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The impact of IT-enhanced organizational learning on performance: evidence from Chile

El impacto del aprendizaje organizacional acrecentado por las TI sobre el rendimiento: evidencia en Chile

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ABSTRACT: The link between information technology (IT) and organizational learning has been an important subject of study since the early 1990s. However, it is still not clear whether or not IT-enhanced organizational learning positively influences organizational performance. In this paper, we posit that the impact of IT on the performance of firms will differ depending on the main usage of the IT system: for exploration or for exploitation. Based on data of Chilean organizations, we found that there exists a positive impact of using IT for exploitation on organizational performance; and that the use of IT for exploration has a positive impact on organizational change.

RESUMEN: La relación entre tecnologías de la información (TI) y aprendizaje organizacional ha sido un importante objeto de estudio desde principios de los años 1990. Sin embargo, todavía no está claro si el aprendizaje organizacional basado en TI influye positivamente en el desempeño organizacional. En este trabajo postulamos que el impacto de las TI en el desempeño de las firmas dependerá del uso principal de los sistemas de TI: según sea para explotación o para exploración. A partir de datos recolectados en organizaciones chilenas, encontramos que el uso de TI para explotación impacta positivamente en el desempeño de la organización, y que el uso de TI para exploración impacta positivamente en el cambio organizacional.

1. Introduction

The link between information technology (IT) and organizational learning has been an important subject of study since the beginning of the nineteen nineties [1]. Some studies have focused on IT as an organizational learning enabler [2-4], because IT provides organizations with extensive capabilities to acquire, store, distribute and even apply knowledge. These activities are fundamental because they help to increase organizational responsiveness [2], which is necessary for an organization in order to continuously adapt to turbulent and competitive environments. However, there is still need to understand the impact of the different uses of IT and organizational learning on organizational performance. That evidence may guide managers in making sound decisions regarding IT investments, because organizational learning is one of the primary mechanisms for building organizational capabilities [5]. The objective of this study is to increase our understanding of the impact of IT use and IT-based organizational learning on the performance of organizations. Based on the concepts of exploration and exploitation [6], we develop a theoretical model and provide empirical evidence, which demonstrates that the impact of IT on firm performance will differ depending on how IT is used.

The paper is structured as follows. The second section presents a review of the literature associated with organizational learning, IT use and its impact on organizational performance. Based on the reviewed literature, the research model and hypotheses are then developed. After that, the sample is described, the methodology is explained and the characteristics of the implemented measures are reported. Finally, we analyze the results and discuss the implications and conclusions of the study.

2. Literature review

2.1. Organizational learning

Organizational learning is a concept that has been associated with different disciplines that study organizations. How, what and why organizations learn are all interesting questions for scholars from different areas. Researchers from the area of management of information systems have always been concerned with organizational learning, because information systems are an important

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support for the different processes that entail learning at an organizational level, such as the storage or dissemination of knowledge. For instance, empirical studies have found that IT's impact on performance is mediated by the organization's learning capacity [7, 8] and that IT does not generate a competitive advantage per se, but by leveraging other complementary assets or resources [9].

Scholars from the strategic management field have also been largely interested in the relationship of organizational learning and organizational performance. Chakravarthy [10] argues that the main purpose of strategic management is to adequately adapt the organization to its environment. According to the author, an organization has to handle a great variety and quantity of information in order to adapt to the environment. This ability to process varied information can be developed through organizational learning [11-13].

As a consequence of the diversity of fields and motivations related to the study of organizational learning, and although there are some commonalities, the definitions of organizational learning do not converge to a single concept. However, most scholars state that organizational learning is mainly a process of knowledge creation [3, 4, 7, 8, 14-16]. One important aspect that distinguishes these definitions is the relationship between what is learned and its outcome. On the one hand, some authors argue that the creation or acquisition of new knowledge will not always be associated with performance improvement [15, 17]. Hence, organizational learning is seen as a process for changing conceptions or cognitive maps, but not necessarily as an output-enhancing process. Under this view, there might be no an observable consequence of new knowledge acquired by the firm. On the other hand, some conceptualizations of organizational learning are associated with the behaviorist tradition, which correlates learning to change of behavior [15]. Under this perspective, no observable change of actions or behavior implies that no learning has occurred. In general, and as stated by Huber [16], an organization learns if the range of its potential behavior is changed.

Based on the reviewed literature, we define organizational learning as an intentional or unintentional process through which an organization develops new knowledge and insights. Therefore, for an organization to learn, it has to engage in several different activities, such as the acquisition, storage, dissemination and application of knowledge. Consequently, we argue that an organization learns if the new insights become embodied in the organization's behavior.

2.2. Exploration and exploitation

The study of the processes of organizational learning is important because the content of the knowledge depends on how the knowledge is acquired, distributed or stored. Specifically, the recognition of the differences between the acquisition of knowledge and the outcomes that the knowledge brings about has motivated scholars to define different types of learning activities. Those classifications are then usually associated with the content of the knowledge that has been created [17]. In [18], the authors explicitly distinguish different learning processes. These authors define single-loop learning as the detection and correction of errors that allow the organization to reach its current objectives and policies. However, when an organization has to resolve an incompatibility of norms or objectives, it needs to decide which norms or objectives are better for the organization's performance. This is defined as double-loop learning [18].

The classification of organizational learning that has gained greater acceptance is the one that identifies exploration and exploitation learning activities [6]. March [6] defines exploitation as those activities that entail refinement, efficiency or implementation. Other authors also indicate that exploitation is the use of the current knowledge base [19], incremental learning [3] or learning via local search [20], the refinement of existing skills and capabilities [14], the use of knowledge for alignment [21], the elaboration of established ideas [22], or the experiential refinement of existing routines [23]. On the other hand, exploration is frequently associated with double-loop and higher level learning [14]. In March's [6] terms, exploration activities can be described broadly by concepts such as search, variation, experimentation and discovery. Exploration has also been defined as the learning that occurs through planned experimentation and play [20, 23], the replacement of existing knowledge [3], the activities aimed at enhancing adaptability [21], the pursuit of things that might come to be known [24], the pursuit of new possibilities [25] or as the creation of organizational variety [26].

Even though the balance of exploration and exploitation seems to be important, organizations tend to favor exploitation over exploration because of the risk and uncertainty of the outcomes of the latter. This bias usually produces a competency trap, where an organization is efficient but at an inferior level [6, 27], because the organization keeps improving the current, outdated and known procedure instead of searching for a superior one. Yet, when an organization engages more in exploration than in exploitation it will possibly find itself having plenty of new ideas without obtaining any benefit from them; a situation that is called experimental trap [6]. Therefore, the negative outcome of both traps is the main reason why scholars have long argued that firms should attain an adequate balance between exploration and exploitation [6, 28, 29]. The reduction of the effects of the competency and experimental traps results from a right balance between exploration and exploitation. Firms able to reach this balance are known as ambidextrous [20].

2.3. IT and its uses

Managers and scholars have extensively recognized the positive impact of information technology on productivity and performance [30]. In this section, we review the current literature on the relationship between performance and IT by drawing from organizational and resource-based view literature. It is important to note that in this study we consider IT as a broadly defined concept, specifically as the organizational Information System (IS) (hardware,

software, practices and people) that helps to collect, store, analyze, and process data in order to disseminate it for processes' functioning and decision making throughout the organization.

Investments in IT are usually made under the assumption that they are effective and efficient for improving productivity and for creating business value for firms. A stream of research has been dedicated to clarify this assumption, investigating the relationship between IT investments and firm value creation to find out if IT really contributes to the efficiency of business processes, and hence to the creation of competitive advantages, which in turn would impact positively on firm performance. However, and contrary to the common assumption of those days when IT investments were unquestioned decisions, studies in the late 1980s showed that some of the IT investments did not actually improve organizational performance. This contradictory finding shows that increases in IT investment are not necessarily associated with increases in productivity, a finding that has been defined as the IT productivity paradox [31]. Loveman's study [32] is one of the most influential of those related to this paradox. Using data of manufacturing firms from U.S. and Europe, the author found that returns from IT investment were lower than expected. Specifically, Loveman states that his "data speak unequivocally: In this sample, there is no evidence of strong productivity gains from IT investments" [32]. While he raises certain concerns about the methodology, and specifically about the available measurements, he argues that managers have failed to effectively align IT investments with the organization's strategy, which is the result of an inadequate organizational structure or lack of managerial skills particularly related to IT.

Although a paradox had been found, little evidence was available at that time about how organizations could overcome these problems regarding the return over IT investment, and thus how organizations could exploit IT investments to enhance their productivity. The debate about the impact of IT on performance has been held even until now. Carr [33] indicates that IT has become an infrastructural technology, in the same way that electricity was for organizations in the beginnings of the 1900s. Therefore, he argues that organizations have to reduce their IT investments, because no competitive advantage would be gained through them. However, after Loveman's study [32], and as Brynjolfsson [31] predicted, many scholars have conducted subsequent studies in order to propose and clarify under what conditions IT investments actually improve organizational processes and performance [8, 9, 25, 34]. These studies have consistently demonstrated that IT cannot be a source of competitive advantage by itself. Organizations have to adequately complement technology investments with other organizational resources and capabilities such as managers' IT and business skills.

The way IT is used can be regarded as an organizational capability, because the decision of using IT for a particular task or objective has to be matched with an existing body of resources, investments and employees' skills that allow that use. Accordingly, a plausible explanation for the IT-based creation of firm value has been built on the concept of the *pattern of IT* use, which is derived from the concept of *appropriation of technology* developed by DeSanctis and Poole [35]. Sanders [34] and Subramani [25] broadly define the pattern of IT use as *the way an organization applies IT*. The main idea behind this definition is that different IT uses will lead to different outcomes, even when the IT infrastructure is the same [25]. Building on the categorization of organizational learning activities as exploration and exploitation [6], scholars have conceptualized two patterns of IT use [25, 34], one associated with the former and the other with the latter. Consequently, *IT use for exploitation (IT-T)* are those activities aimed at improving firm's efficiency while the firm keeps serving the same customers and selling the same products or services. In this case, the firm is focused only on the dissemination and refinement of the already acquired knowledge across the organization's structure. On the other hand, I*T use for exploration (IT-R)* subsumes activities that allow a firm to change its business model, to create new products and/or services and to enter new markets. When an organization is exploring, different practices, knowledge and perceptions are brought inside the organization [6], so the organization is able to radically change current activities and processes. The pattern of IT use has demonstrated to be an important factor when analyzing IT impact on performance. However, empirical evidence is restricted to specific inter-organizational relationships in a supply chain system [25, 34].

3. Hypotheses development

Drawing from organizational learning and IT literature, we argue that the pattern of IT use is an antecedent of the impact of IT on performance. Whether an organization uses IT for cost reduction or for performing structured tasks (*IT-T)*, or uses IT for developing new knowledge about its customers and competitors *(IT-R)*, the organization employs a combination of resources, technical and human, to achieve a specific objective. Accordingly, using IT for cost reduction and efficiency (i.e. *IT-T*) allows a firm to continue mastering present activities, without the concern of variable returns or negative side effects. Thus, we propose the following hypothesis:

H_1: In the short term, IT use for exploitation (IT-T) has a positive impact on firm performance.

On the other hand, we argue that *IT-R* (exploration) allows firms to acquire new knowledge and to better adapt to the environment. This flexibility enables the organization to perform adequately in different scenarios by quickly responding to external changes. The benefits of this flexibility, however, may be realized only in the long term, because of the experimental characteristic of exploration. Considering these issues, we propose that:

H_2: In the short term, IT use for exploration (IT-R) has a positive but weak impact on performance

Furthermore, we argue that in the short term the benefits obtained from *IT-T* will outweigh the benefits from *IT-R*. As described before, exploitation involves certainty and best

routine selection for present tasks. On the other hand, exploration activities ensure that a broad set of knowledge, useful or not, will be developed in a longer period of time. Then, exploitation activities are more likely than exploration activities to have an impact on performance in the short term. Therefore, we propose the following hypothesis:
H_3: In the short term, IT-T (exploitation) has a larger impact than IT-R (exploration) on performance

IT use for exploitation is an activity that depends mostly on previous experience. Thus, a firm that is using IT for exploitation does not necessarily need to bring about important changes in its structure and processes. *IT-T* could result in process documentation changes, but will not produce any major structural change. Accordingly, we propose the following:
H_4: IT use for exploitation (IT-T) has a weak or no effect on organizational change

Using IT for exploration, on the other hand, is a source of disruptive and path-breaking outcomes, because the previous path followed by an organization may not be able to sustain radical new activities produced by experimentation *(IT-R)*. Therefore, developing a more intensive learning process, such as those produced by *IT-R* (e.g. finding new ways of conducting business) will have a greater impact on organizational structures and processes than those produced when using IT for exploitation. Acquiring new knowledge or refining existing knowledge through exploration activities not only allows a firm to create new ways of conducting business, but also provides the firm with the ability to discard routines that are no longer efficient or necessary. Whether a new routine is added or an old one becomes discarded, the organization should have to adjust itself during this process, making the necessary organizational changes. These changes should be made in order to support the new processes' specifications, which will lead to organizational performance improvement. Therefore, we propose the following hypothesis:
H_5: IT use for exploration (IT-R) has a positive effect on organizational change

If an organization is seeking superior performance, it is likely that present structures and processes will not be enough. Thus, the organization will necessarily have to change part of its structure and processes. However, the results of these changes will materialize only in the medium to long run. Therefore, considering that organizational change may have a positive impact on performance in the long run, we propose that:
H_6: In the short term, organizational change has a weak or no impact on performance.

In order to measure the exploitation construct *(IT-T)*, two observed variables are used, while three are used to measure the exploration *(IT-R)* and *organizational change* constructs. Finally, four observed variables are used to measure the *performance* construct. The description of each observed variable is shown in Table 1.

Figure 1 shows the research model. Constructs are displayed as ovals and observed variables as rectangles. In Figure1, the arrows connecting the constructs represent the relationships expressed in the hypotheses already developed. In the next section, we further describe and discuss the model.

4. Research methodology

To test the hypotheses, data was collected using a survey methodology in Chile. Chile is an interesting setting to test the hypotheses because most of the empirical evidence in the IT literature comes from firms located in developed economies. Also, while it is important for economic development, little empirical evidence is available for

Table 1 Items description

Question	Item	Description (scale)
		(1 = never 7 = frequently)
The firm has used IT to...	ITT1	Enhance existing products or services
	ITT2	Enhance existing business processes
	ITR1	Develop new products or services
	ITR2	Create new customer relationships
	ITR3	Change way of doing business
		(1 = rarely 7 = significantly)
Due to the incorporation of IT, we have...	OC1	Changed job titles, descriptions and reporting relationships
	OC2	Adjusted labor skills
	OC3	Redesigned business processes
		(1 = significantly decreased 4 = no impact 7 = significantly increased)
IT has had an impact on...	P1	Customer satisfaction
	P2	Business processes performance
	P3	Quality of products or services
	P4	Employees satisfaction

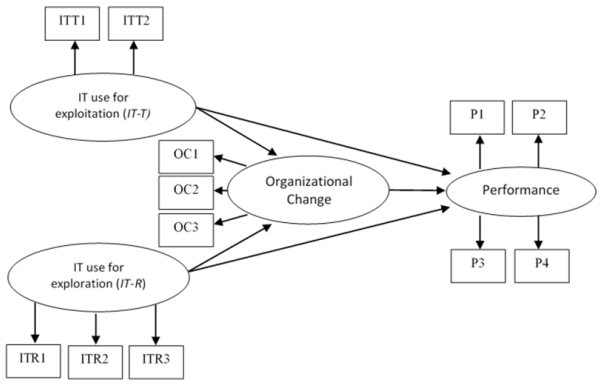

Figure 1 Research model

studying the impact of IT on firms' performance in Latin-American countries.

Following the standard of the survey methodology, one member of the firm´s top management team was asked through a formal letter whether or not the organization could be part of the study. If the answer was affirmative, a questionnaire was sent via mail. The letter was sent to 700 organizations, out of which 300 organizations confirmed that they would participate in the survey. Forty-eight usable questionnaires were received, which represents a response rate of 16 percent. In developed countries, it is usual to have a higher response rate, but in emerging economies a low rate of response is commonly expected [36, 37]. It is important to note that, when completing the questionnaire, respondents were instructed to consider the preceding three years from the time of the data collection because the study focuses on the short-term effects of IT use. The average tenure of respondents at firms was 10.1 years. The mean number of employees at firms was 606 and average annual sales over the past three years was US$ 259.4 million, which indicates that the sample represents large firms in Chile.

A multi-item scale was used for each construct in order to improve reliability. Each variable was measured by a seven point Likert scale. As in any study, it is critical to determine how reliable the measures are based on the questionnaire's scales. The level of reliability allows the researcher to assess to what extent the variance of the observed variable is explained by the underlying construct. Given that more than one item was used to measure a single construct, it is required to test the consistency of responses across the items designed to measure each of them. The Cronbach-α is a well-known indicator of the internal consistency of a measure. If the internal consistency is high, then the content of the items is homogeneous so it is possible to use the total score as a unit of analysis for a construct [38].

Overall, the measures exhibit high reliability. The Cronbach-α of all the measures is higher than 0.7 [39]. High reliability implies that the constructs adequately explain the variance of the observed variables used to measure each construct. However, it is still necessary to study the validity of the constructs used in the study. Validity is the extent to which a measure reflects the concept that it intends to measure [40]. In this research, it was important to study the validity of the measures used to observe the constructs derived from the theory, because this is the bedrock of the methodology that is used (structural equation modeling). Construct validity is assessed by studying the convergent validity of a construct and the discriminant validity among constructs. All the constructs used in this study show high construct validity. Moreover, in order to test for discriminant validity, a single construct measurement model was used. The chi-square statistic of that model was statistically significant at a p-value of 0.000, corroborating discriminant validity [34]. Given that construct and discriminant validity are attained, it is possible to implement the structural equation model in order to test the hypotheses.

5. Results

To test the proposed model and the hypotheses, structural equation modeling (SEM) was applied to the correlation matrix shown in Table 2. The analysis was conducted using the software LISREL. The model chi-square statistic is not significant (χ^2 = 54.14, df = 48 and p-value = 0.25) and the root mean square error of approximation (RMSEA = 0.052) is below the recommended upper threshold of 0.06 [41, 42]. Other fit indices are also acceptable, indicating that the data fits the model. Further evidence that the data fits the model are the obtained R2 values. The independent constructs IT use for exploitation *IT-T* and exploration *IT-R* explain 67% of the variance of organizational change (OC), and along with OC, they explain 53% of the variance of performance. Table 2 shows the observed correlations between the items. The correlation matrix shown in Table 2 is one of the main inputs for the analysis.

The main results of the model are shown on Figure 2 and Table 3. The findings indicate that H_1 is supported, (the coefficient λ_1 is statistically significant p-value = 0.04), therefore it is possible to state that IT use for exploitation has a statistically significant impact on performance.

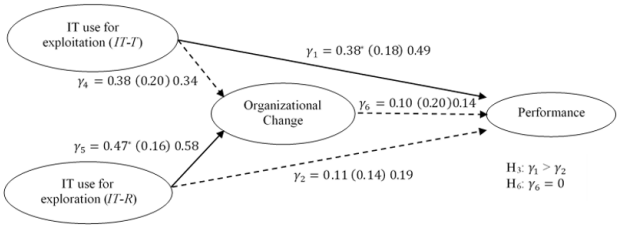

Figure 2 The structural model

Each path displays: the unstandardized coefficient, standard error (in parenthesis) and the standardized coefficient. *Coefficients are significant at p-value ⩽ 0.05. Dashed lines represent non-significant paths.

Hypothesis H_2 is supported as well because IT use for exploration has a positive impact on short term performance (the coefficient λ_2 is positive) but this impact is not statistically significant, therefore weak as the hypothesis suggests.

Table 2 Correlation Matrix of sample data (N = 48)

	Item	1	2	3	4	5	6	7	8	9	10	11	12
1	ITT1	1											
2	ITT2	.602**	1										
3	ITR1	.236	.200	1									
4	ITR2	.160	.449**	.505**	1								
5	ITR3	.274	.515**	.631**	.683**	1							
6	OC1	.348*	.495**	.500**	.529**	.591**	1						
7	OC2	.393**	.537**	.404**	.363*	.581**	.704**	1					
8	OC3	.286*	.303*	.405**	.456**	.501**	.608**	.601**	1				
9	P1	.456**	.326*	.303*	.423**	.380**	.317*	.313*	.496**	1			
10	P2	.347*	.409**	.283	.402**	.333*	.329*	.284	.421**	.416**	1		
11	P3	.521**	.425**	.388**	.367*	.441**	.370**	.474**	.554**	.673**	.677**	1	
12	P4	.468**	.553**	.334*	.465**	.425**	.329*	.385**	.511**	.550**	.426**	.656**	1
	Mean	5.979	6.021	5.042	5.229	5.000	4.563	4.917	5.417	5.604	5.750	5.563	5.375
	Std. Deviation	1.194	.978	1.738	1.588	1.689	1.515	1.582	1.334	.962	.758	.943	.890

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 3 Summary of hypothesis test results

Hypothesis	Path	Path coefficient[a]	t-statistic[b]	p-value	Hypothesis supported?
$H_1: \gamma_1 > 0$	γ_1	0.38*	2.07	0.04	Yes
$H_2: \gamma_2 > 0, ns$	γ_2	0.11 ns	0.81	0.42	Yes
$H_4: \gamma_4 = 0$	γ_4	0.38 ns	1.87	0.06	Yes
$H_5: \gamma_5 > 0$	γ_5	0.47*	2.91	0.00	Yes
$H_6: \gamma_6 = 0$	γ_6	0.10 ns	0.49	0.62	Yes

*p-value ⩽ 0.05, ns = statistically non-significant. [a]Unstandardized coefficients. [b]For a path to be significant at p-value ⩽ 0.05, absolute value of t-statistic must be ⩾ 1.96

Given that H_1 and H_2 are both verified, hypothesis H_3 could also be assumed to be valid, i.e. that in the short run IT use for exploitation has a larger impact on firms' performance than IT use for exploration. However, although λ_1 is significant and greater than λ_2, the Wald confidence intervals (CI) overlap (Table 4). These CIs are simply calculated using the estimated standard error of the unstandardized coefficients [43]. Thus, for firms included in the sample of this study, it is not possible to state that in the short term returns from IT use for exploitation will be higher than those from IT use for exploration.

Table 4 Confidence interval for unstandardized coefficients

Path	Wald CI Lower Limit	Wald CI Upper Limit
γ_1	0.03	0.73
γ_2	-0.18	0.44
γ_4	-0.01	0.77
γ_5	0.21	0.91
γ_6	-0.29	0.49

The findings also indicate that the relationship between IT use and organizational change is fully verified, because H_4 is supported, there is no statistical impact of IT use for exploration on organizational change (λ_4 is statistically non-significant, p-value = 0.06). On the other hand, H_5 is supported (λ_5 is statistically significant, p-value = 0.00), implying that IT use for exploration has a positive effect on organizational change.

Finally and according to the data, in the short run the impact of organizational change on performance is not statistically significant, corroborating hypothesis H6 (coefficient λ_6 is statistically non significant, p-value = 0.62)

Additionally, the mean value of *IT-T* and *IT-R* was computed by averaging the responses to those items associated with each IT use. The mean for *IT-T* is 6.00 and for *IT-R* is 5.09, whose difference is statistically significant (p-value < 0.05), and the intersection of both confidence intervals is a null set. Therefore, in the sample of this study, organizations favor IT use for exploitation over IT use for exploration, as has been hypothesized [6, 27].

6. Discussion and conclusions

The findings of this study are consistent with those from similar studies performed in other contexts [25, 34],

indicating that the results of the conducted research may be considered valid.

Worth noting that the model, the constructs and the measured variables utilized in this study have all been drawn from studies performed in developed economies. Accordingly, it could then be said that the impact of IT use on organizational performance and change is not fully contingent on the firms' economic environment and local culture as could have been expected. This assertion needs to be fully corroborated by further research.

We highlight three main aspects of our findings. First, in the short term information technology employed for exploitation purposes *IT-T* has a statistically significant impact on firm performance, while its use for exploration purposes *IT-R* does not. This result was expected from organizational learning theory and corroborates the likely impact of new technologies on organizational performance in general. Therefore, firms will enhance their short term performance through refinements and local improvements on current practices, while IT use for exploration could only have a long term impact. Second, and in contrast with the first underscored aspect, *IT-R* has a greater effect on organizational change than *IT-T*. When firms use IT for exploration activities, they would tend to adjust their processes and structures to the new knowledge gained by these activities. Since using IT for exploitation only produces reduced learning, only minor changes are derived from it. This finding highlights the importance of IT exploration-use for increasing organizational change and adaptation. Third, and although not formally hypothesized in this study, it is interesting to note that firms in our sample favor exploitation over exploration. This bias toward exploitation can be frequently found in studies from developed market firms and it is also expected from theory [6, 27]. However, this bias may be more harmful for emerging market firms, because of the unstable political and economic context. In these markets, institutional changes act jointly with market pressures. Firms excessively favoring exploitation over exploration will not be well prepared to cope with environmental upheavals. Therefore, firms in emerging markets need to strongly avoid the competency trap.

As a caveat, the authors recognize that the sample size may pose some generalization problems, because it is smaller than the typical one used in similar research. Although this is a recurrent issue in research conducted in developing countries, it may be lessened as more studies accumulate. Also, a refined model will need to consider factors associated with the stage of development of host-countries in order to confirm whether results from developed countries could be generalized to firms in emerging ones. Moreover, a refined model and a larger sample size will allow further studies to analyze if the statistically non-significant effects found during this study are truly insignificant or if they are non-significant purely due to problems of statistical power of the study, as a result of a rather small sample.

Common practice clearly shows that IT allows firms to fully realize their business potential because it supports different activities such as those associated with exploration and exploitation. Thus, in contrast to the common and recent belief that firms have to stop investing in IT because of the IT productivity paradox [33], it has been argued in this study that firms should focus their attention on the development of complementary resources and capabilities. This is a fundamental enterprise for domestic firms in emerging markets, since they have to survive under greater environmental upheavals than firms in developed markets. Therefore, considering that emerging market firms are usually endowed with inferior quality resources and capabilities, it is crucial that governments and firms themselves work together to leverage this contextual situation.

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