236	0.147	0.799	0.187	0.125	0.018
Q3_03	0.175	-0.022	0.789	0.202	0.154	0.110
Q3_01	0.153	0.023	0.775	0.171	0.117	0.240
Q1_02	0.111	0.159	0.207	0.839	0.006	0.022
Q1_03	0.103	0.213	0.169	0.821	0.055	0.072
Q1_01	0.099	00.080	0.113	0.810	0.172	0.216
Q4_02	-0.007	0.186	0.131	0.036	0.808	0.119
Q4_03	0.183	0.116	0.117	0.199	0.773	0.073
Q4_01	0.158	0.268	0.157	0.007	0.717	0.102
Q5_03	0.290	0.173	0.161	0.078	0.026	0.622
Q5_01	0.304	0.131	0.148	0.252	0.161	0.613
Q5_02	0.232	0.374	0.268	0.082	0.148	0.572

Table 4. Results of Reliability and Validity

Items	DT-external relationship management (Q1)	DT-business strategic alignment (Q2)	DT-internal relationship management (Q3)	DT infrastructure management (Q4)	Organizational mindfulness (Q5)	Market agility (Q6)
Q1_01	0.8950					
Q1_02	0.8980					
Q1_03	0.8884					
Q2_01		0.9001				
Q2_02		0.8258				
Q2_03		0.8502				
Q2_04		0.9185				
Q3_01			0.8933			
Q3_02			0.8867			
Q3_03			0.9139			
Q4_01				0.8906		
Q4_02				0.8691		
Q4_03				0.8717		
Q5_01					0.8073	
Q5_02					0.8610	
Q5_03					0.8294	
Q6_01						0.8163
Q6_02						0.8808
Q6_03						0.8314
Q6_04						0.7819
AVEs	0.799	0.765	0.806	0.769	0.694	0.686
Alpha	0.872	0.897	0.880	0.872	0.779	0.846
CRs	0.923	0.928	0.926	0.909	0.872	0.897

Note: 1. All of the 20 item loadings for all six constructs were significant at $p < .001$
2. The lowest acceptable value for AVE was 0.50 (Fornell & Larcker, 1981).

Table 5. Correlations of Items to Constructs

Items	Q1	Q2	Q3	Q4	Q5	Q6
Q1_01	0.894**	0.330**	0.397**	0.333**	0.435**	0.428**
Q1_02	0.907**	0.315**	0.424**	0.239**	0.331**	0.417**
Q1_03	0.879**	0.310**	0.394**	0.241**	0.346**	0.443**
Q2_01	0.345**	0.848**	0.455**	0.281**	0.456**	0.449**
Q2_02	0.335**	0.914**	0.513**	0.293**	0.522**	0.459**
Q2_03	0.252**	0.903**	0.347**	0.335**	0.503**	0.465**
Q2_04	0.320**	0.829**	0.403**	0.293**	0.605**	0.439**
Q3_01	0.396**	0.441**	0.891**	0.368**	0.464**	0.303**
Q3_02	0.418**	0.451**	0.891**	0.364**	0.459**	0.371**
Q3_03	0.408**	0.424**	0.911**	0.378**	0.436**	0.309**
Q4_01	0.239**	0.362**	0.380**	0.877**	0.457**	0.547**
Q4_02	0.216*	0.220*	0.333**	0.874**	0.369**	0.443**
Q4_03	0.336**	0.332**	0.372**	0.880**	0.421**	0.459**
Q5_01	0.405**	0.507**	0.407**	0.379**	0.806**	0.512**
Q5_02	0.346**	0.519**	0.487**	0.469**	0.864**	0.621**
Q5_03	0.285**	0.462**	0.362**	0.326**	0.828**	0.486**
Q6_01	0.312**	0.315**	0.191*	0.382**	0.550**	0.805**
Q6_02	0.435**	0.447**	0.275**	0.468**	0.568**	0.874**
Q6_03	0.438**	0.442**	0.316**	0.519**	0.489**	0.834**
Q6_04	0.396**	0.503**	0.418**	0.439**	0.544**	0.798**

** Correlation is significant at the 0.01 level 1-tailed.

* Correlation is significant at the 0.05 level 1-tailed.

Organizational Mindfulness towards Digital Transformation as a Prerequisite of Information Processing Capability to Achieve Market Agility

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