IT Governance Processes and IT Alignment: Viewpoints from the Board of Directors

Jason Kuruzovich  
Rensselaer Polytechnic Institute  
kuruzj@rpi.edu

Geneviève Bassellier  
McGill University  
genevieve.bassellier@mcgill.ca

V. Sambamurthy  
Michigan State University  
sambamurthy@bus.msu.edu

Abstract

This research empirically examines the role of the board of directors in driving IT alignment. We develop a model that links governance initiators, governance practices, and IT alignment. The strategic importance of IT acts as initiator of governance practices, including direct involvement of the board of directors in the management of IT, CIO communications with the board, strategic consideration of IT investments, and the quantity and usefulness of the IT information provided to the board. Using an extensive survey of 256 members of the board of directors, we found that three firm governance practices are influenced by the strategic importance of IT and all four are associated with increased levels of IT alignment, indicating that the board plays a meaningful role in monitoring and facilitating processes involving IT. While a great deal of research has identified the importance of the board of directors in firm operations, this is among the first papers to empirically examine this role.

1. Introduction

There is broad agreement that a critical factor in the relationship between information technology (IT) and firm success is the alignment of IT and business strategy [38, 12, 35]. As IT alignment enables organizations to derive value from IT investments, IT alignment can be viewed as an important outcome of any management system. Improving the degree of alignment is among the most important concerns of chief information officers (CIO) [28] and identifying the relevant drivers of alignment has been the subject of extensive research [for a review, see 11].

Findings have indicated that governance processes play an important role in driving overall IT alignment [9, 37, 47, 14]. In addition, researchers have argued that the board of directors is likely to play an important role in the oversight of IT management [30, 35, 24]. While there has been several articles arguing for the involvement of the board of directors in IT [30, 24, 35] and detailed methods through which to use governance mechanisms to achieve alignment [50], the limited empirical treatment of the issue has suggested that the board of directors plays a very small role in technology planning or oversight [6, 3]. In addition, it is unclear what organizational characteristics may allow the board of directors to help align IT and business strategies.

In this paper, we develop and test a framework on IT governance practices involving the board of directors, indicating both when they are likely to get involved and how their involvement may influence overall IT alignment, as shown in Figure 1. We argue that governance initiators lead to more effective board level IT governance practices and preferred organizational outcomes, including higher levels of IT alignment. While prior literature has focused on the role of top management in achieving alignment through shared knowledge, relationships, and communication structure [45, 34], by specifically incorporating practices involving the board of directors we add to the understanding of alignment.

The next section describes the theoretical background involving research on governance practices, IT alignment, and strategic importance of IT. It is followed by the development of specific hypotheses. The data and methodology used to test the identified relationships are then discussed. Finally, we discuss the implications of the findings.

2. Theory

2.1. Governance practices

In analyzing governance practices involving the board of directors, we incorporate a framework developed by De Haes and Van Grembergen [14]. This framework distills a great deal of past research examining how practitioners actually govern IT processes [51, 49, 31, 3] as well as theoretical treatments of the governance of IT [41, 53]. Specifically, this framework identifies IT governance structures, processes, and relational mechanisms as
relevant to the process of actually governing IT to attain business alignment.

Structures are relevant to the governance process as they provide enabling mechanisms to facilitate contact between IT and the board of directors. In this paper IT board involvement is identified as a structural aspect likely to influence alignment. We define IT board involvement as the degree to which the board of directors is involved with the governance of the IT function within the organization. IT board governance is expected to be important for its role in helping organizations aligning IT and business processes.

Processes are both formal and informal planned sets of actions that involve the role of the board of directors in influencing IT related issues. Specifically, we identify strategic IT investment rational and information exchange quality as two ways in which the board of directors becomes involved in IT through process mechanisms. Strategic IT investment rationale is defined as the value proposition used to guide the justification of resource commitment involving IT [13]. Decision making relative to IT may encompass a great number of complex structural issues, and this value proposition provides a clear indication of the processes used by organizations to examine IT options as strategically relevant investments. To the degree that the organizations views IT as a tool to meet strategic goals throughout the organization, managers are more likely to provide resources and attention to IT projects. The strategic rationale for IT investments is particularly important to the funding of strategic IT innovations [16, 42, 48, 13], making a relevant component of board governance processes. Information exchange quality is defined as the extent to which processes allow the board to gain access to information about IT that is sufficient and relevant for their discussion of IT at board meetings. High quality information is an important factor in decision-making.

Relational mechanisms involved with governance processes capture the degree to which there is evidence of relationships and or collaboration among the board of directors and the IT group. Here, we use CIO-Board communication as an operationalization of the relational aspects of the IT governance process. We define CIO-Board communication as the degree to which the communication between the CIO and the board of directors is established and effective. The CIO of the organization plays a critical role in communicating the vision of how IT supports business processes and overall business strategy. Research on the interaction between the board of directors and the firm indicates that the CEO plays an important role in overall strategic governance processes involving the board of directors. Similarly, for strategic issues involving the board of directors, processes are likely to depend heavily upon communications with the CIO.

2.2. IT alignment

Alignment is an important issue in the IT literature that has been addressed by many conceptualizations and empirical methods [for a review, see 11]. While IT alignment has been defined in the literature in a variety of ways, central to the many definitions is the concept of management of IT that fully supports business strategies and processes [39, 22]. Luftman et al. [29] define alignment as use of “IT in an appropriate and timely way, in harmony with business strategies, goals and needs.” It should be noted that IT can both support and enable business strategies through real options [40, 20], thus alignment is really a dynamic process in which the “capabilities of the IT function and the rest of the business develop iteratively and reciprocally over time [2].”

In this research, we focus on the organizational antecedents to alignment involving processes that occur at the board of director’s level, building on research that has identified governance process as important drivers of overall of alignment [14, 9].

2.3. Strategic importance of IT

The strategic importance of IT is defined as the degree to which IT is perceived by top management to be important for the organization. While the impact of information technology on productivity has been found to influence nearly all industries [44], the strategic implications resulting from transformational IT are more relevant for specific industries [1]. As a result, governance processes involving the board of directors are likely to be driven by the degree to which IT has the potential to have a transformational impact on the associated business of the organization.

3. Hypotheses

As represented in Figure 1, our model consists of governance initiators, IT governance practices and organizational outcome. The perceived strategic importance of IT is expected to act as governance initiator. For IT governance practices concerning the board of directors, we consider four factors: (1) the degree to which the board of directors is directly involved with IT governance (IT board governance),
The organizational outcome used in this study is the level of IT alignment in the firm. The specific hypotheses are now described.

3.1. Strategic importance of IT and IT board governance

The strategic importance of IT is expected to be associated with increased IT board governance. A critical role of the board of directors is the monitoring of competitive issues that are of strategic interest to the shareholders of the firm [23]. Bart and Turel [6] found that board of directors’ questions regarding IT were influenced by the organizations’ strategic use of IT. Thus, it is important to assess whether the board feels that IT is strategically important. Past research in this area suggests that the degree that top management teams consider IT to be strategically relevant will influence how they address it [19]. Further, Xue et al. [53] found that managers are more likely to support IT investments when aspects of the economic environment deem IT to be important. Similar research investigating assimilation has found that top management involvement in implementations is largely driven by signals management receives regarding IT from the external environment [27]. In this research, rather than measuring the external environment directly, we measure whether IT is perceived to be strategically important for the firm. Given that much of the strategy literature has emphasized the role of contingencies in influencing what is strategically important for the firm, measuring strategic importance directly simplifies the complexities involved, meaning that the members of the board of directors will incorporate various contingencies into their assessment of the strategic importance of IT and only become involved when IT is deemed important. As a result, we expect:

\[ H1: \text{The strategic importance of IT will be positively associated with increased IT board governance.} \]

3.2. Strategic importance of IT and CIO-board communication

Strategic importance of IT is expected to influence CIO-board communication. A key role of the CIO is communication with other members of the top management team [43, 4]. Top management teams, however, may often not be receptive to communications from the CIO [18]. The organization may utilize structural impediments that impede communication, such as having the CIO not report directly to the CEO. In addition, the ability of the CIO to get her message across is necessarily dependent upon the willingness of top management to be receptive to IT-based messages. As a result, we expect the strategic importance of IT will both minimize structural impediments to communication and encourage top management to be more receptive to the message of the CIO, increasing overall CIO-board communication. Therefore, we expect:

\[ H2: \text{The strategic importance of IT will be positively associated with CIO communication capabilities.} \]

3.3. Strategic importance of IT and information exchange quality

The strategic importance of IT is further expected to influence the information quality provided to the board. In preparation for board meetings, board members are provided with information about issues of relevance. It is more likely that the briefings provided to the board includes information relevant to IS issues and that this information be in sufficient quantity when the firm assesses that IT plays a strategic role. Thus, we expect:

\[ H3: \text{The strategic importance of IT will be positively associated with information exchange quality.} \]

3.4. Strategic importance of IT and strategic IT investment rationale

The strategic importance of IT is also expected to be associated with increased strategic IT investment rationale. Management of the organization and top management team must make decisions regarding the information technology investments. Increased strategic IT investment rationale signals the consideration of IT as a strategic complement to business processes—i.e., that IT is not simply an expense but rather represents an opportunity that must be considered alongside other business investments. Past research has found that firms make larger investments in IT when demanded by the business process [8]. Similarly, firms are expected to engage in behaviors more consistent with high strategic IT investment rationale when it is
considered strategically important. As a result, we hypothesize:

H4: The strategic importance of IT will be positively associated with strategic IT investment rationale.

3.5. IT board governance and IT alignment

Higher levels of IT board governance are expected to be associated with higher levels IT alignment. While board-level actions are unlikely to influence detailed IT operational issues, they are likely to provide a strategic advice involving the degree to which companies justify IT costs and implement IT strategies [30]. Just as top management of the organization may facilitate the success of IT implementations [13, 17, 5], IT board involvement may provide the oversight to ensure that IT is being properly managed, receiving proper attention, and receiving adequate resources. Boards of directors can also act as firm resources [23], providing links to networks of advice and collaboration that may further support IT processes. Thus, we expect:

H5: IT board governance will be positively associated with IT alignment.

3.6. CIO-board communication and IT alignment

We expect CIO-board communication to be related to higher levels of IT alignment. Senior management support can be an important factor in facilitating the assimilation of new technologies [5], and improves the outcome from development processes [36]. Similarly, with high levels of communication, CIOs are likely to provide an organizing vision of the role of IT in firm strategy, helping the board of directors view IT as a way to meet business needs and support the company’s strategy [25]. A clear presentation of the technology vision as well as the ability to obtain necessary resources are likely to improve overall IT effectiveness and alignment. Thus, we hypothesize:

H6: CIO-Board Communication will be positively associated with IT alignment.

3.7. Information exchange quality and IT alignment

Information exchange quality is a governance mechanism expected to be positively related to IT alignment. High quality information in sufficient quantity is a core aspect of decision-making. In the context of IT alignment, when the board is provided with information about IT strategy that facilitates discussion of strategic issues, it will improve decision making related to the IT alignment in the firm.

H7: Information Exchange Quality will be positively associated with IT alignment.

3.8. Strategic IT investment rationale and IT alignment

Strategic IT investment rationale is expected to be positively related to IT alignment. Implementation decisions related to information technology are open to fads and mimicry [7, 46]. Strategic IT investment rationale involves the structuring of implementation decisions on firm processes designed to match implementation decisions with actual business need. This should in turn improve the overall decisions related to technology, resulting in better decisions and improved alignment. Therefore, we expect:

H8: Strategic IT investment rationale will be positively associated with IT alignment.

4. Research methods

4.1. Study sample

A survey was created and administered jointly by a leading consulting organization and a periodical with a focus on the board of directors during the first week of June 2006. The survey targeted directors of publicly traded companies with revenues of $1 billion dollars or more. Initially a letter was sent to 5,000 chairmen and members of the board of directors indicating that they would be receiving a questionnaire in three days. The questionnaire was then mailed to the original list of 5,000. Three weeks later, 2,500 of the original mailing received an additional request to complete the survey while an additional 1,248 directors who had not responded and were not included in the second mailing were sent an email requesting that they complete the survey. During the first week of July a questionnaire was sent to an additional 5,000 chairmen and members of the board of directors of companies with $1 billion dollars or more of total sales. To ensure privacy, all survey responses were anonymous.

In total, 455 directors responded to the survey. List-wise deletion of the response involving missing cases yielded 256 completed surveys that were used for the analysis. While the overall response rate can be considered low, the resulting sample size is large enough to provide meaningful analysis and is in a range typical of path models. Given the time pressure faced by senior executives, it is not unexpected for the response rate to be low.
4.2. Measure

Measures for the survey were designed by senior employees with significant experience related to both governance practices and information technology. As the measures were not developed to test a specific model, the researchers involved with this paper as well as several volunteers conducted a sorting process by which the questions from the survey were sorted into relevant constructs. Constructs identified were given several labels and an extensive literature review was conducted to—where appropriate—ensure that construct labels were consistent with the relevant past literature. Once construct labels were identified, the measures were reviewed in detail to ensure that all identified items corresponded with the appropriate nature of the construct and were not confounded with other constructs. In addition, guidelines provided by Petter et al. [32] and Jarvis et al. [26] were used in order to determine if reflective or formative were appropriate.

Items for the strategic importance of IT captured the degree to which the firm’s IT strategy and implementation were important to eight areas of the business including “customer experience and relation,” “organic growth strategy,” and “risk management.” The same firm is likely to vary significantly in the area in which IT is important, meaning that the construct will be driven from the relevance to the different areas of the business. Because of this, it is appropriate to model the construct as formative [26].

A single item indicates IT board governance, capturing the degree to which the board was involved in IT related decisions. The single item for the information exchange quality assesses the usefulness and relevance of the quantity of information provided about IT strategy. Measures for CIO-board communication capture the degree to which the CIO effectively presents IT related issues to the board of directors. The construct has six items that measure highly related aspects of the underlying effectiveness of the communications, including items such as the CIO “communicates the right level of detail,” and “makes complicated technology issues understandable.” As each of the questions reflect the underlying quality of the communications between the CIO and the board, the construct is measured as reflective. As noted, strategic IT investment rationale is defined as the value proposition used to guide the justification of resource commitment involving IT. Original measures from Chatterjee et al. [13] involved aspects of ROI, cost savings, new business opportunities. Similarly, here questions capture the degree to which IT spending related to IT is driven by “financial ROI measures,” “cost and working capital reduction,” as well as opportunities in a variety of aspects of the business including such dimensions as “customer satisfaction,” “improved productivity,” and “operational flexibility.” Following past work [13] we modeled the construct as formative.

5. Data analysis and results

PLS was used to establish convergent and divergent validity of the constructs and to determine the statistical significance of the proposed model. We first examined the measurement model and then examined the model shown in Figure 1. Descriptive statistics are reported in Table 1.

5.1. Assessing the measurement model

Several methods were used to determine the validity of the measures. Reflective constructs were validated using the composite reliabilities, inter-construct correlations, and item cross-loadings. As shown in Table 2, the composite reliability among the measures exceeds 0.70, the threshold considered to indicate acceptable convergent validity [52]. In addition, the square root of the average variance extracted exceeds 0.707 and is greater than the correlation between the construct and other constructs. As shown in Table 3, all item loadings exceeded 0.60 and construct loadings were larger than cross-loadings.

Strategic importance of IT, and strategic IT investment rationale are modeled as formative constructs. In such case weights are used to identify the contribution of each indicator to the composite index (Table 4). An important criteria in the assessment of formative construct is the content validity that should not be altered through refinement of items, and therefore even non-significant weights should stay in a model unless there is clear theoretical reason to remove them [10]. As excessive multicollinearity among items for formative constructs can destabilize the model [32], we calculated the variance inflation factor (VIF) for each item. All VIFs are below 1.7, clearly lower than 3.3, the guideline provided by Diamantopoulos and Siguaw [15], showing no problem of multicollinearity.

5.2. Assessing the structural model

The results from the analysis indicated support for the majority of the identified relationships in the model. Supporting H1, H2, and H4, the relationships
between the strategic importance of IT and IT governance, CIO-board communication, and strategic IT investment rationale were positive and significant ($p < 0.001$ for each). Only H3 was not supported, where the strategic importance of IT did not significantly influence the quality of the information exchange. All hypotheses linking the governance practices to IT alignment were significant, meaning that four governance practices included in the model—IT board governance ($p < 0.05$), CIO-board communication ($p < 0.001$), information exchange quality ($p < 0.001$), and strategic IT investment rationale ($p < 0.001$) influenced significantly the extent of IT alignment.

### 5.3. Common method bias

In addition, given that the independent and dependent variables were provided by a single respondent, the model was accessed to check for common method bias using two methods. First, we conducted an exploratory factor analysis and applied the Harman [21] one-factor extraction test. The exploratory factor analysis of the variables revealed that no single factor explained a majority of the variance, thus supporting that common method bias was not a threat. Then we used an approach suggested by Podsakoff et al. [33] as implemented in PLS Liang et al. [27]. Results from this analysis show that the average variance explained by the substantive factors (constructs of interest) was is greater than their method variance. This indicated that common method variance was not a substantial concern in this research.

### 6. Discussion

This research examines governance practices as they appear at the highest level of the organization—the board of directors. Alignment is an important outcome of the system of people and processes involved in the management of IT, and examining the impact of governance at this level provides insight into the overall role of the governance practices involving the board of directors in facilitating alignment. We find that direct involvement in governance practices are more likely when IT is perceived to be more strategically important for the firm, except for the quality of the information exchanged. Results for the process practices were split, with a non significant result for the information exchange quality and one significant with the most variance explained for the strategic IT investment rationale ($R^2 = .27$). Further governance practices—IT board involvement, CIO communication capabilities, strategic IT investment rationale, and quality of the information exchanged—each significantly influence IT alignment and together explain 35% of its variance and all three categories of governance practices are found to be an important contributors of IT alignment.

Our research thus builds upon prior work that has examined detailed communication and knowledge processes as they occur within the top management team. The board of directors provides that highest level of governances in the organization, and support for governance practices at the board level is important as a way of providing access to resources and funding for IT projects. Because of the limited attention of these individuals, however, they must necessarily focus their attention on areas that are most relevant to the organization. Thus, to the extent that IT is strategically relevant to the organization is important to consider.

This research makes several contributions. First, we identify the strategic importance of IT for the organization as an important driver of firm governance activities—including IT board governance, CIO-board communication, and strategic IT investment rationale. The greatest impact in activities is that the board of directors is more likely to become involved in governance practices when IT plays a more strategic role in firm operations. Second, all four governance practices play a role in increasing the alignment of IT with business processes. The involvement of the board of directors in IT issues is associated with higher IT alignment, indicating that board governance may be important in facilitating access to resources or ensuring that IT is being managed properly. Communication processes involving the CIO and board of directors positively influences the resulting level of alignment, further suggesting that informing the board of directors may help IT to obtain the needed resources to support firm operations. We also show that using processes in which the business case of IT investments is considered (strategic IT investment rationale) results in effective alignment. Use of such rationale signals consideration of IT as tool to meet organizational objectives. Finally, information exchange quality is also positively related to IT alignment reflecting that access to relevant information about IT issues in preparation for board meetings facilities decisions that impact alignment. Overall, this model develops an increased level of understanding of the role of the board of directors in IT governance practices and the resulting level of IT alignment.

### 6.1. Limitations


This paper has several limitations. First, because it is cross-sectional, we are unable to demonstrate that governance processes implemented at one period of time lead to future improved alignment. Second, we were unable to control for related constructs and firm-level variables. The data was collected in such a way that the respondent’s company associations were blinded to ensure privacy and encourage participation.

7. Conclusion

This paper provides among the first insights into the role of the board of directors in firm processes related to information technology, finding that boards can facilitate the alignment of IT with business strategy. In particular, some important considerations emerge. First, IT plays a strategic role for the organization as drivers of firm governance activities. Second, the board of directors may facilitate the access to resources and ensure that IT is managed properly. As consequence, the involvement of the board of directors in different governance practice enhance at least one aspect of IT performance—IT alignment. Practices relevant to all categories identified by De Haes and Van Grembergen [14]—structure, relational, and process contributed toward the extent of IT alignment.

10. References


![Figure 1. Research model](image1)

**Figure 1. Research model**

![Figure 2. Results](image2)

**Figure 2. Results**

**Table 1. Descriptive statistics**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Strategic importance of IT (SIMP)</td>
<td>2.501</td>
<td>0.361</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2  IT board governance (ITGOV)</td>
<td>2.047</td>
<td>0.506</td>
<td>0.320</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3  CIO-board communication (CIOC)</td>
<td>4.023</td>
<td>0.598</td>
<td>0.236</td>
<td>0.084</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4  Information exchange quality (INFEX)</td>
<td>3.050</td>
<td>1.020</td>
<td>0.055</td>
<td>0.176</td>
<td>0.356</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5  Strategic IT investment rationale (SITINV)</td>
<td>4.284</td>
<td>0.53</td>
<td>0.516</td>
<td>0.180</td>
<td>0.174</td>
<td>0.038</td>
<td>1</td>
</tr>
<tr>
<td>6  Alignment (ALIGN)</td>
<td>2.97</td>
<td>0.543</td>
<td>0.397</td>
<td>0.226</td>
<td>0.450</td>
<td>0.369</td>
<td>0.374</td>
</tr>
</tbody>
</table>

N=256

**Table 2. Reliability and convergent and discriminant validity for reflective constructs**

<table>
<thead>
<tr>
<th>Latent Construct</th>
<th>Composite</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
</table>

Note: * p < 0.5; ** p < 0.01; *** p < 0.001
Reliability

<table>
<thead>
<tr>
<th></th>
<th>IT board governance</th>
<th>1.00</th>
<th>1.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>CIO-board communication</td>
<td>0.941</td>
<td>0.084</td>
</tr>
<tr>
<td>3</td>
<td>IT alignment</td>
<td>0.883</td>
<td>0.230</td>
</tr>
<tr>
<td>4</td>
<td>Information exchange quality</td>
<td>1.00</td>
<td>.176</td>
</tr>
</tbody>
</table>

Notes: Composite Reliability $p = \frac{i^2}{i^2 + (1-i^2)}$ where $i$ is the component loading. The bold values along the diagonal are square root of the AVE (Average Variance Extracted).

Table 3. PLS component-based analysis: Cross loadings for reflective constructs

<table>
<thead>
<tr>
<th>Scale Items</th>
<th>IT Alignment</th>
<th>CIO-Board Communication</th>
<th>Information Exchange Quality</th>
<th>IT Board Governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALIGN1</td>
<td>0.6405</td>
<td>0.2481</td>
<td>0.1722</td>
<td>0.2899</td>
</tr>
<tr>
<td>ALIGN2</td>
<td>0.6849</td>
<td>0.2749</td>
<td>0.1458</td>
<td>0.2491</td>
</tr>
<tr>
<td>ALIGN3</td>
<td>0.7021</td>
<td>0.3825</td>
<td>0.1811</td>
<td>0.2855</td>
</tr>
<tr>
<td>ALIGN4</td>
<td>0.7373</td>
<td>0.3426</td>
<td>0.1342</td>
<td>0.2916</td>
</tr>
<tr>
<td>ALIGN5</td>
<td>0.6521</td>
<td>0.353</td>
<td>0.1308</td>
<td>0.2068</td>
</tr>
<tr>
<td>ALIGN6</td>
<td>0.8036</td>
<td>0.3352</td>
<td>0.1855</td>
<td>0.2911</td>
</tr>
<tr>
<td>ALIGN7</td>
<td>0.8161</td>
<td>0.3443</td>
<td>0.1854</td>
<td>0.2535</td>
</tr>
<tr>
<td>CIOC1</td>
<td>0.4011</td>
<td>0.8522</td>
<td>0.0714</td>
<td>0.2875</td>
</tr>
<tr>
<td>CIOC2</td>
<td>0.38</td>
<td>0.8686</td>
<td>0.0673</td>
<td>0.2803</td>
</tr>
<tr>
<td>CIOC3</td>
<td>0.3552</td>
<td>0.8573</td>
<td>0.0496</td>
<td>0.2808</td>
</tr>
<tr>
<td>CIOC4</td>
<td>0.4034</td>
<td>0.8664</td>
<td>0.0578</td>
<td>0.3648</td>
</tr>
<tr>
<td>CIOC5</td>
<td>0.3579</td>
<td>0.783</td>
<td>0.1769</td>
<td>0.338</td>
</tr>
<tr>
<td>CIOC6</td>
<td>0.3982</td>
<td>0.886</td>
<td>0.0044</td>
<td>0.2644</td>
</tr>
<tr>
<td>BOARDIT</td>
<td>0.2257</td>
<td>0.0835</td>
<td>1</td>
<td>0.1763</td>
</tr>
<tr>
<td>INFOEX1</td>
<td>0.3689</td>
<td>0.3558</td>
<td>0.1763</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: Bold values are the loadings of the items on the constructs.

Table 4. Weight formative indicators

<table>
<thead>
<tr>
<th>Strategic Importance of IT</th>
<th>Strategic Investment Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator</td>
<td>Weight</td>
</tr>
<tr>
<td>SI1</td>
<td>0.279*</td>
</tr>
<tr>
<td>SI2</td>
<td>0.004</td>
</tr>
<tr>
<td>SI3</td>
<td>-0.014</td>
</tr>
<tr>
<td>SI4</td>
<td>0.503**</td>
</tr>
<tr>
<td>SI5</td>
<td>0.244</td>
</tr>
<tr>
<td>SI6</td>
<td>-0.025</td>
</tr>
<tr>
<td>SI7</td>
<td>0.226</td>
</tr>
<tr>
<td>SI8</td>
<td>0.299*</td>
</tr>
</tbody>
</table>

Note: * p < 0.5; ** p < 0.01; *** p < 0.001