


## RESEARCH ARTICLE

# Exploring the factors in aligning information systems and organizational strategies in tall organizational structures in an uncertain environment

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## Abstract

Factors affecting the alignment of information systems (ISs) and organizational strategies (i.e., strategic alignment) vary depending on the organizational contexts, comprising both the structural and environmental contexts. Previous studies of strategic alignment were largely focused on organizations with flatter organizational structures and low environmental uncertainty. Therefore, findings from previous studies might not be applicable to organizations with tall organizational structures and in uncertain environments, like Iranian organizations. To this end, we aimed to discover less-explored factors in achieving strategic alignment based on the contexts of Iranian organizations, using grounded theory. We conducted semi-structured interviews with 29 experts in different organizations to illustrate and substantiate the development of an eightfold framework that specifies the factors for achieving strategic alignment. Specifically, the developed eightfold framework resulted in identification of 8 factors and 51 elements in achieving strategic alignment. Here, we identified five factors in achieving strategic alignment in addition to the factors reported by previous research (i.e., senior management, communication, and partnership), namely IS leadership, IS capabilities, organizational development, human resources, and IT infrastructure. The results indicate that these factors play a prominent role in determining the challenges and discerning the momentous requirements for achieving strategic alignment in organizations with tall structures in uncertain environments.

## KEYWORDS

environmental uncertainty, grounded theory, strategic alignment, tall organizational structure

## 1 | INTRODUCTION

Achievement of alignment between information systems (ISs) and organizational strategies (i.e., strategic alignment) has been a persistent concern for the information technology (IT) leaders since the early 1980s' (Kappelman et al., 2019). Despite over 36 years of research, existing approaches continue to have limited application, efficiency, and effectiveness for achieving strategic alignment in diverse organizations (Jonathan et al., 2018). The continued limited applicability of previous research stems from their under-emphasis on the contexts of the organization, such as structural and environmental contexts, in determining the factors for achieving strategic alignment (Coltman et al., 2015).

Organizational structure plays a critical role in identifying the factors for achieving strategic alignment (Ohlsson et al., 2016). By definition, the organizational structure is an institutional configuration or arrangement that rationally and consciously outlines the division of labor

(Mintzberg, 1989). The organizational structure type (i.e., tall vs. flat) is a determining factor for achieving strategic alignment. For instance, compared to flat organizations, tall organizations have lower flexibility in responding to environmental turbulences due to their higher structural hierarchy and more complex knowledge-sharing processes. However, high organizational flexibility and knowledge sharing are critical for achieving strategic alignment in an organization (Sabherwal et al., 2019). As a result, while tall organizational structure acts as an inhibitor in achieving strategic alignment, a flat organizational structure is a facilitator of, and therefore, more suitable for achieving strategic alignment. However, despite the significance of the organizational structure, only a few of the previous studies have taken its impact on achieving strategic alignment into consideration (Renaud et al., 2016). And, nevertheless, these few of the previous studies commonly prescribe strategic alignment models for the organizations in developed countries with flatter structures; and hence, continue to have limited applicability in the context of taller organizations (Alaceva & Rusu, 2014). Therefore, the inapplicability of existing approaches to the tall organizational structures remains a major driver for the strategic misalignment in organizations (Hsiao & Wu, 2019), in developing countries with tall organizational structures, like the organizations in the Middle East.

Tall organizations face challenges in achieving strategic alignment. This is, in part, due to their low risk-taking capabilities, and therefore, low organizational flexibility in developing ISs (Gutierrez et al., 2009). Furthermore, while knowledge sharing between IS and other departments of an organization facilitates strategic alignment by extending a shared understanding of the organizational objectives to all departments, tall organizations have complicated knowledge-sharing processes that hinder the achievement of strategic alignment (Karpovsky & Galliers, 2015). Another challenge for achieving strategic alignment in tall organizations is the expediency-based rather than rationality-based decision-making due to their lack of information transparency (Jonathan et al., 2018). Last, tall organizations commonly overlook the empowerment of the human resources and fail to prioritize skill enrichment between the IS and other departments. The outcome is the IT illiteracy of the employees at all levels which obstructs the consideration of IS capabilities for meeting the organizational objective and results in strategic misalignment (Chan, 2002). These obstacles in the realization of strategic alignment in tall organizations as the obstacles of organizations in developing countries in the Middle East, require further research and consideration of the structural context for identifying the factors in achieving strategic alignment.

The environmental context, additionally, determines the factors for achieving strategic alignment (Schlosser et al., 2015). The environmental context includes the economic, cultural, political, legal, and technological constituents. Despite its importance, only a handful of the previous studies are focused on the environmental context that mostly have been conducted in Western-style organizations with less turbulent environments.

The organizations in developing countries, however, experience significant environmental turbulence, and therefore, face higher levels of environmental diversity and marketplace uncertainty. Thus, to achieve strategic alignment, these organizations require extensive communication networks, with adequate and reliable informational resources, to conduct the necessary environmental analyses in response to the environmental uncertainty (Karpovsky & Galliers, 2015). Meanwhile, some developing countries, like Iran, are not only faced with the challenges caused by environmental turbulence but also deal with the added challenge of financial sanctions that result in the inaccessibility of the extended informational resource networks. Additionally, these organizations need extensive resources to respond to often abrupt business turnarounds that instantaneously change the business requirements and result in a short-lived strategic alignment. These resources would enable these organizations to continually adjust the ISs to the changes in organizational strategies (Choe, 2003). Western, and a few non-Western style (e.g., China) organizations (Wang et al., 2011) have extensive resources to address the environmental uncertainties. However, the organizations in developing countries in the Middle East have limited government funding and dependence on, costly to import, foreign resources (Ray et al., 2009). Thus, these organizations do not have sufficient resources readily available to respond to the environmental changes of the dynamic marketplace (Alaceva & Rusu, 2014; Ray et al., 2009).

In summary, structural and environmental contexts (i.e., tall organizations in an uncertain environments) of the organization must be considered in exploring the factors for achieving strategic alignment, especially in the organizations in developing countries. Previously developed prescriptive strategic alignment models are commonly based on the organizational contexts common in the developed countries and have limited applicability in other contexts of organizations. Here, the aim is to extend the validity of the strategic alignment theory to a broader range of organizations in the developing countries, using a grounded theory (GT) approach rather than developing a prescriptive model. Specifically, we use GT to explore the factors in achieving strategic alignment in organizations with tall structures in uncertain environments, like the Iranian organizations.

This paper is organized as follows. In Section 2, we, first, present the theoretical background and discuss the research gap that motivated this study. Then, we address the research methodology (i.e., GT) in Section 3 and continue to present the results from data coding and analysis in Section 4. Next, we discuss the practical implications and integrate our findings with the relevant literature on strategic alignment in Section 5. Finally, we conclude the study by exploring the research limitations and making suggestions for future research in Section 6.

## 2 | THEORETICAL BACKGROUND

Strategic alignment has been a major research direction in IS literature (Luftman et al., 2017). Several studies have provided definitions of strategic alignment and dimensions and models or frameworks for achieving strategic alignment (Kappelman et al., 2018). Here, we have categorized the relevant existing approaches for achieving strategic alignment and discussed the existing research gap in the field to support our research aims.

To search for previous literature on strategic alignment, the following databases were used: Elsevier, SpringerLink, IEEEExplore, Scopus, Emerald Insight, ACM Digital Library, Scopus, Web of Science, and AIS Electronic Library. Conducting the literature search solely on the basis of keywords, such as “IT/business alignment,” would potentially lead us to miss on some of the relevant articles, because other terminology might be used. Therefore, during data collection, various alternative keywords referring to the concept of alignment in the existing research, like fit, integration, linkage, bridge, harmony, and fusion (Chan, 1992; Henderson & Venkatraman, 1993; Luftman et al., 1999) were considered.

Furthermore, since “alignment” may be a keyword referring to issues and topics that would be irrelevant for the purposes of our review, exclusively IS-related articles concerning alignment were selected from the above databases, using the following criteria: (1) the word “alignment” appears in the title or keywords, or (2) the body of the article discusses alignment-related themes (e.g., alignment levels and types; alignment models and approaches; expressions like link, fit, synchronization, congruence between business and IT; such business considerations as roles, organizational structure and environment, and alignment maturity). Based on the above keywords and criteria, literature search was conducted in the time span 1983–2021. The total of 312 manuscripts were read thoroughly and evaluated for literature review. From these 312 manuscripts, only the most relevant of the previous literature focused on either (1) identification and classification of the factors affecting strategic alignment (i.e., social and technical), or (2) the effect of organizational contexts (i.e., structural and environmental) on achieving strategic alignment were included in the literature review.

Identification and categorization of the factors affecting the strategic alignment, as the most important step in achieving strategic alignment, have been one of the primary topics of interest in the past research (Alaceva & Rusu, 2014; Alsudiri et al., 2013; Arvidsson et al., 2014; Cram, 2012; Lindh & Nordman, 2017; Schlosser et al., 2015; Wong et al., 2012). In general, the factors identified in the previous studies can be classified into social and technical factors. The importance of social factors in achieving strategic alignment was first evaluated in the pioneering studies of Lederer and Mendelow (1989) and Feeny et al. (1992). These studies emphasized the impact of effective communication between the IS and other departments on achieving strategic alignment. Subsequent studies extended the social factors that influence achievement of strategic alignment to partnership and top management support (Chan et al., 2006; Hussin et al., 2002; Johnson & Lederer, 2010; Kashanchi & Toland, 2008; Kim & Park, 2007; Lindh & Nordman, 2017; Luftman & Brier, 1999; Preston & Karahanna, 2009; Reich & Benbasat, 2000; Sabherwal & Kirs, 1994; Teo & Ang, 1999). Others examined the technical factors influencing strategic alignment. For instance, Sledgianowski et al. (2006) showed that “the integration of IT architecture and infrastructure (i.e., integrated IT),” a technical factor, facilitates the strategic alignment process. Finally, a body of previous research in the field of strategic alignment emphasized the importance of both social and technical factors in achieving strategic alignment (Alaceva & Rusu, 2014; Alsudiri et al., 2013; Henderson & Venkatraman, 1993; Luftman, 2003; Schlosser et al., 2015; Tarafdar & Qrunfleh, 2010; Wong et al., 2012).

Consideration of previously identified technical and social factors in the existing strategic alignment literature is critical for realization of strategic alignment in different organizational contexts. This is because some of these factors, such as communication, are important in any organization, regardless of organizational context. Additionally, consideration of previously identified factors provides critical insights for exploration of other context-dependent factors that affect strategic alignment in different organizations. For example, knowledge sharing between the IS and other departments is a social factor that plays an important role in strategic alignment in any organization (Alaceva & Rusu, 2014; Kim & Park, 2007; Preston & Karahanna, 2009; Reich & Benbasat, 2000) regardless of the context. Yet, in organizations with tall structures and in turbulent environments, due to the extensive bureaucracy and administrative hierarchy on the one hand, and job insecurity on the other hand, sharing knowledge is not a straightforward process (Hsiao & Wu, 2019). Thus, in these organizations, to facilitate knowledge sharing and, consequently, achieve strategic alignment, information transparency through close communication is necessary. To sum up, due to the context-dependence of some of the factors that affect strategic alignment, organizational context must be considered during identification of these factors.

However, only few studies have considered organizational context (i.e., structural and environmental contexts) in examination of how to achieve strategic alignment in developed countries (Chatzoglou et al., 2011; Choe, 2003; Currie, 1996; Newkirk & Lederer, 2006; Preston & Karahanna, 2009; Sabherwal & Kirs, 1994; Sha et al., 2011; Ullah & Lai, 2013). Consideration of the effect of organizational structure on strategic alignment enables the organizations to design and select their organizational structure in a way that their structure can serve to facilitate the achievement of strategic alignment (Chatzoglou et al., 2011; Currie, 1996). Hence, a number of studies have been conducted on the relationship between the type of organizational structure and the achievement of strategic alignment. The relationship between the informal structures and strategic alignment was evaluated in the studies conducted by Campbell et al. (2005), Sha et al. (2011), and Preston and Karahanna (2009). They showed that the informal organizational structure leads to the achievement of strategic alignment by facilitating social alignment. The relationship between the formal structures and strategic alignment was also considered in a study by Ullah and Lai (2013). Based on the findings of this study, formal structures lead to synchronization and alignment of organizational strategies and ISs by providing systematic approaches to respond to severe environmental changes.

In addition to the structural context of the organization, environmental context influences strategic alignment as a moderator, inhibitor, or enabler for achieving strategic alignment. Choe (2003) and Newkirk and Lederer (2006) focused on the moderating effect of environmental context on strategic alignment. They suggested that environmental context might have a moderating effect, depending on the source of environmental uncertainty (heterogeneity, dynamism, and hostility). Sabherwal and Kirs (1994) and Teo and King (1997) considered environmental context as an inhibitor and showed that heterogeneity, dynamism, and hostility are three factors that influence environmental uncertainty and prevent the

realization of strategic alignment. In contrast, Chan et al. (2006) considered environmental context as an enabler. They showed that in highly uncertain environments, managers rely more on the capabilities of IT, and therefore, they hypothesized environmental uncertainty as an enabler of strategic alignment. To sum up, organizational structures based on their type (informal and formal) and organizational environment based on their role (moderator, inhibitor, and enabler) can be effective in achieving strategic alignment.

Studying the structural and environmental contexts of organizations is a prerequisite for the identification of the factors that help achieve strategic alignment. Organizational context should be considered in determining the impact of the organizational structure and environmental conditions on the strategic alignment process. Yet, previous studies have primarily evaluated the organizational context in developed countries where the organizational structure is flat and business environment is less turbulent than in the organizations in the developing countries.

The structural context of an organization can be an enabler (facilitator) or inhibitor of achieving strategic alignment. Particularly, while the flat structures of commonly studied organizations in developed countries are enablers of strategic alignment (Karpovsky & Galliers, 2015), tall structures of the organizations in the developing countries, especially in the Middle East, are often inhibitors of strategic alignment (Panda & Rath, 2018). Categorization of the organizational structures into tall and flat is generally based on the level of complexity, formalization, and centralization in the organization (Robbins, 2009), where tall organizations have a higher level of complexity, formalization, and centralization than in flat organizations. The levels of complexity, formalization, and centralization in an organization directly influence the factors that affect the achievement of strategic alignment, such as the communication between IS and senior management. Similarly, consideration of the environmental context is essential in determining the factors of strategic alignment. Research to date, however, has been primarily focused on the developed countries where environmental changes are managed with the available essential organizational resources (Karpovsky & Galliers, 2015). Yet, developing countries do not have sufficient resources to manage the environmental uncertainty. Uncertain environments require continuous analysis of the environment for adaptation of the organizational strategies. In these environments, assessment of the alignment between the organizational strategies and IS is critical in responding to the environmental diversity (i.e., heterogeneity), the high rate of change (i.e., dynamism), and the environmental threats (i.e., hostility).

Although the paramount role of the structural and environmental contexts in the strategic management literature is well-documented, the existing studies have not explicitly considered structural and environmental contexts as the major drivers in determining the factors affecting the strategic alignment. As such, it is reasonable to argue that the results of the previous research, conducted in developed countries with flat organizational structures and less turbulent and more manageable environments (Panda & Rath, 2018), are not generalizable to developing countries with tall organizational structures in uncertain and turbulent business environments. Thus, this lack of consideration of the structural and environmental context in the previous work results in limited applicability of their findings for achieving strategic alignment in developing countries. Therefore, to reduce the existing gap, the present study aims to identify the factors affecting the strategic alignment with respect to the structural and environmental context in the developing countries, especially in the Middle East where organizations often have a tall and more turbulent environment.

### 3 | RESEARCH METHODOLOGY

#### 3.1 | GT and approaches

This empirical study was carried out by applying GT. GT focuses on answering questions like “What is going on in an area of research?” by generating a formal or substantive theory. In the present study, rather than relying on the existing theories to provide a visual model and confirming it by using research data, we aimed to establish a relationship between the concepts and categories in order to identify the factors affecting strategic alignment. Thus, instead of a deductive approach, here we used GT as an inductive and bottom-up approach. The main ideas and assumptions of GT are as follows. First, the data are collected through in-depth research in a specific research context. Then, the concepts and categories are summarized and refined from the data and compared continuously. Finally, theoretical sampling is used to achieve theoretical saturation, which ultimately leads to new theories (Corbin & Strauss, 2008).

GT was selected as the most appropriate research methodology for conducting this empirical study for two main reasons. First, GT is extremely helpful to study a relatively novel area or when researchers try to get a fresh perspective on a well-known area (Stern, 1994). In the context of this research study, the majority of the existing studies with theoretical models for achieving strategic alignment have been conducted in western style organizations that possess flatter organizational structures and less turbulent (e.g., economic, political, cultural, social, and technological) environments. Most importantly, these organizations that include non-western organizations, such as those in China (Wang et al., 2011), have resources readily available to address arising turbulences (Alaceva & Rusu, 2014). Therefore, in this study we used GT because we aimed to obtain a new perspective on strategic alignment as a well-known area by identifying the less explored factors of the strategic alignment based on the context of tall organizations in an uncertain environment. Second, although initially used in social studies, GT is a useful method for a wide range of IS field topics, especially those related to novel multifaceted phenomena (Wiesche et al., 2017). Here, we adopted GT because of its high capacity to explore and interpret complex phenomena, such as the multiple factors affecting the strategic alignment.

In general, there are three approaches to GT, namely systematic (Straussian), emergent (Glaserian), and constructivist. The systematic approach is a highly structured approach that imposes a theory on the data based on an initial literature review. This approach uses visual frameworks to present a theory. In contrast, the emergent approach in GT is flexible and unstructured, and where the previous studies are insufficient, this approach extracts a theory from the data, rather than imposing a theory on the data (Hernandez, 2010). Finally, the constructivist GT approach, although flexible and unstructured, is designed to explore the views, values, beliefs, feelings, and ideologies of people about their experience of a phenomenon or event (Kelle, 2007). Of these three, the emergent approach is the most suitable approach for studies where researchers have no up-front hypothesis and are looking for a conceptual framework grounded in data (Glaser & Holton, 2004). In the present study, similarly, we did not take an approach rooted in predefined assumptions; rather, we utilized an emergent approach to investigating the main concerns of the participants in the strategic alignment and, correspondingly, work out resolutions. Therefore, we took an emergent approach to GT because it is suitable for developing a conceptual framework grounded in data without an up-front hypothesis.

### 3.2 | Empirical context and sampling

The empirical context of this study was Iran where organizations are characterized by tall structures in uncertain environments. The business environment of Iran is affected by economic, social, cultural, political, and technological factors, among others. From the economic perspective, the economic sanctions of recent years have resulted in high inflation rates, reduced gross domestic product rate, and, ultimately, significant governmental budget deficit in Iran. Therefore, Iranian organizations, both public and private, are faced with challenges in supporting and providing the basic resources to confront the turbulences of the business environment. From a social and cultural perspective, lack of job security and, therefore, the conservative mentality of the employees hinder the knowledge and information sharing that highly challenges informational transparency within the organization. Furthermore, increasing immigration of the expert population due to reduced standards of living and welfare has resulted in a critical shortage of specialists in different fields, including IS. Additionally, the political factors affecting the business environment in Iran result in lack of constructive relationships between Iranian and Western organizations, which limits the informational networks in the Iranian organizations. Thus, Iranian organizations are faced with challenges in accessing high-quality and up-to-date informational resources for encountering the environmental turbulences that affect businesses. Finally, from the technological perspective, technological advances have reduced the bureaucratic obstacles and improved the informational transparency of the global marketplace. Yet, limited research and development funding, and governmental regulations that stem from the economic sanctions have limited the access of the Iranian organizations to the latest technological advances of knowledge in the field of IT (Dehkordi, 2020). As a result, extensive bureaucracy in tall organizations persists and poses challenges to the Iranian organizations in addressing the environmental changes of the business environment. The above characteristics of the business environment make Iran a suitable empirical context for exploring the factors that affect the strategic alignment in tall structure and uncertain business environments.

For sampling, we targeted experts in the field of business-IT alignment. Initially, we contacted a few (six) experts familiar with business-IT alignment, via email and phone, to obtain their participation consents. We used snowball sampling to identify more experts based on the recommendations from the initial six participants (Stern, 1994). Considering the multifaceted nature of the strategic alignment and the necessity of data triangulation in qualitative research (Corbin & Strauss, 2008), we selected 29 experts from different fields and groups (Table 1). The participants were selected based on their experience in the field of business-IT alignment in terms of having a background in research or executive-related projects. Briefly, we selected the experts from strategic management, IS, and strategic alignment fields and grouped them as either academic researchers or industrial experts. The industrial experts comprised of managers and senior experts who were policymakers in both IS and the strategic level of the organization, with responsibilities in four industrial sectors: (1) manufacturing, (2) transportation and public utilities, (3) wholesale and retail trade, and (4) services. Most of the participants were practically involved in business-IT alignment processes at various organization and in different projects. The diversity and extent of the participants' experience provided this study with invaluable access to field experience and insights.

### 3.3 | Data collection

Data collection was conducted between February 2020 and May 2021 (i.e., finalization of the paper). We used semi-structured interviews for data collection. Semi-structured data collection was proposed as the most appropriate method in GT (Hernandez, 2010). We conducted 29 semi-structured, in-depth interviews based on theoretical sampling. Theoretical sampling is non-probable, purposive, and subject to the researchers' judgment (Glaser and Hon, 2005). This sampling method determines the new groups or subgroups for the next stage of data collection (Glaser, 2008) and is motivated by the need to fill the emergent gaps in the theory that can be identified in the coding process (Glaser & Holton, 2004). Theoretical sampling was used in this study for all the interviews to determine the data that should be collected in the subsequent sampling steps.

**TABLE 1** Detailed professional demographics of the experts and their years of experience in strategic management, IS, and strategic alignment

Expert	Group	Education	Area	Position	Experience (years)		
					Strategic management	IS	Strategic alignment
E1	Industry (Manufacturing)	PhD	Strategic foresight of IT	Chief Information Officers (CIO)	>8	5–8	>7
E2	Academia	PhD	Strategic management	Faculty member	5–8	>8	3–7
E3	Industry (Transportation and public utilities)	PhD	Information system management	Dean of IS Sector	5–8	>8	3–7
E4	Industry (Services)	PhD	Executive management	Dean of R&D Sector	>8	>8	>7
E5	Industry (Manufacturing)	PhD	IS project management	Chairman of IS Consulting Group	>8	5–8	>7
E6	Academia	PhD	Business Informatics	Faculty member	>8	>8	>7
E7	Industry (Services)	PhD	Strategic IS (SIS) management	Chief Executive Officer (CEO)	>8	>8	>7
E8	Industry (Wholesale and retail trade)	Master	Business Informatics	Member of the Business Research Center	5–8	5–8	3–7
E9	Industry (Manufacturing)	PhD	Software engineering	Head of IS Development	>8	5–8	3–7
E10	Industry (Wholesale and retail trade)	PhD	Financial IS	Vice-Dean of Financial Affairs Sector	5–8	>8	3–7
E11	Academia	PhD	IT engineering	Faculty member	>8	5–8	3–7
E12	Industry (Wholesale and retail trade)	PhD	Business-IT alignment	Chairman of IS Research Center	>8	>8	>7
E13	Industry (Transportation and public utilities)	PhD	Information system management	Head of IS Center	5–8	5–8	3–7
E14	Academia	PhD	SIS management	Faculty member	>8	>8	>7
E15	Industry (Services)	PhD	IS project management	IS Projects Consultant	5–8	>8	>7
E16	Industry (Manufacturing)	Master	IS requirements	Member of IS Development Plan	5–8	>8	>7
E17	Industry (Transportation and public utilities)	PhD	Strategic management	Vice-Dean of IT Sector	5–8	>8	3–7
E18	Academia	PhD	Software engineering	Faculty member	>8	5–8	3–7
E19	Industry (Transportation and public utilities)	Master	Business-IT alignment	Member of IS Research Center	>8	5–8	>7
E20	Industry (Manufacturing)	PhD	Software engineering	Head of IS Development	5–8	>8	3–7
E21	Industry (Services)	PhD	Service planning	Member of R&D Sector	5–8	>8	3–7
E22	Industry (Wholesale and retail trade)	Bachelor	Business-IT alignment	Member of R&D Sector	5–8	>8	3–7
E23	Industry (Services)	Master	Financial process management	Director of Financial Affairs Sector	5–8	>8	3–7
E24	Industry (Transportation and public utilities)	PhD	IS project management	IS Project Consultant	>8	5–8	>7
E25	Academia	PhD	Business-IT alignment	Faculty member	>8	>8	>7
E26	Industry (Manufacturing)	PhD	Work system design and development	Member of IS Development Plan	>8	>8	>7
E27	Industry (Transportation and public utilities)	Master	Assessment system	Director of IT Department I	5–8	5–8	3–7
E28	Academia	PhD	SIS management	Faculty member	>8	>8	3–7
E29	Academia	PhD	IT engineering	Faculty member	5–8	>8	3–7

Note: Experience in strategic management and IS: 5–8 year and >8 year. Experience in strategic alignment: 3–7 year and >7 year.

Abbreviation: IS, information system.

Before the start of each interview, the participants were requested to give their consent for digital recording of the whole conversation and for the researchers to use the findings from these interviews for scientific purposes and international publications. The interviews lasted no longer than one and a half hours. We employed a generalist approach to formulate the interview questions. Instead of designing the interview questions in advance, the generalist approach formulates the questions in the process of data collection, data encoding, and iterative data analysis (Strauss & Corbin, 1998). Therefore, this approach is suitable for an emergent approach where the focus of research is not articulated in advance as fixed and testable hypotheses. In this study, we purposely avoided predetermined questions by using a generalist approach so as to elicit any possible explanations about the main concern of the interviewees and uncover their views. Although the questions were not predetermined in this process, we started the interviews with a general question about the main issues concerning the strategic alignment to maintain the interview direction. We simultaneously carried out data collection and processing on the interviews and maintained the focus of the interviews on the main concern: strategic alignment in the tall organizational structure in an uncertain environment. Explicitly, the focuses of the interviews were maintained with three main goals in mind:

1. Discovering the interviewees' definitions and interpretations of the Iranian organizational context,
2. Exploring the factors that have a significant impact on strategic alignment based on the context in goal (1), with a focus on the tall organizational structure and environmental uncertainty, and
3. Characterizing the elements of the factors identified in goal (2).

Briefly, during the interviews, the initial questions covered the participants' backgrounds, roles and responsibilities. Then, some questions were put forward on issues such as key stakeholders of business-IT alignment, major required infrastructures, and so forth. From these, several concerns emerged by analyzing the initial interviews. The next questions were formulated based on the emerged concerns and were focused on during the succeeding interviews. After each interview, the recorded interview audio was carefully listened to and transcribed, for further analysis. In summary, rather than asking specific and direct questions, we adapted our interview questions over time as the theory emerged.

Apart from the interviews with the experts, as the secondary source of data, we reviewed and collected the theoretical foundations of the strategic alignment from the previous literature. During data collection (primary and secondary), we conducted coding and analysis simultaneously to evaluate the theoretical saturation, whereby no more ideas or concepts emerged from the data (Glaser, 2008). Data collection was concluded when interviews with the participants yielded no further new concepts.

### 3.4 | Data analysis

As mentioned earlier (Section 3.1), an emergent (or Glaserian) approach was taken for data analysis in this study. The emergent approach is different from the systematic (or Straussian) approach. One of the main differences between these two approaches stems from the differences in their coding processes. The coding process of the systematic approach consists of open coding, axial coding and selective coding. Glaser (1998) criticized the Straussian coding approach for the so-called "force to data." Furthermore, Glaser (1998) argues that selective coding should only begin when the core category emerges, unlike Straussian's approach which recommends selective coding to be done from square one in order to generate the core categories themselves (Corbin & Strauss, 2008). We used the coding process of the emergent approach to analyze the data based on substantive coding (open coding and selective coding) and theoretical coding. We started the interpretation process with open coding and used selective and theoretical coding when approaching the final steps of analysis. We used MAXQDA 10, a powerful computer-assisted qualitative data analysis software (Schonfelder, 2011), to facilitate data analysis and manage the GT-required steps.

#### 3.4.1 | Coding process

The coding process began by using open coding through a line-by-line approach. In this approach, each transcript is analyzed sentence by sentence for conceptual understanding of the context under study (Glaser, 2008). Having applied the line-by-line approach, the researcher identifies the key points and, immediately after finding each key point, the researcher assigns an open code to that key point. Then, the emerged code is compared with the previous open codes in the same and previous transcripts to improve the conceptual specification coverage (Glaser & Holton, 2004). The line-by-line approach also employs the memo-on-memo method that uses note-taking to classify the memos while performing open coding to augment the existing links between the open codes (Rennie, 1998). As a result, creativity is enhanced, and a bank of new ideas is created. Therefore, in our study, we employed a line-by-line approach to obtain open codes. Open coding continued until emergence of concepts that represented a pattern for a substantial number of open codes. A concept is a basic social process, closely related to other concepts, that indicates the participant's major concern (Martin & Turner, 1986). Having compared, categorized, and named the open codes, based on their similarities and differences, we were able to identify the concepts.

The process of selective coding continued for the categories based on in vivo code matching. Based on Glaser (2008), this type of coding limits the analysis to the important variables that affect the categories. In selective coding, these categories are derived from the concepts that must include a name and title. There are two approaches for assigning a name and title to categories: non-matching text codes and in vivo code matching. Non-matching text codes employ social science terms or the researcher's desired terms, while in vivo code matching uses the interviewees' statements. We used in vivo code matching in this research to ensure that the findings were more closely supported by the data. During selective coding, the theoretical saturation of the categories under development must be considered. For saturating the concepts of different categories, creating memos is a useful method. We went back to the data from the previous interviews to reorganize and saturate the categories, concepts, and relations among them. Once theoretical saturation was reached (i.e., no new concepts were added), we terminated the selective coding process. Briefly, after 23 interviews, no new concept was added. To verify theoretical saturation, we conducted six additional interviews and, consequently, terminated selective coding.

Since substantive codes (open codes, concepts, categories) without theoretical codes are empty abstractions (Kelle, 2007), we concluded the coding process with theoretical coding. In this step, the relationships between the core category and other relevant categories were defined. A review of the scientific literature was conducted and merged with the results obtained from the data analysis to create the theory as a cohesive whole. We took all the memos that were generated throughout the study and tried to relate and enrich all the categories in the theory. Glaser (1998) proposed 18 families of theoretical codes or paradigms, enabling the researcher to think analytically and set relations among concepts. To organize the discovered sub-categories and concepts, Glaser's type family was found appropriate for use in this study. This coding family demonstrates a category in the form of types, forms, kinds, styles, and so forth (Glaser, 2008).

## 4 | RESULTS

### 4.1 | Open coding

During the open coding, open codes and concepts were extracted. Briefly, 343 open codes were obtained from the interviews and categorized based on their similarities and differences into 51 concepts. We then categorized the concepts. The first group comprises 31 concepts supported by the previous research. The concepts, supported by literature and providing insights based on the context of the organization are presented in Table 2. The remainder (i.e., concepts supported by literature with no added insights) are denoted in Table A1. The second group of concepts consists of 20 concepts specific to the context of Iranian organizations (i.e., tall organizational structure and environmental uncertainty). Table 3 presents the new concepts in this group that are based on the context of Iranian organizations and have not been covered by other fields (e.g., system analysis literature). The remaining concepts that have been previously covered by other fields are presented in Table A2.

### 4.2 | Selective coding

In the process of selective coding, the concepts resulting from open coding were filtered, separated, unified, and regulated by reducing the initial number of codes to an explanatory framework of high-level categories, called factors. Factors link related and similar concepts and, therefore, have higher conceptual strength than concepts. Factor names were selected based on in vivo code matching. In vivo code matching uses the interviewees' statements to ensure that the findings are closely supported by the data (Glaser, 2008). We categorized the 51 concepts that were identified in open coding into eight factors. Three factors were supported by prior research: senior management (Burn & Szeto, 2000; Chen, 2010; Naranjo-Gil, 2009), communication (Cumps et al., 2009; Luftman, 2003; Tarafdar & Qrunfleh, 2009, 2010), and partnership (Cumps et al., 2009; Henderson & Venkatraman, 1993). Five new factors were identified in this research: IS leadership, IS capabilities, organizational development, human resources, and IT infrastructure. Since the concepts are categorized into factors, they are part of each factor. To express the category-member relationship between the concepts and factors; henceforth, concepts will be referred to as "elements." Table 4 summarizes the results of selective coding, where the *italic and bold* denote the new elements not mentioned in the previous literature.

### 4.3 | Theoretical coding

The main categories and their relationships were defined based on Glaser's type Family to develop a theoretical framework. The type family presents the main categories and their relationships based on their types, forms, kinds, and styles (Glaser, 2008). In this regard, first, we identified the types of the factors based on the related literature. All the generated memos throughout the study were reviewed to relate and enrich the main categories in the presented framework.



**TABLE 2** Concepts supported by previous research but with new insights

No	Concepts	Previous research	New aspects of concepts based on interviewees' viewpoints
1	Senior management's support for ISs activities	Naranjo-Gil (2009), Chen (2010), Tarafdar and Qrunfleh (2009), and Alsudiri et al. (2013)	IT illiteracy results in senior management's inexperience with complex ISs.
2	Senior management's commitment to using IS strategically	Teo and Ang (1999), Hussin et al. (2002), and Tarafdar and Qrunfleh (2009)	High management turnover rate leads to lack of commitment of new managers to using the ISs developed by previous management.
3	Senior management's awareness of IT-based services	Teo and Ang (1999) and Tarafdar and Qrunfleh (2009)	Required local customization of imported services and English being the universal IT language result in limited awareness of senior management of the IT-based services.
4	Senior management's realistic expectations of IS capabilities	Lederer and Mendelow (1989)	Imported ISs are unable to respond to the needs of a highly volatile and competitive environment. Managers are, as a result, unable to realistically utilize the IS capabilities.
5	Standardization of interdepartmental interactions by codified labor	Luftman (2003) and Kashanchi and Toland (2008)	Bureaucracy in tall organizational structures severely inhibits the interaction and flow of information between IS and other departments of the organization.
6	Commonality of language between IS and other departments of the organization	Cumps et al. (2009)	Standardization in tall organizational structures prevents the creation of a common language and diversity of behaviors among employees.
7	Sharing of knowledge between IS and other departments of the organization	Reich and Benbasat (2000), Kim and Park (2007), Chen (2010), and Alaceva and Rusu (2014)	High level of formality and concentration in tall organizational structures hinders knowledge sharing.
8	Investment in IS projects based on the strategic priorities of the organization	Luftman (2003), Cumps et al. (2009), and Tarafdar and Qrunfleh (2010)	Complexity in tall organizational structures prevents coordination for investment in ISs projects based on the strategic priorities of the organization.
9	Reflection of organizational missions and objectives in the IS plans	Kearns and Ledrer (2000) and Tarafdar and Qrunfleh (2009)	Tall organizational structure makes strategy interpretation challenging at lower management (i.e., IS management) levels.
10	Frequency and formality of the IT strategic committees	Chen (2010) and Tarafdar and Qrunfleh (2009)	Tall organizational structure leads to a non-cooperative organizational climate.
11	Similarity of planning horizons in strategic and IS plans	Teo and Ang (1999), Reich and Benbasat (2000), and Alaceva and Rusu (2014)	Strict bureaucratic structure in tall organizations prevents effective interventions for simultaneous strategic and IS planning.
12	Ongoing efforts to match IS with organizational objectives and needs	Luftman (2003), Kajalo et al. (2007), and Chen (2010)	Tall organizational structure lacks the agility and flexibility for matching the IS with organizational objectives and needs.
13	Frequency and formality of participatory programs	Teo and Ang (1999), Kashanchi and Toland (2008), Chen (2010), Johnson and Lederer (2010), Tarafdar and Qrunfleh (2009), and Wong et al. (2012)	Tall organizational structures lead to increased interpersonal conflicts rather than simplify the complex pattern of human behavior and resolve conflicts.
14	Sharing of advantages and disadvantages from decision-making between IS and other departments of the organization	Luftman (2003), Kajalo et al. (2007), Tarafdar and Qrunfleh (2010), and Chen (2010)	High concentration of power in tall organizational structure leads to lower power of the employees and their unwillingness to understand and negotiate mutual decision-making advantages and disadvantages.
15	Perception of mutual trust and common values between IS and other departments of the organization	Preston and Karahanna (2009), Chen (2010), and Cram (2012)	Complexity of the tall organizational structure leads to complex behavioral patterns and prevents creation of shared values among employees.
16	Understanding the contribution of IS to organizational goals	Cumps et al. (2009)	Complexity of the tall organizational structures prevents mutual learning and awareness of performance between IS and other departments of the organization.

(Continues)

TABLE 2 (Continued)

No	Concepts	Previous research	New aspects of concepts based on interviewees' viewpoints
17	Integration of organizational measures with ISs	Chen (2010)	Complexity of the tall organizational structures impedes the integration between IS and other departments of the organization and reduces organizational cohesion.
18	Effectiveness and reliability of IS services	Teo and Ang (1999)	Imported IS and the context of the organization are not compatible in uncertain environments and require continual assessment of the effectiveness and reliability of IS services.
19	Availability of job rotation between IS and other departments of the organization	Luftman (2003) and Chen (2010)	Complexity of the tall structure results in standardized formalization of tasks and prevents mutual learning between IS and other departments.

Abbreviation: IS, information system.

TABLE 3 New concepts, based on the contexts of Iranian organizations, not covered by other fields

No	Concepts	Description based on interviewees' viewpoints
1	Use of local supplies	Lack of government funding, dependency on foreign resources, and the high cost of importing technology due to low GDP led to the need to use local supplies.
2	Flexibility of ISs	Challenges in local customization of imported IS lead to a need for more ISs flexibility.
3	Use of custom-made IS	Challenges caused by English as the universal IS language and the high import rate of ISs lead to a need for custom-made IS
4	Ongoing conversion of IS strategies to applications	Frequent changes in IS strategies due to the highly volatile economic and political environment require continuous translation of assigned ISs strategies into actual applications.
5	Ongoing integration of ISs	Frequent changes in ISs due to the highly volatile economic and political environment require continuous integration of ISs.
6	Ongoing integration of information needs with IS architecture	Frequent changes in information needs, caused by the highly volatile economic and political environment, require continuous integration of information needs with IS architecture.
7	Transparency of information in the IS infrastructure	Compatibility with the highly volatile business environment requires timely and effective response to the environmental changes. This further requires information transparency because sharing of information and ideas through open and honest communications fosters new perspectives and insights for addressing the environmental changes.
8	Ongoing compatibility of IS projects with business projects	Fast-paced changes of the IS capabilities and high cost of importing technology, as well as high rate of changes in the business needs require ongoing compatibility of ISs with business projects.
9	Attraction and retention of knowledge-based staff	The shortage of expert staff in highly volatile business environment and importance of financial and non-financial incentives in motivating and retaining expert staff, require continual focus of the organization on attraction and retention programs.
10	Use of custom-designed software infrastructures	Challenges from dependency on foreign resources; high technological import cost; government technology deregulation; and failure of imported software, hardware, and computer networks to support national policies and standards require local customization of imported software and hardware infrastructures and computer networks.
11	Use of custom-designed hardware infrastructures	
12	Use of custom-designed computer networks	

Abbreviations: GDP, gross domestic product; IS, information system.

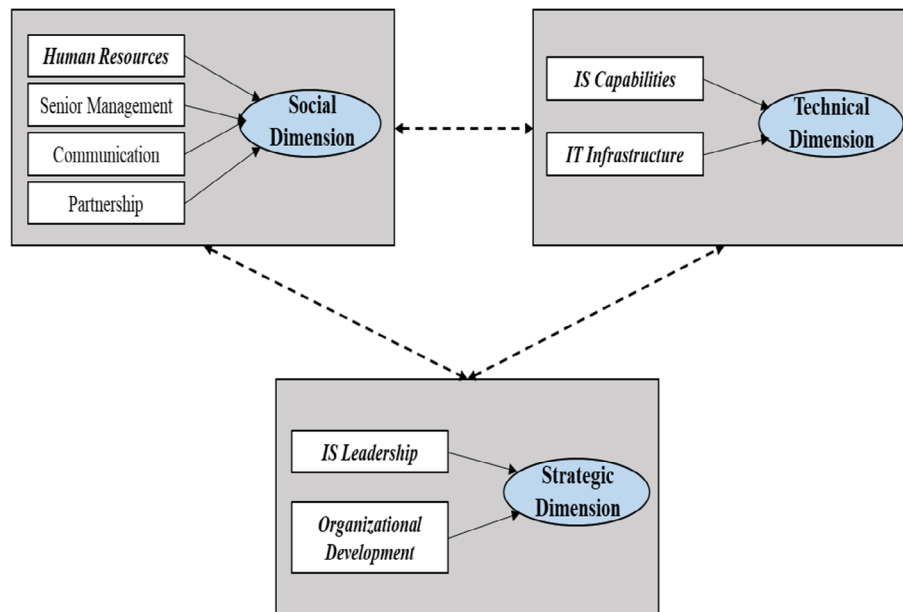
We reviewed open codes, elements (concepts), and factors (categories) and grouped the factors into three main dimensions: social, technical, and strategic. Lee et al. (2008) defined the social dimension as the level of functional integration of human components in the business and IS to achieve the organization's goal. The social dimension emphasizes the human interactions between the IS and other departments. Therefore, we considered human resources, senior management, communication, and partnership factors as the social dimension of the strategic alignment. In contrast, the technical dimension of the strategic alignment emphasizes the functional fit between IT infrastructure and processes. Functional fit achieves organizational goals through integration of governance and infrastructure in IS and other departments (Lee et al., 2008). Here, our findings on IS capabilities and IT infrastructure are consistent with the technical dimension, as defined by Lee et al. (2008). Finally, our findings highlight the strategic dimension that emphasizes the strategic fit between the businesses and strategies of IS (Sabherwal & Chan, 2001) and consider IS leadership and organizational developmental factors as the strategic dimension.

**TABLE 4** Results of selective coding

Factors	Elements
IS leadership	<ol style="list-style-type: none"> <li>1. Extent of delegation to IS in IS resources allocation</li> <li>2. Establishment of decision-making power in IS</li> <li>3. Investment in IS projects based on strategic priorities of the organization</li> <li>4. Reflection of organizational missions and objectives in IS plans</li> <li>5. Frequency and formality of IT strategic committees</li> <li>6. Similarity of planning horizons in strategic and IS plans</li> <li>7. Ongoing investigations to match IS with organizational objectives and needs</li> <li>8. Integration of organizational measures with IS</li> <li>9. <i>Ongoing conversion of IS strategies to applications</i></li> <li>10. <i>Ongoing integration of information needs with IS architecture</i></li> <li>11. <i>Ongoing compatibility of IS projects with business projects</i></li> <li>12. <i>Physical location of IS department</i></li> </ol>
IS Capabilities	<ol style="list-style-type: none"> <li>1. Effectiveness and reliability of IS services</li> <li>2. <i>IS applications efficiency</i></li> <li>3. <i>Flexibility of ISs</i></li> <li>4. <i>Use of custom-made IS</i></li> <li>5. <i>Ongoing integration of IS</i></li> <li>6. <i>Transparency of information in the IS infrastructure</i></li> </ol>
Organizational development	<ol style="list-style-type: none"> <li>1. Integration of organizational design</li> <li>2. Culture of the organization (Innovation and change-readiness)</li> <li>3. Management of changes in IS and organization</li> <li>4. <i>Use of local supplies</i></li> <li>5. <i>Understanding IS cost/benefit analysis</i></li> </ol>
Human resources	<ol style="list-style-type: none"> <li>1. Skills enrichment opportunity in IS and business</li> <li>2. Availability of job rotation between IS and other departments of the organization</li> <li>3. <i>Attraction and retention of knowledge-based staff</i></li> <li>4. <i>Succession planning for IS employees</i></li> <li>5. <i>Economic incentives of IS employees</i></li> </ol>
IT Infrastructure	<ol style="list-style-type: none"> <li>1. <i>Use of custom-designed software infrastructures</i></li> <li>2. <i>Use of custom-designed hardware infrastructures</i></li> <li>3. <i>Use of custom-designed computer networks</i></li> </ol>
Senior management	<p>Senior Management's</p> <ol style="list-style-type: none"> <li>1. Support for ISs activities</li> <li>2. Perspectives compatibility with IS management</li> <li>3. Commitment to using IS strategically</li> <li>4. Adoption of a logical decision-making style</li> <li>5. Participatory management style</li> <li>6. Software knowledge</li> <li>7. Awareness of IT-based services</li> <li>8. Realistic expectations of IS capabilities</li> <li>9. <i>Reliance on information</i></li> <li>10. <i>Trust in IS capabilities</i></li> </ol>
Communication	<ol style="list-style-type: none"> <li>1. Standardization of interdepartmental interactions by codified labor</li> <li>2. Commonality of language between IS and other departments of the organization</li> <li>3. Sharing of knowledge between IS and other departments of the organization</li> <li>4. <i>Interdepartmental reporting structure</i></li> <li>5. <i>Communications informality</i></li> </ol>
Partnership	<ol style="list-style-type: none"> <li>1. Level of bilateral cooperation between IS and other departments of the organization in planning</li> <li>2. Frequency and formality of participatory programs</li> <li>3. Sharing of advantages and disadvantages from decision-making between IS and other departments of the organization</li> <li>4. Perception of mutual trust and common values between IS and other departments of the organization</li> <li>5. Understanding the contribution of IS to organizational goals</li> </ol>

Abbreviation: IS, information system.

The end of coding process is marked by the emergence of a core category, which refers to the main problem or concern of the participants (Glaser, 1998). The core category emerges from the continual comparison of the emergent categories and discovering their relationships. Data analysis indicated that “factors affecting the strategic alignment” was not the core category, because it was not the most relevant and the



**FIGURE 1** Framework of factors affecting strategic alignment (i.e., eightfold framework) demonstrated by Glaser's type family

common concern of all the participants. Rather, this paper is part of a broader GT research study, and therefore the “factors affecting the strategic alignment” was just an emerged part, rather than the core category of the theory. Indeed, the core category of our broader empirical research is “the strategic alignment phenomenon,” central to other emerged categories. The core category and its accompanying parts will be included in another paper. This paper is only dedicated to the presentation of a conceptual framework to explore the “factors affecting the strategic alignment,” rather than the emerged core category. Put otherwise, this paper solely focuses on this category and describe its emergent subcategories and concepts in detail. Based on the emergent three dimensions and eight factors, the factors of the strategic alignment were extracted as shown in Figure 1, where the *italic and bold* factors are used to distinguish the new elements from those mentioned in the previous literature. The framework presented is called the eightfold framework.

## 5 | DISCUSSION

In this study, using a novel approach, we adopted GT to explore the factors affecting the strategic alignment in tall organizations and uncertain environments, like the Iranian organizations. Adopting GT to explore the factors that affect the strategic alignment in tall organizations and uncertain environments allows the discovery of the factors and elements that would otherwise be counter-intuitive in the context of organization in the developed countries. For example, while “use of local supplies” is essential for achieving strategic alignment in tall organizations in uncertain environments, it has never been an issue in the United States, since the majority of vendors are based in the United States. Similarly, although the “use of custom-made IS” is critical in Iran for managing environmental uncertainty, it is not logical in the context of North American and European countries because customization is commonly more costly. Here, we present an eightfold framework that provides a complete set of factors and elements to enable tall organizational in the uncertain environment of Iran in dealing with the challenges of achieving the strategic alignment. These findings can be extended to achieve the strategic alignment in other organizational contexts with tall structures and in uncertain and volatile environments.

The eightfold framework in this study has emerged from the data, rather than from a theory imposed on the data. This framework shows the factors affecting the strategic alignment in organizations with tall structures and uncertain environments. As shown in Figure 1, based on the research data, the relationships between these emergent factors in the eightfold framework were not one-way relationships and the factors do interact with each other. For example, “communication” interacts with “IS leadership” in determining the strategic alignment. Then, the “senior management” is shaped by “organizational development” and vice-versa and the factors interact with each other to determine the strategic alignment. However, although there are interactions between these factors, the extent of these internal interactions and their reciprocal effects on one another cannot be evaluated and explicitly explored based on the findings of this study. In fact, the proposed framework is only a conceptual framework and it is not clear to what extent these factors affect each other. Therefore, due to the importance of the reciprocal interaction between the emergent factors, the role of these factors (or in other words their moderation and mediation) and the extent of their impact on each other can be studied in more detail in terms of type and direction in quantitative studies, using methods such as Fuzzy Decision-Making Trial-and-Evaluation Laboratory in the future.

## 5.1 | Contribution of the study

Teo and Ang (1999) classified the critical success factors for strategic alignment into: (1) commitment of the top management to the strategic use of IT, (2) knowledgeability of the IS management about the business, (3) confidence of the top management in the IS department, (4) provision of efficient and reliable services by the IS department to user departments, and (5) frequent communication between users and IS departments. These themes partially overlapped with some of the explored factors in social dimension of our study (i.e., human resources, senior management, communication, and partnership) (Figure 1). Nonetheless, Teo and Ang's framework has not considered the strategic and technical dimensions of the strategic alignment. In the same vein, Reich and Benbasat (2000) provided insight into the social dimension of the strategic alignment. Although these scholars presented a deep analysis of the strategic alignment in terms of the shared domain knowledge, connections between the business and IT planning, and communication between business and IT executives, their studies lack a comprehensive group of factors in achieving the strategic alignment. Furthermore, in another study, both the social and technical dimensions of the strategic alignment were investigated by Tarafdar and Qrunfleh (2010). They presented a framework, comprised of communication, governance, skill, sourcing, IT professionals, and project management, in achieving the strategic alignment. Nonetheless, compared to the findings of our study, Tarafdar and Qrunfleh only discussed a number of the factors related to technical and social dimensions without including the factors related to the strategic dimension. In a study by Alsudiri et al. (2013), resulting from a strong research output, a model was presented for the strategic alignment with four building blocks, namely, effective communication, senior management support, the project and development managers' involvement in strategy development, and cross-border support for developing business. The factors that emerged from the present eightfold framework expands on these findings by presenting the strategic dimension and IS capabilities factor in technical dimensions as critical contributors in achieving the strategic alignment.

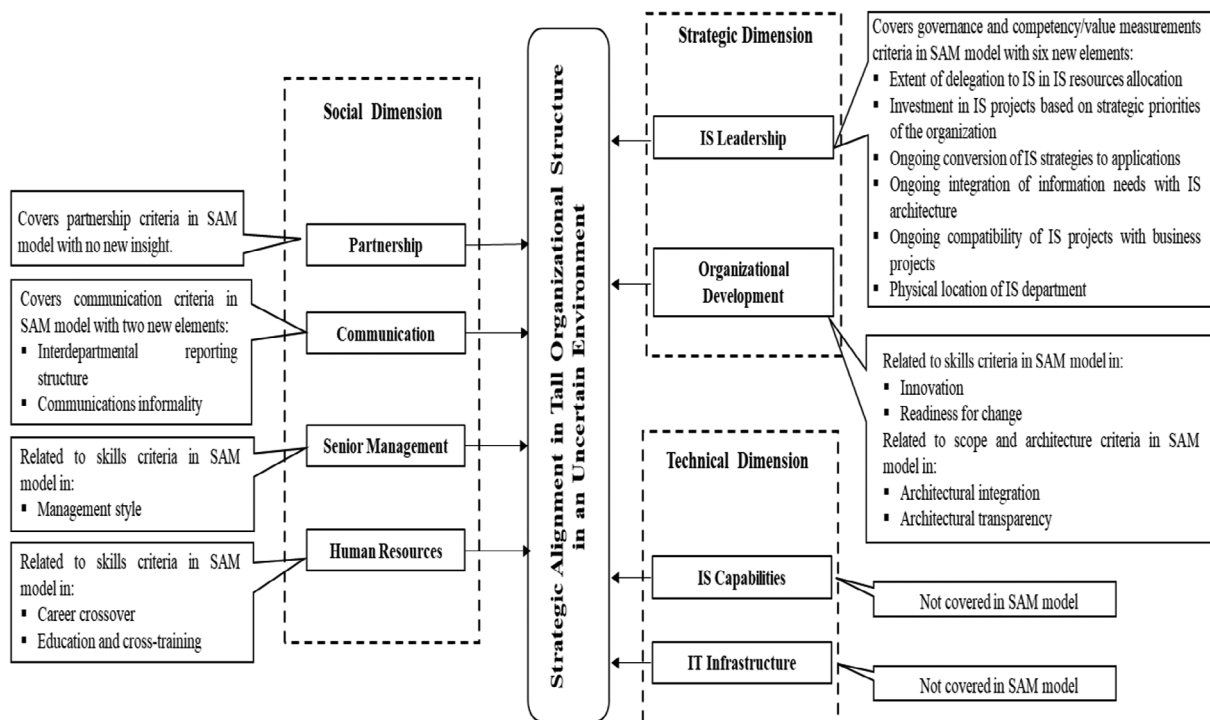
In the context of uncertain business environments, Arvidsson et al. (2014) took a dynamic alignment view and focused on managing the changes in business policies and procedures as the main factor for achieving strategic alignment. Here, rather than focusing on a specific factor, we provided factors emergent from the data in the context of uncertain business environment derived from the insights of experts and previous literature in the field. To date, the framework presented by Schlosser et al. (2015) is the most comprehensive framework that has investigated the role of the implementation of IT governance frameworks, inclusion of IT in the strategic planning, and leveraging the social capital between the leaders on achieving the strategic alignment. Yet, they did not consider the structural and environmental context of the organization. In the present study, the organizational structure and environmental context were the determinants of the emergent factors in achieving the strategic alignment. Our findings showed that specifically, in tall organizations with uncertain environments, the organizational development factor in the strategic dimension is an essential contributor to achieving the strategic alignment.

In the context of Iranian organizations, Manian et al. (2013) evaluated the maturity level of the strategic alignment in the Iranian organizations, based on the Strategic Alignment Maturity (SAM) model (Luftman, 2003). Yet, SAM is a model developed in the context of the western organizations and implementation of Manian et al. lacks localization of this model for the context of the Iranian organizations. Below, in Section 5.2, we localized SAM to the context of tall organizations in uncertain environments for future application of the developed framework in other organizational contexts. In another study, Bazrafshan et al. (2016) appropriately considered the tall organizational structure in evaluating the effect of social factors in achieving strategic alignment in the Iranian organizations. Although our study is aligned with theirs in considering the effect of such factors as communication and partnership on the strategic alignment in tall organizations, Bazrafshan et al. failed to take into account the environmental context of the organization. And as such, their study overlooks the technical and strategic dimensions, presented in our work, for achieving the strategic alignment. Similarly, Khalaghy and Pourzandi (2020) have recently explored the social and technical challenges in achieving the strategic alignment in the structural context of the Iranian organizations. However, despite the overlapping factors between the challenges found in their study with the findings of our present work, they noticeably failed to consider the environmental context and its role in achieving the strategic alignment.

Taken into consideration, all the above studies consider the strategic alignment as a multifaceted phenomenon. However, none of them have proposed a comprehensive framework including the detailed multifaceted elements, factors and dimensions. Put differently, discovering some of the novel factors of the strategic alignment such as IS leadership, IS capabilities, organizational development, human resources, and IT infrastructure distinguish this study from the previous works. It is of prime importance to note that the realization of the strategic alignment could not be made possible without adequate attention paid to the strategic dimension of alignment. Unlike the previous works, our study has adequately explored this vital dimension of the strategic alignment by introducing two factors, namely IS leadership and organizational development. Finally, this study adopts a novel approach by highlighting not only the previously explored role of the organizational structure, but also the effect of the environmental context in determining the factors of the strategic alignment.

## 5.2 | Integration of the eightfold framework with SAM

SAM is the most established model in evaluating the level of maturity of the strategic alignment in organizations and in different contexts. Additionally, the results derived from GT must be integrated with the established formal literature (Corbin & Strauss, 2008). Therefore, we integrated



**FIGURE 2** Integration of the Strategic Alignment Maturity (SAM) model into eightfold framework

the results of this study with the commonly used SAM model (Luftman, 2003). SAM recognizes six criteria effective in the strategic alignment: communication, competency and value measurements, governance, partnership, scope, architecture, and skill. Communication represents the exchange of information between IT and business managers to understand the strategic objectives of the business. Competency and value measurement focuses on the value IT assigns to the business. Governance is the authority delegated to business managers in IT decision-making. Partnership denotes the involvement of business and IT managers in the strategic planning process and their mutual understanding of their activities. Scope and architecture identify the ability of the organization to effectively manage change through the flexibility of the organizational infrastructure. And finally, skills emphasize the human resources training (Luftman, 2003).

The integration of the SAM model into the eightfold framework is shown in Figure 2. In terms of partnership, our findings are consistent with SAM, with no new insights. The eightfold framework covers all the communication elements with the addition of two elements: interdepartmental reporting structure and communications informality. Furthermore, our study combines the competency, value measurement, and governance criteria in the SAM model, adds technology scope as a new concept, and introduces IS leadership as a new factor.

This study divides the elements belonging to the skill criterion of SAM into three groups, and having discovered other related and new elements, presents three new factors: Innovation and readiness for change are presented in the organizational development factor; management style is considered in the senior management factor; and career crossover, education, and cross-training are described in the human resources factor. Finally, the scope and architecture criterion in the SAM model is considered in the eightfold framework as the integration of organizational design and is presented as one element of the organizational development factor. The integration of the eightfold framework with SAM indicates that not only our framework covers all the factors in SAM, but it presents the IS capabilities and IT infrastructure factors as two new complementary criteria for the SAM model.

## 6 | CONCLUSION

Strategic alignment remains to be the concern of IT experts and managers. This study differs from the previous research in that it considers the organizations with tall structures in uncertain environments, such as those in Iran. Here, we adopted a GT approach to discover the participants' main concerns and their definition and interpretation of the factors and elements of the strategic alignment. Due to the nature of GT, this study did not seek to confirm and impose an existing strategic alignment theory; rather, it aimed to conceptualize the strategic alignment process by using a more malleable and less prescriptive approach.

Our proposed eightfold framework asserts that organizations with tall structures in uncertain environments need to consider 8 factors and 51 elements for achieving strategic alignment. Three of the eight factors have been supported in the previous research. These factors are, namely, senior management, communication, and partnership. The remaining five factors, discovered in this work, are IS leadership, IS capabilities, IT infrastructure, organizational development, and human resources. These factors are categorized based on three dimensions, namely social, technical, and strategic. Senior management, communication, partnership, and human resources are the social dimension; IS capabilities and IT infrastructure are the technical dimension; and IS leadership and organizational development are the strategic dimension in achieving the strategic alignment.

This study has two major limitations that offer opportunities for future studies. The first is the focus of the Iranian organizations. Broader research in industries in other countries can add to the number of experts and improve and extend the research results. The second limitation lies in the focus of this study on strategic alignment. Alignment has three levels, namely strategic, tactical, and operational. Strategic alignment helps meet an organization's future IS needs by aligning the IS strategies with those of the business (Henderson & Venkatraman, 1993). Tactical alignment, however, is a bridge between the strategic and operational alignment and is focused on the alignment between the IS plans and the plans of the business. As such, the tactical alignment allows the organization to effectively allocate its IT resources (Renaud et al., 2016). On the other hand, operational alignment emphasizes the alignment of ISs with business processes to ensure that IT effectively supports the organization's daily operations (Gerow et al., 2016). Realization of alignment and full exploitation of its potential are not achieved unless alignment is realized at all the three levels (Chen, 2010). Future studies should consider the tactical and operational levels of alignment, not explored here.

## DATA AVAILABILITY STATEMENT

The article describes entirely theoretical research. Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

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## APPENDIX A

## OPEN CODING

**TABLE A1** Concepts supported by previous research with no new insights

No	Concepts	Previous research	Description based on interviewees' viewpoints
1	Senior management's perspectives compatibility with IS management	Burn and Szeto (2000)	Senior and IS managers do not have a common understanding of the organizational objectives and IS capabilities for objective realization.
2	Senior management's adoption of a logical decision-making style	Pyburn (1983)	Senior management decision-making is based on intuition and expediency rather than rationality.
3	Senior management's participatory management style	Chen (2010) and Cram (2012)	Senior managers have an exploitative-authoritative management style. They have no confidence or trust in subordinates, such as IS department, in solving organizational problems. As such, managers seldom use the IS capabilities.
4	Senior management's software knowledge	Hussin et al. (2002) and Tarafdar and Qrunfleh (2009)	Lack of IT education, training, and experience results in low IT absorptive capacity and IT illiteracy.
5	Integration of organizational design	Cumps et al. (2009)	Lack of integration of the IS department and other departments within an organizational framework results in a low level of organizational design integration.
6	Culture of the organization (Innovation and change-readiness)	Luftman (2003), Chen (2010), Cram (2012), and Arvidsson et al. (2014)	Low level of risk-taking and acceptance of changes leads to a low level of innovation.
7	Extent of delegation to IS in IS resources allocation	Luftman (2003) and Cumps et al. (2009)	Insufficient delegation to the IS department results in reduced authority of IS in resource allocation.
8	Establishment of decision-making power in IS	Tarafdar and Qrunfleh (2010) and Chen (2010)	Accumulation of power at high administrative hierarchy levels results in IS department having low decision-making power.
9	Level of bilateral cooperation between IS and other departments in planning	Lederer and Mendelow (1989), Teo and Ang (1999), Kearns and Sabherwal (2006), Tarafdar and Qrunfleh (2009), and Alaceva and Rusu (2014)	IS is a separate department with independent programs which pays little or no attention to organizational goals.
10	Skills enrichment opportunity in IS and business	Luftman (2003), Tarafdar and Qrunfleh (2009 & 2010), and Chen (2010)	There is lack of attention to empowering human resources, especially in the ISs department.
11	Management of changes in IS and organization	Cumps et al. (2009)	Lack of IS education, training, and experience and low delegation of authority to IS department lead to mismanagement of the changes in IS and the organization.
12	The proximity of IS department to other departments	Pyburn (1983) and Coughlan et al. (2005)	IS department is physically isolated from the other departments which limits their close inter-departmental relationships.

Abbreviation: IS, information system.

**TABLE A2** New concepts based on the context of Iranian organizations but covered by other fields

No	Concept	Field of research	Description based on interviewees' viewpoints
1	Senior management's reliance on information	Managerial decision-making	Information is unreliable and inadequate, and senior management relies only on informal information.
2	Senior management's trust in IS capabilities	System analysis	Lack of senior management's sound understanding of the impact of ISs on the performance of the organization results in low IT absorptive capacity.
3	Interdepartmental reporting structure		Lower-level management has responsibilities but no authority, and, as a result, fewer initiatives are taken in interdepartmental reporting.
4	Communications informality		High degrees of formalization, complexity, and centralization in tall organizations hinder effective communication.
5	Understanding IS cost/benefit analysis		Lack of clear targets and plans for ISs leads to consideration of ISs only as costs.
6	IS applications efficiency	IT governance, risks, and controls	Neglecting IS as an enabler for translating an organization's strategies into strategies of ISs.
7	Succession planning for IS employees	Managing talents	High degree of centralization in tall organizations results in failure to consider IS employees' career paths.
8	Economic incentives for IS employees		Lack of differential payments to employees for their variable productivity leads to fixed payment regulations.

Abbreviation: IS, information system.