

Exploring the factors that affect the adoption of IS strategy and policy: A case study of a hospital in Saudi Arabia

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Abstract: Successful information system strategy implementation is the key to organization's survival. It consists of a long-term action plan for achieving the stated aims of an organization. It focuses on business process improvement, increasing efficiencies and controlling cost. It supports business process management and is mostly driven by customer needs. It is one of the main topics that has gathered the attention of practitioners and IS researchers who had conducted various investigations in different domains. Taking this point as a motivation, a detailed study was made to analyse the impact of successful strategic implementations in various organizations and the major influencing factors while its deployment. Following a systematic literature review, the paper focuses on five major influencing factors: organizational culture, leadership, organizational structure, organization communication and IT/IS development. Based on these factors, a case study was done at a healthcare centre in Saudi Arabia. The results showed that the above-listed factors had a very strong impact on IS strategy and policy of the organization.

Keywords: Information systems, strategy, adoption, factor influences, healthcare centre.

I. INTRODUCTION

In today's digital age, information systems (IS) play a vital role in the organization and business success. The definitions of IS have been growing in diversity and complexity over years. In general, IS helps in managing and controlling all organizational functions, which includes planning, designing, developing, and simplifying the operational processes. IS comprises the information technology infrastructure, data, application systems, and stakeholders who use IT to provide information and communications services in an organization [1]. According to Boell and Cecez-Kecmanovic [2], IS can be perceived in four different viewpoints, i.e., a technology view highlighting the technological aspects; a social view highlighting the sociocultural aspects; a socio-technical view highlighting the interconnection of technology and social elements, and a process view highlighting the activity positioning of IS.

The IS strategy explains the organization's requirements for information and systems in order to back up the overall business strategy [3]. It is firmly grounded in the business, taking into consideration both the competitive impact and alignment requirements of IS. IS strategy, however, should be also investigated and applied at all levels i.e. the functional, organizational and business level [30].

This paper provides a review of the influencing factors for IS strategy and policy adoption. It highlights various prominent factors, for different types of organizations. It then follows by the discussion of the relationship between IS strategy and five chosen factors, i.e. organizational culture, leadership, organizational structure, organization communication and IT/IS developments. Finally, a case study is conducted at one of the healthcare centres in Saudi Arabia to reflect the factors that influenced the centre's adopting the IS strategies and policies.

II. LITERATURE REVIEWS

IS strategy is developed in response to the organization business initiative. It is intended to give competitive advantages to the organization. It guides in a better understanding of the resources needed to support the organizational vision, mission and development methodology. IS strategy provides organizational strategic changes in many ways and enables the business to function effectively. IS strategy formation and establishment bringing about the considerable impact of organization's vision, analysis and entrepreneurial decision-making. Successful IS strategy implementation depends on organizing, motivation, culture building and creating stronger relationships between the employees of the organization. Many organizations have adopted new IS strategy models which guide them to achieve the company's mission and vision. Due to the growing significance of IS to the organization, understanding the strategic value of IS has been the main target of many IS practitioners and IS researchers. The followings provide the works that had been carried out by them.

Singh et al. [4] studied the impact of future IS on business strategy. It indicated that since information is very valuable assets of the organization, its transfer and manipulation through IT innovations becomes a key factor in successful business decisions. Business objectives, business strategy, and globalization were also needed to reach high competitive advantage.

Levy and Powell [5] carried out a study on IS strategy on 42 small and medium-sized enterprises (SME) that conclude the information role as a strategic resource. The analysis showed that IS provided with a great solution by not only obtaining the information that is necessary to manage the business effectively but also competitively. Furthermore, the study also showed three factors that motivated companies to use new IS strategy. The factors are business processes, leadership, and organizational structure.

Murray [6] conducted a case study investigating how IS strategy could assist and act as an impetus for the successful implementation of workflow systems in a healthcare organization. The case study uses an analytical framework built upon six theoretical propositions recognized as having a key impact on the implementation of workflow technologies. They are leadership and organization culture, cross-functional interdepartmental teams and its role in deployment the use of the system, communications and interaction between participants, understanding the business processes and the relationship between those processes, processes of system development, and administrative and technical skills. The findings suggested that organizational support was a key factor and given the complexities of work processes, the support is a challenging one.

Peters et al. [7] revealed how the potential of information systems strategy supported the leasing organization and helped the organization to gain competitive advantage a long period of time. The 10 years study revealed a detailed evolution of IS strategy where no IS plans was used earlier in the organization. The research was conducted through interviews, examining the organizational documents related to IS strategy and witnessing the development of IS strategy in practice. The result showed an excellent success factor, where the company grew rapidly, in the late 1990's i.e. after the effective implementation of IS strategy with the following aims: (a) An IS infrastructure that supports the departments individually, helping them to connect electronically to clients and suppliers. (b) A shared development environment helping innovation to spread quickly throughout the whole organization. Certain factors were also highlighted which had their effect on the implementation of IS strategy in the organization, such as technology rapid development, top management needs, plans or models, IS technology, the rise of international competition, and market needs, external-internal environmental factors.

Gunes et al. [8] carried out a study on 500 largest companies and public organisations to analyse the relationship between organizational performance and three other factors i.e. IS strategy implementation, organizational culture, IT implementation - deployment and impact. The results showed that measuring the impact of IT over an IS is a complicated and difficult task. However, it emphasized that there was the highest contribution of IT to the organization in improving customer satisfaction, organization image, reduced operational costs, adequate information transfer and many more. Furthermore, the research also shows a positive correlation between innovative cultures and organizations.

Kaplan and Norton [9] stated that 95% of the employees do not aware and understand the organizational strategy 60% of plan strategy for the organization never implemented. Many valuable strategies encountered many issues and suffer failure at the implementation stage rather than at the development stage.

Teubner [10] studied the implementation of new information systems strategy in the financial service industry. The analysis showed that some factors affected the adoption of new IS Strategy in the company, such as top managerial needs, organizational structure, organizational environment, business processes, market need, and IT functions. All these factors influenced the organization to move into new IS strategy that facilitated their work and performance.

Martin and Wynn [11] developed a qualitative research using Earl model to understand how IS strategy is developed and implemented in eight SMEs. The research showed that all the companies have been successful in the IS investment with substantial final benefits. The case studies suggested three different solutions that formed a key element of IS strategy development and implementation i.e. ERP implementation, exploit current systems and selective package acquisition. The research established that developing an integrated system strategy enable SME companies to reach competitive advantage and high business performance.

Zaribaf and Hamid [12] conducted a study to determine the affecting factors of implementation of strategy in the large banking services sector. Factors like leadership, organizational structure, human resource, information system, organizational technology, and organizational culture, were identified. The results showed that all six factors influenced the successful implementation of the bank's strategy, but the impact rate of each factor is different than other.

Ali and Hadi [13] conducted a survey to ascertain the impediments to effective implementation of business strategy in food industry companies. The study was conducted to all level of managers, experts, consultants and leaders of the food industry. As a result, five obstacle factors were identified i.e. planning consequences, organizational, managerial, individual and staffs, and environmental.

Qrunfleh and Tarafdar [14] examined the relationship between supply chain strategy and supply IS strategy and its impact on supply chain performance and organization performance. The outcomes showed that IS strategy improves the relationship between agile supply chain strategy and firm performance. The study also indicated that organizational supply chain efficiency, flexibility, leadership, and organizational culture are the main factors that influence IS strategy adoption.

Devece et al. [15] studied the IS strategy from the point of view of innovation differentiation and organization performance in the food industry. According to the study, an innovative IS strategy has a greater direct influence on organizational performance; but that a conventional IS strategy is a secure approach to benefit the innovation differentiation strategy of the organization.

Hwabamungu et al. [16] conducted a study to investigate influences of stakeholders in IS strategy implementations in a large organization as the public hospital. The findings are that the IS strategy implementation involves a complex network of stakeholder groups over a different period of time.

Table 1 summarizes the influencing factors on the IS strategy and policy based on the reviews aforementioned.

TABLE I
INFLUENCING FACTORS

	Influencing Factors	Researchers
1.	IT innovation and innovation cultures	[4], [8], [15]
2.	Business objectives	[4]
3.	Business strategy and plan	[4], [13]
4.	Market needs and globalization	[4], [7], [10]
5.	Information role	[5]
6.	Business process	[5], [6], [10], [14]
7.	Leadership	[5], [6], [12], [14]
8.	Organizational structure	[5], [6], [12], [10], [13], [14]
9.	Organization culture	[6], [8], [12], [14]
10.	Organization communications	[4], [6]
11.	IT/IS development	[6], [7], [8], [10], [11], [12]
12.	Human resource and skills	[6], [12]
13.	Top management needs	[7], [10], [13]
14.	External-internal environmental	[7], [13]
15.	Stakeholder awareness and influences	[9], [13], [15]

III.FIVE KEY FACTORS

Using Table 1 as a guideline, this paper selected five key factors to be elaborated. The factors chosen were organizational culture, leadership, organizational structure, organization communications and IT/IS development

A. Organizational culture

Organization culture is intrinsically tacit, consisting of hypothesis, assumptions, acceptance, values, and norms. Organizational culture is the driving force that moves people to action, and act. It is a formidable element that drives and controls organizational behaviour and encourages particular patterns of behaviour [18]. Culture is the main aspect to improve organizational performance and effectiveness [19].

B. Leadership

Leadership arises when one group member influences the group's motivations, behaviours and competencies [20]. Leadership can nurture the desired organizational culture by forming intellectual stimulation among followers and sharing knowledge with employees [21]. The key responsibilities of the leadership are coordination of activities, streamlining of processes, aligning the organizational structure, and keeping employees inspired and committed to strategy implementation [22]. Leadership is a critical area for many organizations due to their growing reliance on IS

both for operational stability and for facilitating process innovation and business strategy [23]. Lack of leadership is one of the major obstacles to effective implementation of IS strategy).

C. Organizational Structure

Organizational structure comprises all organization hierarchies and levels based on employee responsibilities and power and subsequently, they can work together to attain the required organization aims [24]. Organization's structure affects the employee morale, economic effectiveness, job satisfaction and productivity. Good organization structure does not only have tangible effects but also intangible effects like employee morale, motivation, thus creating a strong impact on the organization operational effectiveness. Great structure encourages cultural values, manage integration and coordination as it seeks to reinforce the relationship between individuals and tasks [25]. Organization structure is one of the fundamental reasons why organizations battle with cultural change since the structure often confines the employees in old styled formations, that are not aligned with new business viewpoints [26].

D. Organization Communication

Communication can be considered as another aspect that involves leadership. It is always recommended to improve the organizational communication to facilitate organizational success for leaders. According to Beer and Eisenstat [27], blocked vertical communication has a predominantly destructive outcome on a business's ability to implement and enhance its strategy. There is an evident connection between a company's corporate communication function and its implementation of the strategy [28]. Communication effects organization's flexibility, organization culture, decision-making and coordination among the stakeholder of the organization.

E. IT/IS developments

The IS must support business goals and organizational systems [17]. It must be able to assist sharing of information through technology-based systems with stakeholders and change the nature of the relationship between them. The IS should generate more effective integration of the use of information in the organization's value-adding processes. It also allows the organization to create, develop, produce, market and deliver new or enhanced products, services or value propositions based on the information. They provide the organization with information to back up the development, implementation and evaluation of strategy by strengthening stakeholder's reasoning in generating knowledge and understandings from information.

IV. CASE STUDY

A study was conducted at one of the healthcare centres in Makkah Province, Saudi Arabia to analyze the five factors: organizational culture, leadership, organizational structure, organization communication and IS/IT development. The centre provides a complete range of healthcare services. The study concentrated at its Media Centre. The Media Centre composes employees specialized in various domains such as IT, administration, graphics and programming. The Centre has two main objectives.

- Highlight and clarify the hospital services through social media such as Twitter, Instagram, Facebook, Google+ and YouTube.
- Hosting events inside and outside the hospital.

The data and information were collected through interviews with the employees consisting of many structured and unstructured questions. There were also series of investigations carried out to check for the existence of IS strategy and policy via observation and documentation. Questions were asked on the organizational culture, leadership, organizational structure, organisation communication and IT/IS developments factors, in relation to the planning and implementation of IS strategy and policy.

The study discovered that the Media Centre was using of social networking services to connect with people and to organize hospital events, which showed was an effective implementation of IS strategy. In addition, the study also indicated that all five factors: organizational culture, leadership, organizational structure, organisation communication and IS/IT development, had a very strong impact on the successful implementation of IS strategy and policy. Organization culture determined the flexibility and compatibility of strategy and policy of the Media Centre with overall aims and objectives of the hospital. The distribution of various tasks according to employee calibre showed how effectively it was deployed in the department. The essence of leadership was seen in constant positive support from the higher level of management. The study also showed the everlasting effect of communication by the cooperation between Media Centre and other departments in the hospital. Table 2 summarises the findings.

TABLE II
CASE STUDY FINDINGS

Issues	Findings
New strategy and policies	The organization took advantage of social media services such as Twitter to respond to public inquiries. It also created health awareness among the people through health and educational campaigns as a part of new strategy implementation.
Formal strategy	This strategy consisted of formal work of the planning model: "policy and procedures" and approved by senior management. One part of this policy is to open accounts of the healthcare centre in social networking sites.
Organization level of strategy	The strategy is applied to the top level of the hospital that was followed by Media Centre top management.
Compatibility with overall objectives	This strategy was targeted for the achievement of its vision.
Distributed tasks between team	All employees in the team have specific functions according to their skills.
Support from top management	There was support from top management through the adoption of the model of policies and procedures in the Media Centre.
Cooperation with other departments	There was cooperation between Media Centre and other departments such as IT departments that provided hardware, software support, and also other departments involved with Media Centre to deployment their events.
Development	This is a continuous process to attain the aims and objectives of the organization and provide the highest quality of care to the patients.
Implementation issues	One of the most important issues facing the advantage of social networking strategy was a large number of inquiries, and some people were not convinced of displaying of healthcare centre services through social media.

V. CONCLUSION

This paper provides an analysis of major factors influencing the adoption of IS strategy and policy through a literature review and a case study. It highlighted many factors with five main factors, i.e. organizational culture, leadership, organizational structure, and communication and IT/IS developments, which have a profound effect on organizations IS strategy success. Repeating the study in the same hospital after a period of time may guide to a better understanding of changing characteristics of the strategy used in the healthcare centre at all levels.

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