



**ROLE OF INFRASTRUCTURE AND
INFORMATION TECHNOLOGY STRATEGIES
IN BUSINESS STRATEGIES OF AN ORGANIZATION –
CASE STUDY: INDUSTRIAL UNITS OF
KURDISTAN PROVINCE, IRAN**

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Abstract:

Information technology strategy with business strategy is considered as the most important issue for IT and business managers. The overall purpose of this research is to investigate the strategic role of information technology in industrial units of Kurdistan province. The research method of this paper is descriptive-applied and for data collection, two methods of library studies and field studies have been used. In this research, the standard questionnaire of pop determining the role was used and validity of the questionnaire was confirmed by Cronbach's alpha test. The statistical population of the study consisted of 400 managers, experts and supervisors of industrial units of Kurdistan province. Using classical sampling method with appropriate allocation, the number of samples was determined by 196 people by the Cochran formula. The results show that with the probability of 95% confidence, the infrastructure of the organization, IT infrastructure and organization strategies are well defined. However, the results show that the information technology strategy in the above mentioned statistical population is not properly defined. Organizational strategies fit with the infrastructure of the organization and this moderate proportion is down. Also, IT infrastructure is compatible with IT strategies, but this proportion is at a very low level. Finally, the organization's strategies are integrated with IT strategies.

Keywords: strategy and infrastructure of an organization, strategy and IT infrastructure, organizational performance

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1. Introduction

In an organization, if executives do not know their information needs, business managers are unaware of their IT capabilities; personnel involved with the organization's information technology do not have any knowledge of the organization's business; the entire organization and information departments of that organization are completely separate from each other and do not know the needs of each other, etc. it will make the organization's investment venture in IT as well as its business very low, because created information systems and applied technology can not be considered as a step towards meeting the needs and problems of the organization and it itself causes overhead costs (Ali Pourpijani, 2010, p. 37). The extent of the role of these two categories (business and information technology) in two strategic and structural dimensions can be assessed and evaluated (Brown, Sharon, 1994, p. 69). This assessment means that the relationship between strategic infrastructure and information technology and business organization can be shown by studying the organization's IT strategy with the business of that organization, as well as the structure of the two issues.

2. Problem Statement

The strategic role of information systems is one of the ten challenges that IT managers face. Therefore, the role of a vague concept is difficult to grasp and measure, the role of organizational strategies and structures, and strategies and structures of information technology focuses on issues such as the proportion or disproportion of the IT position in the organization, the way and relationships available for reporting in the IT unit structure, the focus or lack of focus of IT services, and the mutual understanding of information technology from the business and vice versa. Review the relationship between information systems and information technology with the organization's business is to identify the strengths and weaknesses of the organization and provide appropriate solutions and suggestions in the process of identifying the role of increasing the organization's investment efficiency in the IT sector. Most organizations have recognized that their main issue is not having an appropriate business strategy or high-level information system architecture, but both must be integrated and defined in a way that provides the necessary confidence to compete on the today market. Despite the fact that organizations understand the importance of the role of business and IT strategies, they consider it difficult or impossible to control the IT capabilities for long-term benefits. Although information technology can be used at all Industries and markets. (Luftman and Brier, 1999, p. 13)

2.1 Research Purposes

1. Investigating the functional role of information technology strategies in organizational business strategies in industrial units of Kurdistan province.

2. Investigating the functional infrastructure of information technology strategies in organizational business strategies in industrial units of Kurdistan province.
3. Investigating the relationship between skills of infrastructure of information technology with organizational business strategies in industrial units of Kurdistan province.
4. Investigating the relationship between processes of infrastructure of information technology with organizational business strategies in industrial units of Kurdistan province.

2.2 Research Hypotheses

1. The organization's information technology strategies have a meaningful relationship with the organization's business strategies in the industrial units.
2. Infrastructure of information technology of an organization has a significant relationship with organizational business strategies in industrial units
3. There is a meaningful relationship between the skills of infrastructure of information technology and business strategies in industrial units.
4. There is a significant relationship between the information technology infrastructure processes and the business strategies in the industrial units.

2.3 Theoretical Framework and Review of Literature

Dong, Lio & Yin in 2008, based on an empirical study, in their paper summarize the strategic alignment and its impact on business performance. This paper also measures business strategy, information system strategy, and strategic alignment of the information system, and provides a conceptual model for describing the relationship between these factors. The analysis of collected data suggests that strategic alignment of information systems can provide a better prediction of the performance of a business strategy or information systems strategy.

In a 2010 paper, Leida Chen, with data collected from 130 business and IT executives from 22 companies in China, has been examining multiple issues related to aligning IT and business. In this research, the relationship between maturity alignment dimensions and strategic alignment of the information system was studied. Eventually, the maturity of corporate alignment in China was evaluated to provide a general overview of IT and business alignment among 11 domestic Chinese companies and 11 multinational companies in China, which provided different IT practices in all of the two types of companies.

2.4 Strategy Infrastructures

The organization's strategy in this research is to examine the three components of the business domain (the type of business the organization is engaged in and the product or service that it offers) the competitive advantage (including the topics and locations where the company is involved in the sense of the strengths of that topic or location) and business management (which focuses on ownership, this component, concentrates

especially on establishing business partnerships with each other of business institutions, government regulations and their effects, as well as strategies of external sources). With these strategies, the organization will be more successful in achieving the goals.

2.5 Information Technology Strategies

A set of components of information systems that consists of equipment, software applications and services used by organizations, and provides data, information, and knowledge. (Luftman, Lewis and Oldach, 1993, p. 15)

The purpose of the IT infrastructure in this research is hardware; system software, database management systems, communication hardware and software, which together form the architecture of information technology, as well as communication networks, in the form of three components of the IT structure, processes and IT skills are reviewed.

2.6 Strategic Structure

The importance of the strategic structure is its impact on the core business of organizations, such as gaining competitive advantage, positive impact on performance, the greatest return on IT investment, diverse market competition, supporting business strategies and business value and flexibility in response to new opportunities. The above suggests that strategic alignment is very important in light of the fact that organizations are active in turbulent and competitive markets. (Jorfi, 2011)

Efforts have been made to define a strategic structure, but there is still a general agreement on what really is the alignment of IT and business. Iman and Hartono (2007) describe the strategic structure as two words (structure) and (strategy). When corporate IT strategy is taken out of its organizational strategy, alignment will be achieved through coordination.

2.7 Impacts of Alignment in Strategic and Technology

In a nutshell, some studies have been carried out to address the effects of alignment:

1. Easily integrating alignment into business system work and help with the deformation of information in a way that can be used to coordinate the work flow to contribute to organizing, decision making and solving other problems. (Isa Salo et al., 2012)
2. Strategic alignment helps organizations to maximize profits in IT investments and by gaining competitive advantage by providing a path to change, respond to new opportunities. (Carl Hass, 2010)

There are several studies in this regard that have brought about the impact of strategic alignment on the whole:

1. In general, profitability and achievement of goals are possible with better performance. (Crack et al., 2012)

2. A superb strategic alignment with the business strategy of the IT strategy leads the information system to a deterministic point, which ultimately strengthens performance. (Iman and Hartono, 2014)
3. Business and IT alignment believes that it will develop organized performance through mechanisms such as process control, human resources and technological capabilities. (Henderson & Venkatraman, 1993)
4. Research with the alignment of IT strategy and business strategy indicates a positive relationship between competitive strategy, information technology and performance. In addition, sort of organizations that have successfully aligned IT and business strategies at an average cost of less than 17%, while other organizations do not have the same alignment. (Weis and Anderson, 2004)

In relation to the evaluation of strategy, both economic and organizational factors are emphasized as factors affecting performance. Torick and McGuinn (1997) list the factors influencing performance as follows:

1. The alignment of organizational elements with the organizational environment is an effective factor in improving organizational performance, since the results of research by Burns and Stalker (1961) show that different levels of environmental change require different design structures, as well as an alignment between strategy and environment. And according to Fredrickson (1986), it is a key skill.
2. Tees (1984) argues that if an organization seeks to achieve the best performance, it needs to adapt its capabilities to its variable environment.

The results of the studies show that between 17% and 20% of the changes in financial performance are due to membership in an industry.

3. Conceptual Model of Research

The proposed infrastructure model describes the two types of business-IT integration. First, strategic integration focuses on explaining the relationship between IT strategy and business strategy with respect to external environmental factors. Second, operational integrity describes the relationship between infrastructure and organizational processes and IT infrastructure and processes in the organization's internal environment. (Henderson and Venkatraman, 1999)

In this research, a comparative study of previous experiences in the field of strategic infrastructure and based on the Subroval and Chan model, attempts have been made to determine the factors affecting alignment (the characteristics of each of the IT business strategies) independently and finally was considered in the model. According to Subroval and Chan (2001) there are several IT strategies (IT9) that are suited to the three business strategies, each business strategy is related to different types of information technology. Advocators, analysts and researchers of a variety of business strategies relate to different types of information technology. Advocators, analysts and researchers have tested various business strategies using the six features of this strategy (defensive, interactive, risk aversion, analysis, prospective, and aggressive). Instead, the characteristics of the IT strategy for the types of strategy are treated in the same way.

The best IT strategy that aligns with any business strategy is tested with four features of this strategy (operational support systems, market information systems, support systems of decision-making and internal information organization information systems), in the old classification of information systems reflect three characteristics: Information exchange systems, information management systems and support systems of decision-making. A fourth feature may be considered as a privileged type. These four features of IT are mutually reinforcing for real business support provided by the systems.

In summary, we conclude that in the perspective of defending the IT strategy exists for internal efficiency and effectiveness in the organization and long-term strategic decision-making. For researchers, the IT strategy for change, focus on marketing flexibility and strategic quick decision-making. Finally, IT, for the sake of completeness, will enable the strategy to make comprehensive decisions and react quickly; analyzes are appropriate to the knowledge of other organizations. (Subroval and Chan, 2001)

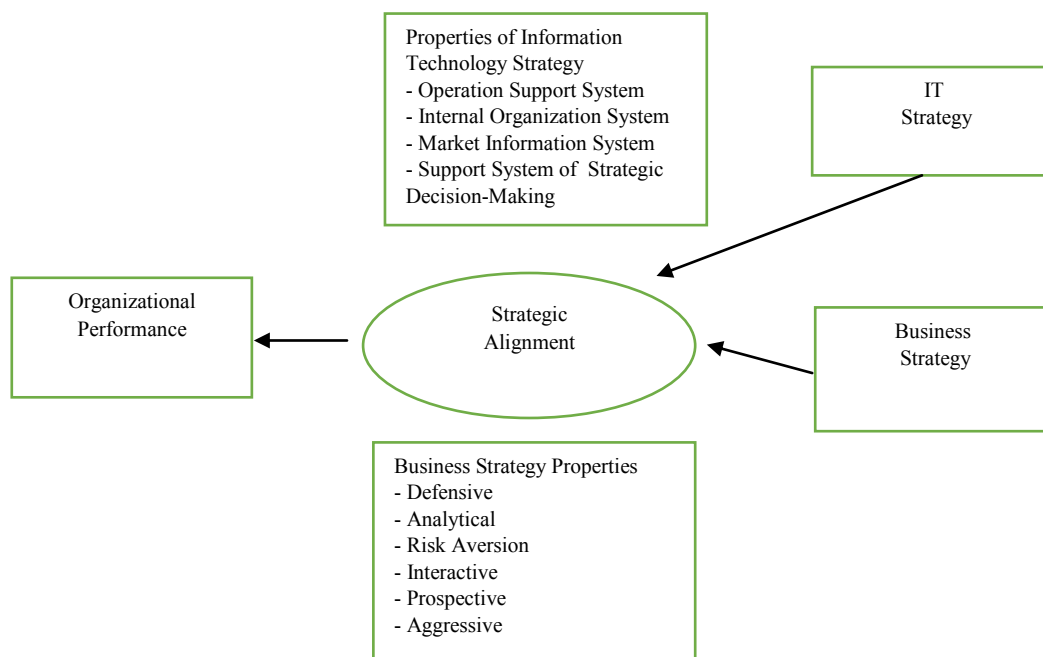


Figure 1: Conceptual Model of Research

4. Research Methodology

This research is based on an applied purpose and is a descriptive study because it seeks to achieve a scientific goal. The statistical population of this research is all senior managers and employees of the information technology sector and industrial units, which are based on 500 available statistics. Sample size sampling tables from the assumed community of 316 people with a precision level of $\pm 5\%$ were considered and distributed, out of which 280 valid questionnaires were used for calculations.

In this research, simple random sampling method was used based on access level. To describe the data, descriptive statistics were used and for analyzing the data and testing the hypotheses, inferential statistics and structural equation modeling were used. CVR method was used to assess the validity of the questionnaires and the content validity method was used and the judgment of the 10 professors and scientific and practical experts of the subject studied was considered.

To investigate the validity and reliability of the questionnaire, this study was performed using Cronbach's alpha coefficient. For this purpose, 15 questionnaires were used as a pre-test and then data were analyzed using SPSS. The Cronbach's coefficient of reliability was calculated separately for each of the variables and finally the Cronbach's alpha for all variables was 0.84, indicating its high reliability.

Table 1: Cronbach's Alpha Coefficient by Structures

Row	Under Measurement Structures	Questions	Cronbach's Alpha
1	Business Strategy	1-16	0.70
2	IT Strategy	17-32	0.90
3	Organizational Performance	33-48	0.84
4	Total Variables	1-48	0.84

4.1 Data analysis

4.1.1 Results of Research Hypotheses

The analysis of the first hypothesis showed that the business strategy variable with a coefficient of 0.732 has a positive and significant effect on organizational performance. Meanwhile, IT strategy variable with a coefficient of 0.052 has a positive but non-significant effect on organizational performance. The interaction between the two variables of the business strategy and IT strategy was positive and significant at a coefficient of 0.672, indicating the alignment of these two variables. Therefore, the alignment of IT strategy is effective in the performance of the organization, and this hypothesis has been approved; however, more emphasis should be placed on the IT strategy.

Table 2: Relationships between Structures (First Hypothesis)

Relationships between Structures	Estimated Number	Critical Ratio	The Significance Level	Impact Coefficient	Results
The impact of information technology strategy variable on organizational performance	0.677	4.321	***	0.732	Confirmed
The impact of business strategy variable on organizational performance	0.038	0.633	0.527	0.052	Rejected
The interaction between variable of business strategy and information technology	0.093	4.622	***	0.672	Confirmed

The results of the second hypothesis show that the alignment of IT strategy with an impact coefficient of 9.63 and a business strategy with an impact coefficient of 0.77 on organizational goals and decisions.

Table 3: Relationships between Structures

Relationships between Structures	Estimated Number	Critical Ratio	The Significance Level	Impact Coefficient	Results
The impact of business strategy variable on goals and decision-making	0.677	4.321	***	0.732	Confirmed
The impact of information technology strategy variable on goals and decision-making	0.512	0.890	***	0.630	Confirmed
The interaction between variable of business strategy and information technology	0.093	4.622	***	0.670	Confirmed

The results of the third hypothesis examined the flexibility of the information technology and information systems used by the organization to support the strategies used. As a result, it was found that the flexibility of information technology in the alignment of business strategies is effective with an impact coefficient of 0.63 and information technology with an impact coefficient of 0.75.

Table 4: Relationships between Structures

Relationships between Structures	Estimated Number	Critical Ratio	The Significance Level	Impact Coefficient	Results
The impact of business strategy variable on information technology flexibility	0.510	4.750	***	0.630	Confirmed
The impact of IT strategy variable on information technology flexibility	0.512	0.660	***	0.750	Confirmed
The interaction between variable of business strategy and information technology	0.093	4.622	***	0.670	Confirmed

4.1.2 Measuring the dimensions of the business and IT strategy

A. Model of Measurement of Variable Dimensions of Business Strategy and Its Analysis

Table 5 shows the factor loadings and the significant index of the coefficients of the dimensions of the business strategy variable for its model.

Table 5: Significant and Factor Loading of the Dimensions of Variable of Business Strategy

Dimensions	Factor Loading	Critical Ratio
Operations Support System (O.S.S)	0.710	10.250
Internal Organizer System (I.O.S)	0.720	10.260
Marketing Information System (M.I.S)	0.770	10.740
Strategic Decision Support System (S.D.S.S)	0.740	10.520

B. Model of Measurement of Variable Dimensions of IT Strategy and Analysis

Table 6 shows the factor loadings and the significant index of the coefficients of the dimensions of the IT strategy variable for its model.

Table 6: Significant and Factor Loadings of Variable Dimensions of IT Strategy

Dimensions	Factor Loading	Critical Ratio
Defensive View	0.590	9.630
Analytical View	0.470	7.500
Risk Aversion Conditions	0.400	6.270
Interactive View	0.700	12.040
Prospective View	0.730	12.820
Aggressive View	0.740	12.920

5. Result and Discussion

By analyzing the strategies applied and aligning the organization to improve the effectiveness of the operation of industrial units based on the analysis, the analysis of the different perspectives of the business strategy based on its characteristics in industrial units results in an aggressive view first rank has an impact on this strategy in the organization.

Prospective, interactive, defensive, analytical and risk-taking features rank in other ways in business strategy, respectively. This analysis suggests that the organization applies resources to improve the position of the indigenous industry than other organizations. Such a feature is the characteristics of leading organizations and companies. A prospective view of organizational readiness for future environmental situations, which shows forward-looking perspectives and long-term thoughts. The interactive dimension reflects innovative behaviors and organizational emphasis on finding emerging opportunities, experiences of change and leading actions.

By analyzing the different views of IT strategy and its characteristics, the market intelligence dimension is the first to have an impact on this strategy. The dimensions of the strategic decision support system, the internal organizer system, and the operational support system are, in turn, effective and important from the point of view of the respondents on the IT strategy. This suggests that members tend to be aware of the current information about the industry in the country and the related organizations and technology used in it, and in the future, they tend to provide information management systems for intelligent systems decisions and technology that is appropriate to the

structure and processes of the interior and, ultimately, the systems and technology suitable for the executive mechanism and the pursuit of their own affairs.

According to the research findings, the Engineering Organization is recommended: Senior management of the strategic business review and continuous IT alignment put in their daily work schedule in order to continuously improve performance and monitor this process. Also, information management systems should be considered in order to raise awareness, in particular, the circulation of relevant decision-making information. For advancement of goals, based on the strategies developed, provide regular reports to members to inform them of the continued support of their managers. Finally, the IT sector should play a vital role in the visualization and modeling of business strategy and decision making.

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