Context in Information Systems Leadership

Abstract

It is widely acknowledged that context greatly influences leaders’ behavior and effectiveness. Scholars, over the years, have documented various elements of information systems leadership and incorporated some contextual elements in their research. Since both information systems leadership and organizational contexts have evolved during the past few decades, it is important to examine how scholars incorporate context in their research. Through a systematic review of literature, we examine the nature and extent of attention to organizational context as factors influencing information systems leadership. Our findings indicate that the type of industry or firm and organizational size are the most common contextual elements studied, leaving behind crucial elements such as culture, demographics, modes of governance and duration of leadership, among others. Seven major contextual components are used to guide the categorization of the reviewed articles. Suggestions are offered for improving our understanding of the interaction between information systems leadership and organizational context.

Keywords
Context, Leadership, Information Systems, CIO, Information Technology.

Introduction

Information systems leadership has evolved during the past 50 years, and the organizational context within which this leadership has been operating has evolved as well. Starting as technical managers in charge of mainframes, computers and data processing in the early 1970s, information systems leaders have gradually assumed increasing responsibilities and impacting roles in organizations. At the same time, organizational reliance on information technologies added complexity and required management sophistication. Consequently, technical managers rose to power, became CIOs and gradually joined the executive suite reporting directly to the CFOs, COOs, and even the CEOs (Ghawe and Brohman 2018). Information systems leadership is a type of leadership focused on creating and implementing information and digital strategies to achieve the objectives and goals of the organization. Leadership, in general, is the art and science of articulating a strategic vision, setting goals and negotiating specific directions for action. Leadership creates the environment and provides the tools to facilitate the achievement of the set goals by engaging those involved in the process, motivating them to adopt these goals as their own, and influencing their activities to maintain the course (Storey 2004; Yukl 2013). Effective information systems leadership leads to citizenship behavior, improved support from subordinates, enhanced technical commitment and job satisfaction. It also leads to swift responses to the dynamic needs of the business and its turbulent environment. Furthermore, effective information systems leadership must have four capabilities. These are the ability to bridge the cognitive gaps between information technology and other business functions; the ability to build and manage teams of distinct specializations; the desire to be heavily involved in business process management; and adaptability to manage change (Ghawe and Brohman 2018). Like any other leadership, information systems leadership operates within specific organizational contexts.

Organizational context has also evolved over the same past few decades. First, information systems departments are now major divisions of any organization (e.g., El Sawy et al. 2016; Kettinger et al. 2011). Second, technology characteristics have changed dramatically. Major trends such as the internet, cloud computing, technology standards, mobile devices, social networking, and electronic commerce have individually and collectively transformed the business environment (Taylor and Vithayathil 2018). Finally, the market has changed: it is now global; competition is fierce; customers are expecting and demanding more; switching cost to other suppliers is low; and, alternative products and services are available instantly (Porter and Heppelmann 2015). These changes in context are imposing constant
pressure on organizations and leadership to innovate and invest in new approaches, technologies, and systems (Drath et al. 2008; Uhl-Bien and Arena 2017).

Organizational context affects the occurrence and meaning of organizational behavior (Johns 2006), represents situational opportunities and constraints (Johns 2006), sets the boundaries of generalizability (Whetten 1989), places limitations on the propositions generated from a theoretical model (Whetten 1989), and moderates and mediate the relationships between variables (Johns 2006; Shadish et al. 2002). In the area of leadership specifically, scholars have increasingly emphasized the need to give more attention to how organizational context affects leadership behavior and outcomes. Those scholars argue that leadership and its effectiveness, in large part, are dependent on the context (Barker 2001). Therefore, new leadership theories must incorporate how environmental and organizational context influence the process of leadership and vice versa (Boal and Hooijberg 2000).

The objective of this research is to examine how information systems scholars incorporate context in their research? In the process, we attempt to answer the following research questions:

RQ 1: To what extent organizational context has been addressed in information systems leadership research?

RQ 2: What are the major variables of organizational context studied in the information systems leadership literature in recent years?

To answer these questions, we conducted a systematic review of information systems leadership literature. We focused on empirical articles that used a sound research methodology (Bono and McNamara 2011) to investigate leadership issues where elements of organizational context either influenced or have the potential to influence behavior occurring within the organization.

The rest of the paper is divided into four sections. First, we introduce context and briefly highlight how context has been examined in leadership research. Second, we provide details about the approach we took in this research: identifying and selecting articles, distinguishing context elements and components, and coding the articles based on the major contextual components. Third, we summarize our findings using the same contextual component categorization. Finally, we conclude the article with a discussion section highlighting existing trends of incorporating context in information systems leadership research. We also include suggestions for future research to enhance our understanding of the interaction between information systems leadership and organizational context.

Context in Leadership Research

We define context as the temporal and situational variables affecting the dependent variables in a research study. We also see context as situational or environmental stimuli impacting the focal actors in a study and those stimuli are often located at a different level of analysis from those actors (Johns 2018). Context provides opportunities and constraints to change the meaning of the actors’ behavior and their relationships with their surroundings over time (Johns 2006). The impact of context may be subtle or significant and capable of reversing the causality of the variables. This impact may happen directly or by modifying the moderation and mediation effects of certain variables (Johns 2006; Shadish et al. 2002). Furthermore, context plays important roles in setting the limitations of a study, ensuring the generalizability of its findings, and articulating the implications of the research discoveries (Johns 2006; Te’eni 2015).

Contingency theory indicates that leadership style and approach are affected by and dependent on organizational context (Dulewicz and Higgs 2005). Consequently, detailing the context in which leadership operates is an important aspect of any leadership research. Nevertheless, many scholars involved in general and information systems leadership research either ignore context or provide vague details without proper incorporation of context into the actual research. For example, the trait approach to leadership (Zaccaro 2007) had traditionally ignored context and its impact on leadership until a couple of influential literature reviews pointed out this deficiency. These two literature reviews (Stogdill, 1948 and Mann, 1959) concluded that “context plays a major role in determining which personality factors will be important for success.” (Peterson et al. 2003, p. 796). Similar findings are observed by Porter and McLaughlin (2006) regarding general leadership. This study also results in a similar conclusion.
But, what are the different dimensions of context? According to Johns (2006), context can be thought of as either an omnibus or discrete. These dimensions answer the questions of who, what, when, where, and why. For example, in a leadership study, a researcher needs to tell us “who” are the subjects of the study: CIOs, information systems leaders in general, or unit managers. The “what” answers a question of whether the scholar is examining a project leadership phenomenon or a general leadership problem at the organizational level. Time is an important aspect of the context that is often void in leadership studies. Therefore, “when” helps the reader understand how the tenure of the CIO affects her leadership style or how the timing of the hiring in an organizational life cycle affects the role of the digital leader. The “where” solves the location puzzle of why a leadership behavior in an Asian organization, for example, may not be generalizable to that of a North American context. Finally, the “why” rationalizes the choices—for example, the need to study leadership in bureaucratic culture over an adaptive one (Drath et al. 2008; Uhl-Bien and Arena 2017).

The discrete context dimensions refer to specific situational variables that influence behavior directly or moderate relationships between other variables (Johns 2006). These dimensions are associated with the task, social or physical settings. That task dimension includes elements like autonomy, uncertainty accountability, and resources. The social dimension includes density, structure, and influences. The physical dimension is associated with elements like temperature, light, décor and built environment (Johns 2006). These dimensions are manifested in many of the examined leadership studies. For example, the task dimension comes up as task factors including differentiation and complexity. Similarly, the social dimension comes up as the norms that reflect the culture within an organization. Finally, the physical environment which rarely appears in the leadership research may refer to a type of technology in use—old mainframes versus cloud computing.

In their highly cited article, Porter and McLaughlin (2006) distill the leadership literature and provide a detailed list of variables used in leadership research as major components or dimensions of organizational context. This list includes culture and climate, goals and purposes, people and composition, processes, state and condition, structure, and time. The first component, “culture and climate,” includes elements related to the types of culture, norms that reflect the culture, and cultural emphasis on ethics. The second component, “goals and purposes,” includes elements related to goals, strategies, and missions of individuals, groups and organizational units. The third component, “people and composition,” is composed of two elements: demographic variability within the organization, and capabilities of individuals and groups. The fourth component, “processes,” encompasses the types of technologies in use, task factors, mode of governance, degree of standardization, and policies. The fifth component, “state and condition,” deals with organizational conditions (stability or crisis, availability of resources, and organizational health). The sixth component, “structure,” considers the industry, size, shape, and type of organization, degree of formalization and centralization, hierarchical levels of individuals and groups, and the spatial distances between individuals or groups as its contextual elements. Finally, the last component, “time,” includes elements associated with leadership tenure, succession history and organization’s life-cycle. We adopted Porter and McLaughlin’s classification in this review.

**Research Method**

A structured and systematic literature review of scholarly information systems literature published from 1990 to 2018 was conducted in the scholarly databases. Google Scholar and Web of Science are used as the main search engines to search for articles. Three sets of keywords were combined using logical modifiers (AND) to combine or (OR) to substitute. The first set included words identifying the leader: leader*, leadership, chief information officer, chief technology officer, chief digital officer, manager, CIO, CTO, CDO, and executive. The second set of keywords included words identifying the industry: information, systems, communications, technology, software, digital, innovation, information systems, IS, information technology, IT, digital technology, ICT and information and communication technologies. The last set included what specifically studied by scholars: character*, characteristics, role, trait, behavior, behaviour, style, paradigm, type, skill, capability, competency, theory, alignment, align*, relation, relationship, top management team, TMT, CEO, chief executive officer, performance, outcome, effective and governance.

We selected articles that used a sound research methodology to investigate leadership issues within the information systems domain. A sound research methodology includes a clear description of the research method and acceptable scientific research practice (Bono and McNamara 2011). Our focus is on research
where organizational context variables either influenced or have the potential to influence behavior occurring within the organization. That is, merely conceptual publications or articles with literature reviews or meta-analysis were not considered in this review. When examining whether or not the article considered context variables, we adopted Porter and McLaughlin’s (2006) compilation of the main components of organizational context in the leadership literature (see Table 3 for a list of context variables considered in this paper). The first resulting selection consisted of 258 articles was further classified into two groups of papers. The first group dealt with the characteristics, behavior, and styles of individual leaders (93 articles). The second group addressed leaders’ roles, capabilities, competencies, responsibilities, alignment, and relationship with top management teams (165 articles). Careful examination of these two groups of papers led us to focus on the second group where contextual variables clearly affect the findings. Furthermore, and to keep this work manageable for the conference, we excluded articles published in conferences, practitioner journals or chapters of books. The resulting database that represents the backbone of this review consists of 47 articles.

The first analysis of the remaining 47 articles was to explore the extent to which context has been addressed in the information systems leadership research (1st research question). For this analysis, we suggested dividing the articles into three categories: apparent, vague and none. Those articles that fell under the “apparent” category clearly specify the context of the study and show the impact of context on leadership outcomes. These articles provide sufficient details of one or more contextual elements and show how these elements impact the outcome of leadership within these organizational contexts. Articles that fell under the “vague” category include some mentioning of contextual elements but do not incorporate these elements in the analysis and do not show their impact on leadership. The last category includes the “none” group of articles that fail to mention any contextual element. Table 3 lists the main contextual components considered and examples of the elements that represent each one of these components. We are also aware that such classification is subjective and for this reason, the two authors first classified 15 articles together but independently to bring consistency in the classification. There was an 85% agreement in the first classification which was further improved to 95% with a subsequent classification of 10 more articles. The authors then divided the remaining articles. The authors felt that there is no need for a third coder as the second analysis (as we discuss next) has clearly extracted all the contextual elements from each article and linked them to the leadership practice and outcome as discussed by each article.

This second analysis made it clear where and how each contextual element is used and closed any potential discrepancy in the coding. As stated earlier, the objective of the second analysis was to identify the major contextual variables studied in recent years (2nd research question). For this analysis, we coded each article into six fields representing the following categories: Authors & year; research method; leadership level; major components of organizational context; elements of the component; and leadership practices/outcomes. The leadership level refers to the title of the IS leader studied such as CIO, CTO or IT manager. The major components of organizational context and elements of the component refer to those specific variables of the context that the article was addressing. As previously mentioned, we followed the suggestion of Porter and McLaughling (2006) for this classification. For instance, a major component is related to “structure” and the elements of this component could be “size, shape, type of organization, degree of formalization and centralization.” The field of leadership practices/outcomes refers to those leadership behaviors or practices that are influenced by the contextual elements within the organization. An example of this category is that an organization that implements a strategic vision for IT initiatives (e.g., a transformation vision of IT) will foster a CIO who is perceived as an educator and information steward (supply side role) (Al-Taie et al. 2014). An example of this coding is shown in Table 1.

<table>
<thead>
<tr>
<th>Authors &amp; Year</th>
<th>Research Method</th>
<th>Leadership Level</th>
<th>Components of Context</th>
<th>Leadership Practice/Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Gerth and Peppard 2014)</td>
<td>Interviews (21) Locations not specified (broad geographic locations)</td>
<td>CIO</td>
<td><strong>People/Composition</strong>&lt;br&gt;Gender (21 male, 3 female) <strong>Structure</strong>&lt;br&gt;Industry and type <strong>Time</strong>&lt;br&gt; Tenure/succession history</td>
<td>Identified three overlapping phases: Entry, Stabilization, and Renewal. Found the organizational situation encountered by a new CIO significantly influences the process. Four CIO transition types—startup, turnaround, realignment, and success sustaining.</td>
</tr>
</tbody>
</table>

Table 1. Partial Coding Example of One of the Reviewed Articles (Emphasis – Apparent)
Preliminary Findings

Only 22 articles out of the 47 examined in this study have an “apparent” emphasis on one or more of the contextual elements. The rest of the articles have either a “vague” or “none” emphasis on organizational context. Table 2 shows these results and the percentage of each group. In this section, we provide some details about what elements of context have been studied, and we give some examples from the literature on how these elements are utilized by scholars. Our focus is on the articles that are classified as “apparent” in their discussion of these elements. Table 3 provides a list of the major components of context examined in this study and a concise list of the elements that represent each component. The numbers represent the number of times a component was addressed by including one or more of its elements in the article under consideration. A given article can address more than one component, and thus it is counted under each component.

<table>
<thead>
<tr>
<th>Reviewed articles with Apparent (moderate-to-strong) emphasis on organizational context</th>
<th>#</th>
<th>% of the Total Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reviewed articles with Vague (slight) emphasis on organizational context</td>
<td>15</td>
<td>32%</td>
</tr>
<tr>
<td>Reviewed articles with None (no) emphasis on organizational context</td>
<td>10</td>
<td>21%</td>
</tr>
<tr>
<td>All reviewed articles</td>
<td>47</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2. Emphasis on Organizational Context in Reviewed Articles

Culture and Climate

The most common elements of this category are types of cultures and the norms of culture. The types include bureaucratic, adaptive, innovative and many more. The norms of the culture reflect ethical or opportunistic orientations, inclusiveness or exclusiveness as well as long or short term orientations. Seven articles discussed elements of this component in an “apparent” way. El Sawy et al. (2016) examines how a change in corporate culture permeates into other departments through the digital transformation journey. A culture based on openness, trust, and creativity enabled innovation at the LEGO group and eased numerous challenges stemming from the creation of the new digital platform. Fenny et al. (1992) describe how a culture of inclusiveness promotes innovation and allows the acceptance of the CIO to the TMT leading to a contribution that goes beyond the functional responsibilities. Kettinger et al. (2011) links the culture of the organization to actions taken by CIOs and describe them as a leader, a follower or a non-player. The other articles discuss the difference between the culture at the information technology department and that of the rest of the organization (Hirschheim et al. 2003), examine the cultural differences between German and Italian corporations (Leimeister et al. 2009), and evaluate the structural orientation (bureaucracy, mechanistic, adhocracy) of the organization (Strang 2007). Gottschalk (1999) suggests that national culture may prove to have a bearing on leadership’s perception.

Goals and Purposes

The elements of this component include the information technology unit goals and strategies, and visions and missions of individuals, units, groups, and the whole organization. Fifteen articles discussed elements of this component and used these elements to inform the findings. Al-Taie et al. (2014) link the organization’s vision of IT to the CIO’s role and reporting structure. Similarly, Carter et al. (2011) tell us that IT leaders adapt their roles to align with the overall strategic orientation of their firms and hence develop a deep understanding of their organizational needs. Other scholars offer similar conclusions (e.g., Chen et al. 2010; Ding et al. 2014). Kohli and Johnson (2011) discuss orchestrating the firm’s resources to exploit integration and digitization in a targeted supply chain process and also links that to the CIO roles: toolsmith and orchestrator.

People and Composition

Two contextual elements typically represent the people and composition component: demographic variability and differences in technical capabilities of individuals, groups, and teams. The detailing and discussions of these elements are “apparent” in only six of the forty-seven articles. Six other articles include “vague” references to these elements. Dawson et al. (2015) use secondary data in their empirical study of the survival of American CIOs. They show that female CIOs (24% of the 400 CIOs in the sample) have similar survivability rate to that of male CIOs when compared with other executives. Hirschheim et al. (2003) provide a detailed analysis of the people and demographics at the corporate IT department in
the oil giant Texaco, Inc. They illustrate that the senior management’s confidence in the IT function and the CIO appears to be dependent on how the perceptions about IT are formed. A similar conclusion, though on the positive side, is reached by Kettinger et al. (2011) as they discuss the demographic variability at CEMEX—a leading global building-materials company. Kettinger, Zhang, and Marchand show that when a former CIO recognized the importance of people’s beliefs about information and information-use behavior, he emphasized the need to change people’s mindset about information. The paper guides how the CIO may act as a leader, a follower or a non-player in developing the company’s information orientation to achieve its strategic focus. El Sawy et al. (2016) discuss the demographics and the capabilities of the various information technology units at the LEGO group of companies and show how these units contributed to the digital transformation journey that pulled the LEGO group back from the brink of bankruptcy. The other three articles that use the people and composition elements in “apparent” ways deal with age, gender and education. Three articles, on the other hand, present people and composition elements in “vague” ways that are not linked to the findings. The main elements used are CIO’s capabilities, backgrounds, and paths to the CIO position, experience, and education and personality characteristics.

<table>
<thead>
<tr>
<th>Context Component</th>
<th>Examples of Elements (After Porter and McLaughlin 2006)</th>
<th>Apparent</th>
<th>Vague</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Culture &amp; Climate</td>
<td>• Types of culture (e.g., innovative, bureaucratic, adaptive) • Norms that reflect the culture including an emphasis on ethics</td>
<td>10</td>
<td>39</td>
<td>(83%)</td>
</tr>
<tr>
<td>Goals &amp; Purposes</td>
<td>• Goals and strategies of the IT unit or the organization • Visions, missions of individuals, groups &amp; organizational units</td>
<td>15</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>People &amp; Composition</td>
<td>• Demographic diversity (e.g., age, race, gender, education, technical background, personality characteristics) • Capabilities of individuals &amp; groups within the organization</td>
<td>6</td>
<td>6</td>
<td>35</td>
</tr>
<tr>
<td>Processes</td>
<td>• Type(s) of technologies &amp; policies (e.g., training, outsourcing) • Task factors (e.g., differentiation, complexity, ambiguity) • Mode of governance &amp; degree of standardization of processes</td>
<td>11</td>
<td>37</td>
<td>(79%)</td>
</tr>
<tr>
<td>State &amp; Condition</td>
<td>• Stability or crisis &amp; availability of resources • Organizational health (e.g., financial, reputational)</td>
<td>14</td>
<td>1</td>
<td>32</td>
</tr>
<tr>
<td>Structure</td>
<td>• Size, shape, &amp; type of organization • Degree of formalization &amp; centralization within management • Hierarchical levels of individuals &amp; groups • Spatial distances between individuals/groups</td>
<td>22</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Time</td>
<td>• Tenure of leadership &amp; CEO/TMT succession history • Organizational life cycle stage effects (e.g., startup, mature)</td>
<td>16</td>
<td>31</td>
<td>(66%)</td>
</tr>
</tbody>
</table>

Table 3. Number of Articles Addressing Each One of the Context Components

Processes

Only eleven articles use elements from the processes’ component of context in their analysis in an “apparent” way. The elements that frequently appear in these articles are policies, governance, type of technology and degree of standardization. Feeny et al. (1992) indicate that policies of personal and informal executive style, training and workshops on strategic issues and the acceptance of the CIOs into the executive team leads to excellent CIO/CEO relationships. Also, policies that promote IT as an agent of business transformation lead to better performance. Similarly, Gottschalk (1999) shows that organizational policies that include formal or informal planning combined with building relationships with line managers and assuming more strategic roles help Norwegian CIOs to be more effective and capable of responding to increasing business and technological changes. Governance modes and processes also play important contextual roles in leadership research. In some cases, decentralization leads to a clear distinction between efficiency-creating IS and strategy-enabling IS in latecomer industry firms (Kohli and Johnson 2011). In other cases, changes in governance modes lead to superior organizational performance (El Sawy et al. 2016; Hirschheim et al. 2003). The third common element is the degree of standardization in the policies and procedures of the organizations. Companies that promoted business process standardization and improving employees’ information-usage effectiveness (Kettinger et al. 2011) and knowledge management ability (Sobol and Klein 2009) enjoyed higher leadership performance and superior economic results.
State and Condition

This contextual component informs about the state and condition of the organization. The organization can be prosperous or in crisis, has the reputational and financial means, or even has the resources needed to succeed. Fourteen studies utilize elements of this contextual component. Four of these articles examined the IS leadership initiatives during an economic crisis or instability. Market turbulence (Dawson et al. 2015), post-economic crisis (Chun et al. 2014; Hirschheim et al. 2003; Kohli and Johnson 2011) and economic performance (El Sawy et al. 2016; Gottschalk 1999; Preston et al. 2008; Sobol and Klein 2009) contribute to explaining the information systems leadership performance in organizations. Difficult times need leaner departments of information technology and creative ways of dealing with middle-level managers and other developers and forced CIOs to be creative and innovative in their leadership. Consequently, these studies successfully linked this context to organizational performance and effective leadership practices.

Structure

Structure received the lion’s share of the scholar’s attention. Twenty-two articles are classified as “apparent” due to their detailed incorporation of structure as a context. The major elements of structure that appear in the literature are size, shape, and type of the organization. Other elements of this context are the degree of formalization and centralization within management, the hierarchical levels of individuals and groups under consideration, and the spatial distances amongst individuals or groups. The size, type and industry appeared very often (e.g., Chun et al. 2014; Ding et al. 2014; El Sawy et al. 2016; Feeny et al. 1992; Kohli and Johnson 2011; Leimeister et al. 2009) followed by organizational reporting structure and hierarchy (e.g., Al-Taie et al. 2014; Carter et al. 2011; Cetindamar and Pala 2011; Sharma and Rai 2003). Many of the articles that used interviews and case studies also elaborated on the other contextual elements of this component including the degree of formalization and centralization (e.g., El Sawy et al. 2016; Hirschheim et al. 2003; Kettinger et al. 2011).

Time

Tenure, organizational life cycle and the succession of CEO/TMT are some of the elements of this contextual component. Sixteen articles clearly detailed some of these elements and used them to support their analysis or discussions. CIO tenure appears the most common among those variables and is often linked to leadership in different ways. For example, Sharma and Rai (2003) show that positional power and job tenure of the ISD leader are negatively related to organizational adoption of IS innovation. Similarly, Preston et al. (2008) present evidence that the variation in benefits derived from IT is in part due to the organization’s CIO leadership profile including tenure. The history of the company and the corporate IT (Hirschheim et al. 2003), the IT department age (Li et al. 2006) are also present as contextual variables. Furthermore, some authors clearly describe organizational and IT succession and the CEO/TMT succession history and link those to leadership outcomes (El Sawy et al. 2016; Gerth and Peppard 2014; Kettinger et al. 2011).

Research Methods and Study Region

Table 4 shows the statistical distribution of the articles classified as “apparent, vague or none” in their incorporation of one or more of the contextual components based on the main research methods employed by each article. It appears that the survey method is the most prominent approach when it comes to actively incorporating context into leadership research. Table 5 lists the statistics for the study region—the actual place where the CIOs or other leaders interviewed or surveyed.

<table>
<thead>
<tr>
<th>Research Method</th>
<th>Apparent</th>
<th>Vague</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archival Data</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Case Studies</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Interviews &amp; Surveys</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Interviews</td>
<td>2</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Practitioner-Oriented</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Surveys</td>
<td>10</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>22 (47%)</td>
<td>15 (32%)</td>
<td>10 (21%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Study Region</th>
<th>Apparent</th>
<th>Vague</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>International</td>
<td>3</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Europe</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>North America</td>
<td>10</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Turkey</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unspecified</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>22 (47%)</td>
<td>15 (32%)</td>
<td>10 (21%)</td>
</tr>
</tbody>
</table>

Table 4. Research Methods Employed

Table 5. Study Region
Discussion

Status Quo of the Empirical Literature

In the last three decades, scholars involved in information systems leadership research have examined this leadership from a variety of angles and within different organizational contexts. Among the 47 articles examined in this study, only 22 articles are classified as “apparent.” These articles employ one or more of the contextual elements representing the major context components identified in Table 3. These articles represent 47% of our sample. Consequently, more than half of the sample either ignore context completely (21%) or discuss context in a “vague” way (32%) without actually showing how context affects the findings of the study. These findings are in line with the results of Porter and McLaughlin’s study which concludes that “organizational context appears to be an artifact of the sample, not an active variable.” (2006, p. 571).

The distribution of the 22 articles along these three decades is rather interesting. For example, between 1990 and 1999, only three articles are within the “apparent” group. This number jumps into eight in the following decade. The number grows further to reach twelve between 2010 and 2019. This is an indication that context is receiving more attention from scholars. This increase is in line with the recent embrace of contextual thinking in organizational sciences (Johns 2018).

A couple of important questions come to mind when examining the statistics presented in Table 4 and Table 5. Does the research method affect scholars’ choice of incorporating context in their studies? And, are scholars in any geographic region more disposed to consider context? The answer to the first question appears to be negative. Both qualitative and quantitative methods produce rich research that utilizes context effectively. Nevertheless, case studies appear to incorporate a variety of contextual elements. For example, El Sawy et al. (2016), Hirschheim et al. (2003) and Kettinger et al. (2011) incorporate elements from the seven major components of context. In contrast, survey-based articles incorporate two or three elements of context (e.g., Al-Taie et al. 2014; Carter et al. 2011; Chen et al. 2010). The only exception is the work of Gottschalk which incorporates elements that represent the seven major components of context (Gottschalk 1999). Therefore, it is possible to conclude that incorporating context is dependent on the scholars’ attention to the contextual variables required for their research. This conclusion is also in line with Porter and McLaughlin’s (2006) observation. The answer to the second question also appears to be negative as Table 5 shows more or less equal ratios between the apparent and the non-apparent classification for any given region. Research in Canada and the United States represents almost half of the articles that received the “apparent” classification. Nevertheless, the North American region which witnesses the largest number of studies shows 14 articles in the non-apparent camp in comparison to only 10 articles in the apparent camp. There is, however, a serious lack of studies about information systems leadership that incorporate context in the developing and emerging economies.

The major components of organizational context are culture and climate, goals, and purposes, people and composition, processes, state and condition, structure, and time. As shown in Table 3, we found elements in the literature that support each one of these contextual variables. However, the distribution of these elements among the contextual components is not even. Table 3 shows that the top four components of context are structure, time, goals and purposes, and state and conditions. These results differ from those presented by Porter and McLaughlin (2006) where structure comes first followed by culture and climate. Most likely, this difference between this study and that of Porter and McLaughlin comes from the nature of information systems leadership. Information systems scholars pay close attention to CIOs’ tenure and report this variable in the majority of the examined studies. Structure, as an organizational context, is an easy target when studying any organizational phenomenon. The most commonly reported elements are industry, firm type, and organization size.

Future Research

The examined literature is silent about two contextual elements: cultural emphasis on ethics and special distances between individuals and groups. The norms of the culture, on the other hand, is one of the elements of culture and climate that received reasonable attention from scholars (e.g., El Sawy et al. 2016; Feeny et al. 1992; Hirschheim et al. 2003; Kettinger et al. 2011). Leimeister et al. (2009) apply Hofstede’s cultural dimensions to German and Italian companies. The people and composition contextual element receives the least attention. People’s experience and education are often discussed. Gender and the distinction of female leadership appear in four studies (Chen et al. 2010; Dawson et al. 2015; Gerth and Peppard 2014; Sobol and Klein 2009). Notwithstanding this limited attention to gender, the low representation of female information systems leaders within the industry makes this element an...
important contextual variable for future research. Similarly, race is another variable that requires the
attention of scholars as it may point out to the challenges faced by African American CIOs or other
information technology leaders in units where the majority of the team comes from a different race. Some
evidence of these issues can be found in studies that focus on outsourcing or international business.

Our findings are strictly drawn from empirical articles. A more comprehensive analysis should include
both conceptual and empirical research highlighting those findings that specifically focused on the
interplay between organizational context and leadership. An important question is left, however, without
an answer: what about the validity of the findings of the second group of papers—those paper that either
vaguely incorporated context and those that did not? It is possible that the ignored contextual elements
might, in some cases, be of insignificant importance the authors are justified in ignoring them. In other
cases, these contextual elements might, in fact, reverse the sign of causality or invalidate the results
(Johns 2006). In any case, careful enumeration of all the contextual elements in future research helps the
reader to examine the importance or potential impact of these elements even if they are not directly
included in the analysis. Table 3 provides a detailed list of the elements and the major components of
organizational context that can be easily incorporated into any empirical research and leadership models. We caution that scholars typically focus on explaining the leadership roles, and consequently,
organizational context becomes merely a secondary or a background variable. Nevertheless, we believe
that despite the newness of the field, information systems scholars have done a good job at incorporating
organizational context into their research (22 articles or 47%); even though this inclusion often appeared
as an afterthought. In comparison, Porter and McLaughlin’s study shows that only 13% of the empirical
articles had moderate-to-strong (apparent) emphasis on organizational context. Future research should
consider context and utilize the various contextual elements outlined in this work to improve our
understanding of information systems leadership.

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