

Defining CSFs for Information Systems Strategic Planning in Holding Companies: A Case Study of an Iranian Managerial Holding Company (System Group¹)

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ABSTRACT

Holding companies (HCs) differ in their nature and behavior from other types of companies. Their role is to support, control and budget their subsidiaries. In general, HCs do not compete directly with one another, as it is difficult to find two HCs with the same product and service portfolios. Competition occurs instead at the subsidiary level against companies, which may or may not be part of other HCs, in overlapping markets with similar products and services. This concept of competition, which differs from that of typical commercial companies, is central to the development of HC strategies for supporting and controlling their subsidiaries. Information Systems Strategic Planning (ISSP) attempts to align information systems strategy with business strategy by directing the investment in information systems so as to satisfy strategic goals. Traditionally, ISSP methodologies have addressed the definition of information systems for Strategic Business Units (SBU). This research demonstrates, using a case study of an Iranian Managerial Holding Company, how ISSP can be applied instead to Strategic Business Processes (SBP). It illustrates how to define Critical Success Factors (CSFs) and Information System Needs (ISN) on Strategic Processes instead of Strategic Units. Moreover, this study combines the Balanced Scorecard (BSC) with a statistical questionnaire survey to define strategic processes.

Keywords: *Information Systems Strategic Planning, Holding Company, Balanced Scorecard, Strategic Process.*

INTRODUCTION

Holding companies (HCs) are companies established to control other companies by the ownership of their voting capital stock. In other words, the term "holding company" is applied to any company that controls its subsidiaries (US Department of Energy, 1994). The subsidiaries of HCs usually compete with the subsidiaries of other HCs in several markets, as well as with companies that may not be part of any HC. In this situation, a HC's strategy must harmonize the different objectives of its subsidiaries. As a result, a HC's strategy is composed of many threads. Only

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when these unmatched threads are evenly woven together can a successful general business strategy be formulated (Keyes, 2005).

This paper presents a methodology that HCs can use to determine which of its processes are strategic. These strategic processes assist an organization in achieving its objectives and are vital to its success. Using the methodology presented in this case, organizations can focus on these processes to create an effective and aligned information technology (IT) competency. Many frameworks have been proposed to help a company achieve an IT competency that supports its drive for sustainable competitive advantage (Davenport, 1993; Guimaraes, 1997; Desouza, 2001). This paper describes one such methodology and illustrates its application at System Group (SG), an Iranian holding company.

Previous approaches to Information Systems Strategic Planning (ISSP) emphasized the Strategic Business Unit (SBU) as the unit of analysis in defining Information Systems (IS) strategy and investment priorities (Martin, 1995). This paper, in contrast, emphasizes the Strategic Business Process (SBP) as the unit of analysis. A Balanced Scorecard (BSC) framework is used to identify strategic business processes and measure Critical Success Factors (CSFs). This framework is used to align SG's IS investment with its strategic goals.

This paper is organized in five sections. Section 2 describes the literature surrounding Information Systems Strategic Planning and the tools and techniques used for this purpose at SG. Section 3 describes the process of ISSP at SG. Section 4 discusses the implications of SG's ISSP process in relation to other research in this area. Finally, Section 5 summarizes the findings and implications for academicians and practitioners.

BACKGROUND

Information systems have the potential to change the way an organization works. Therefore, when investing in and building its systems, an organization must pay close attention to ensure that any IS changes align with and support the goals of the organization (Gottschalk, 2001; Chan, 1993; Chan, 1997; Chan, 2002). Selig's (1982) study of information resource management planning in 25 large multinational companies was one of the first to recognize the need and describe best practices for aligning IS planning with corporate strategy.

Over the years, researchers have proposed many formal methodologies for conducting an ISSP. One of the earliest is Zani's (1970) top-down proposal, which is surprisingly sophisticated given its early appearance in the literature. King (1978) proposed a simple process to link an organization's "strategy set" to an MIS "strategy set." Later researchers focused on techniques such as CSFs and value chain analysis (Bullen and Rockart, 1981; Porter and Millar, 1985).

The ISSP represents an example of a planning process in which an HC may or may not delegate IS planning tasks to a subsidiary. It is a complex and challenging process for senior managers and also for IS researchers and practitioners (Watson and Kelly, 1997; Segars and Grover, 1998; Karimi et al., 1996; Premkumar and King, 1992). Lederer and Sethi (1992) advised that the ISSP is a process of identifying a portfolio of computer-based applications to assist an organization in executing its current business plans. Hence, an organization could use ISSP to realize its existing business goals (Lederer & Sethi, 1992).

According to Ward and Peppard (2002), the ISSP has three steps, as illustrated in Figure 1. It starts with the definition of a "vision," in which the organization's top managers explicate their

purposes of investing in IS. Thus, the "Mission" and "Strategic Processes" of the organization must be identified.

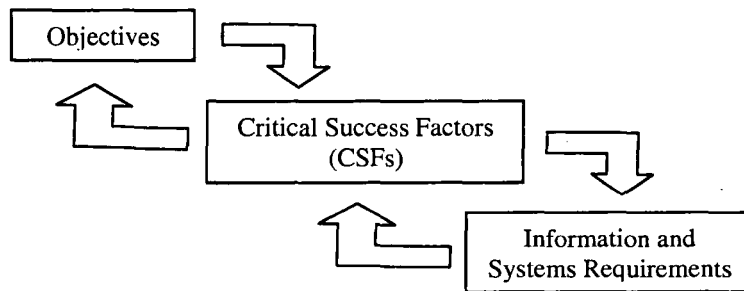


Figure 1. ISSP General Steps (Ward and Peppard, 2002)

Next, CSFs are determined on the company's strategic processes and goals. The third and final step is to define IS needs.

CSFs for ISSP should be based on organizational goals and characteristics. IS investments are then acceptable when they try to satisfy the business strategy (Kaplan and Norton, 2000). Anderson's method-I and IBM's business system planning (Anderson, 1983; IBM 1975) support the use of CSFs for ISSP.

Many companies use a BSC framework to manage and measure IT efforts (Keyes, 2005; Carr, 2003). The term "balanced" in the Balanced Scorecard method refers to balances among four perspectives (customer, business processes, learning and innovation, and financial), long- and short-term objectives, as well as qualitative and quantitative measures of performance (Keyes, 2005). The BSC framework is more than just a way to identify and monitor metrics. It also improves effectiveness, productivity, and competitive advantage in organizations (Keyes, 2005). In the early 1990s, Kaplan and Norton developed the BSC framework approach to compensate for shortcomings they observed when only financial metrics were used to judge organizational performance (Kaplan and Norton, 2000). By the mid-1990s, the BSC became the hallmark of a well-run company. Bain & Co's Management Tools report, surveying more than 600 businesses, found that 62 percent were using a BSC approach. General Electric, Home Depot, Wal-Mart, and Mobil are among the many well-publicized companies that used this approach (Bain & Co., 2003). A beneficial side effect of the use of BSC is that, when all measures are reported, one can calculate the strength of relations between the various value drivers (Van der Zee and Jong, 1999). The BSC identifies the information required to measure performance instead of business objectives (Kaplan and Norton, 2000). It makes a way to reach the agreement in prioritizing IS investment for achieving business objectives (Ward, 2002; Ward, 2000).

Connections between BSC and IT were first seen in the late 1980s (Mirchandari and Lederer, 2004). At that time, the deficiency in measuring IT effectiveness using purely financial measures was addressed by Parker, Benson, and Trainor (Parker et. al, 1998; The Economist, 2000). Bowne & Co. initiated an IT balanced scorecard process with seven steps (1997). The U.S. Central Intelligence Agency did the same for a human resource information system (Keyes, 2005).

This paper presents the BSC as a useful framework for providing a holistic viewpoint for members of SG's senior managers. Its goal is to answer the following questions:

1. Is it possible to apply the ISSP methodology in a HC?
2. What methods, techniques and factors should be considered in performing each of the ISSP stages in a HC environment?
3. Is it possible to implement the ISSP methodology on Strategic Business Processes instead of Strategic Business Units?

CASE STUDY: IMPLEMENTATION OF THE ISSP METHODOLOGY WITH PROCESS APPROACH IN SG COMPANY

The company and its products and services

Providing reliable and efficient software to a variety of business and industry sectors, SG has become one of the most reputable software development firms in Iran. The company is very experienced in areas such as office automation, finance, operations management and software technology. SG has evolved into a conglomerate of 37 companies nationwide, which makes it the largest software industry group in the private sector in Iran. Subsidiaries bring the necessary synergy to drive the company forward in covering and meeting the diverse IT needs of various industries in industrial, economic and service sectors. SG provides the most complete set of client-based services ever offered by a private software firm in Iran.

SG is one of the first companies in Iran to specialize in IT. Because of its experience with technology and its acquaintance with new business methods, it has a high degree of readiness for applying the ISSP. Also, SG seeks to benchmark and implement western business practices. For these reasons, it was selected as the subject of the case study.

The Methodology

SG's ISSP methodology expands the first step of Ward and Peppard methodology (see Figure 1) into a three-step course of action that generates objectives by applying a BSC framework to analyze the company's strategic processes. The first three steps of SG's methodology are, 1) identify SG's most important processes; 2) categorize them in a BSC framework; and 3) select from among those in each BSC area the ones most aligned with SG's objectives. The fourth and fifth steps of SG's ISSP methodology correspond directly to Ward and Peppard's second and third steps, namely define critical success factors, and identify information system requirements. SG's five-step ISSP methodology is described in some detail below.

Step 1: Identify SG's Primary Processes

There are two types of holding companies – Investment Holding Companies (IHC) and Managerial Holding Companies (MHC). IHCs derive their profits solely from the investments in the securities of their subsidiaries. MHCs derive profits from investment securities, but also intervene in their subsidiaries' transactions (US Department, 1994). SG is a MHC.

The processes of holding companies, such as SG, differ from those of other types of companies. In identifying an HC's processes, it is important to avoid mixing them with the processes of its subsidiaries. SG conducted a two-stage study to identify its key processes. In the first stage, SG management in conjunction with one of the case study authors extracted thirteen key processes from Kaplan and Norton's (2000) study of ten top international HCs (See Table 1). In the second stage, 19 top managers and senior experts of SG completed a questionnaire in which they selected from the processes identified in Stage 1 and added any additional processes that they thought were relevant. No additional processes were identified as relevant during Stage 2 and all of the

processes identified in Stage 1 were confirmed to be relevant. Following are descriptions of the thirteen key processes that were identified as an outcome of this study:

Portfolio Management: Portfolio management identifies products and services that are useful and beneficial for HCs and their subsidiaries. The products and services put in such portfolios should be more beneficial and also need less time and fewer resources compared to other products and services (Gold *et. al*, 1994).

Licensing Strategy: Licensing strategy identifies key intellectual assets and industry information for establishing the brands, patents and technologies that are appropriate for licensing to other businesses (Kaplan and Norton, 2000).

Negotiation Support: Considering the different specialties among a HC's subsidiaries, establishing common teams and managing them correctly can create synergies for a HC. In this process, teams can be assembled to solve the problems of the HC or the problems of its subsidiaries under the supervision of the HC. (Gold *et. al*, 1994).

Financial Management: Monitoring a company's portfolio of agreements, recovering unpaid royalties, evaluating the tax benefits of intellectual property rights and developing shareholder reporting methodologies (Kaplan and Norton 2000).

Dispute Resolution: Developing strategies to prevent infringement of charges escalating into litigation (Gold *et. al*, 1994).

Standards Adoption: Emphasizing the adoption of favorable standards to a company's product strategies and avoiding unintended patent grants (Gold *et. al*, 1994).

Subsidiaries Performance Appraisal: One of the most important processes of HCs is the appraisal of its subsidiaries' performance. This appraisal process should be carried out regularly. The BSC methodology can help HCs to evaluate their subsidiaries accurately (Gold *et. al*, 1994).

Subsidiaries Capacity Planning: HCs should have the ability to identify the capacities of subsidiaries and use them effectively (Kaplan and Norton 2000).

Common-service Presentation: There are many activities, such as accounting, that are common to most or all of an HC's subsidiaries. Efficiencies can be gained by centralizing these activities at the HC and eliminating the duplication which exists among the subsidiaries (Gold *et. al*, 1994).

Common Projects Execution: Often experts in one HC subsidiary or in headquarters can make substantial contributions to projects conducted by other subsidiaries. Therefore, HCs need the ability to manage and control these kinds of projects (Gold *et. al*, 1994).

Crises management: HCs get affected by different market crises. Technology changes and customer needs cause subsidiaries to face different crises in different time periods. Thus, crises management and regulation by a HC can help its subsidiaries handle these crises (Gold *et. al*, 1994).

Export development: Subsidiaries tend to expand their markets to foreign countries. In this situation, HCs should first study the market expansion and then help and support subsidiaries enter the new foreign markets strongly (Gold *et. al*, 1994).

Innovation: The success of organizations is often credited to innovation. Innovation at the level of the HCs can create competitive advantages for all of its subsidiaries (Gold *et. al*, 1994).

Table 1. HC Processes Derived from an Analysis of Kaplan and Norton's (2000) Case Studies of International HCs

Company Name \ Process Name	Financial Management	Licensing Strategy	Negotiation Support	Performance	Planning	Execution Subsidiaries Capacity	Common-Project	Service Presentation	Dispute Resolution	Management	Management	Development	Expertise in Holding	Adoption Innovation	Standard
Mobil NAM &R	X	X	X	X	X					X	X				
On-line National Bank	X	X								X			X		
AgreChem	X		X	X	X				X						X
New Profit Investment Company	X					X				X					X
Johansson	X		X			X		X							X
Brown & Root	X		X				X	X		X		X	X	X	X
Sharlot Transportation	X					X									X
Fingo - IT	X		X			X					X		X		
Nova - Skatia	X	X				X							X		
Winter International	X		X				X			X	X		X		

Step 2: Categorize the Primary Processes in a BSC Framework

The BSC provides a framework for analyzing a company's mission and strategy. The four perspectives of the BSC permit a balance between short and long term objectives. The BSC framework is shown in Figure 2.

The **financial** perspective addresses how execution of the company's strategy contributes to its financial well being and viability. The operating expenditure of each office includes salaries, benefits, training, travel, information technology, and contractor support (Keyes, 2005). In the **customer** perspective, HCs identify the customer and market segment in which the business units will compete. They also measure the business units' performance in these target segments. In the **internal process** perspective, HCs identify the critical internal processes in which the organization must excel (Niven, 2002). The fourth perspective of the BSC, **learning and growth**, identifies the infrastructures that should be built by an organization to create long-term growth and improvement (Keyes, 2005; Niven, 2002).

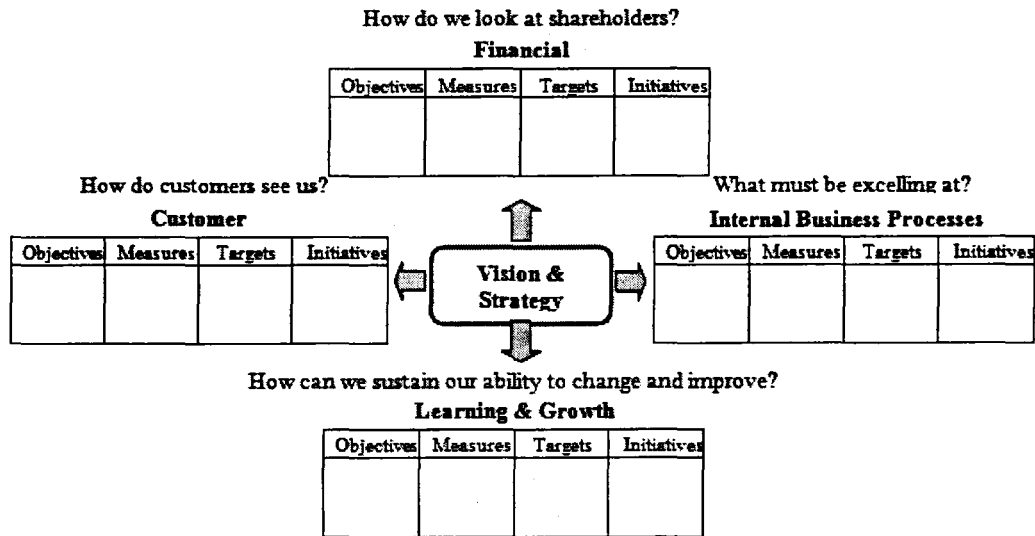


Figure 2. The Balanced Scorecard and its four perspectives (Keyes, 2005)

Figure 3 shows how SG classified the processes of Table 1 according to the four BSC perspectives. The financial management process clearly lies within financial perspective. Negotiation support and licensing strategy were placed with the customer perspective because they are very customer-oriented. Subsidiaries' performance appraisal, portfolio management, export development, common project execution, common-service presentation, dispute resolution, and crises management were all considered to be internal processes. Innovation in an HC and standards adoption processes identify the infrastructure which can build long-term growth and improvement and, in consequence, were put in the learning and innovation perspective.

Financial Management		Financial
Licensing Strategy	Negotiation Support	Customer
Portfolio Management	Common-Service Presentation	Internal Process
Crises Management	Dispute Resolution	
Export Development	Subsidiaries Performance Appraisal	
Innovation in a holding Company	Standards Adoption	Learning and Innovation

Figure 3. Classification of the SG processes based on the BSC perspectives

Step 3: Select from Each BSC Perspective the Processes Most Aligned with SG's Objectives
 SG is unable to invest in all processes; therefore, it should select from among the HC processes those that contribute most to satisfying its strategic goals. These processes are its "strategic

processes" (Hanafizadeh and Moayer, 2008). SG follows a segmentation strategy (Porter, 1980). Companies following a different strategy or operating in a different competitive arena will almost certainly select different processes than SG even if they apply the same methodology.

In this step, the questionnaire in Appendix 1 was sent to all SG's managers to rate SG's processes on a Likert scale. One of the authors analyzed the data for SG using a Friedman test to convert the ratings to a ranking. Table 2 presents the mean Friedman ranks of SG's managerial HCs processes. Table 3 presents the statistical summary of the Friedman test data. Based on this test, there is a significant difference between the processes. According to an Alpha test, the statistical reliability is 84.55%, as is shown in Table 4.

Table 2. The mean ranks of Friedman test to rank SG processes

Process	Mean Rank
Portfolio Management	9.83
Licensing Strategy	9.52
Negotiation Support	2.57
Financial Management	3.30
Dispute Resolution	5.70
Standards Adoption	5.54
Subsidiaries Performance Appraisal	10.39
Subsidiaries Capacity Planning	9.22
Common-Service Presentation	5.74
Common Project Execution	5.93
Crisis Management	3.50
Export Development	9.78
Innovation in an holding Company	9.98

Table 3. The result summary of Friedman test to rank SG processes

N		23
Chi-Square		171.171
Df		12
Asymp. Sig.		.000
Monte Carlo Sig.		.000
	99% Confidence Interval	Lower Bound
		Upper Bound
		.000

Table 4. Reliability Analysis according to Alpha test

Reliability Analysis- Scale (ALPHA)	
N of cases= 23.0	N of Items= 13
Alpha= 0.8455	

Next, SG's processes were ranked within each BSC perspective, as shown in Table 5. The highest rated and lowest ranked process within each BSC perspective is shown in italics.

Table 5. Process Ranking Within BSC Perspective and Overall

Process Name	Perspective in BSC	Mean Rating	Mean Rank in Friedman Test	Rank in perspective	Total Rank	Variance
<i>Financial Management</i>	<i>Financial</i>	2.34	3.30	1	12	0.9
<i>Licensing Strategy</i>	<i>Customer</i>	4.3	9.52	1	6	1.16
<i>Negotiation Support</i>	<i>Customer</i>	2.08	2.57	2	13	1.03
<i>Subsidiaries Performance Appraisal</i>	<i>Internal Process</i>	4.6	10.39	1	1	0.48
Portfolio Management	Internal Process	4.56	9.83	2	3	0.51
Export Development	Internal Process	4.43	9.87	3	4	1.04
Subsidiaries Capacity Planning	Internal Process	4.3	9.22	4	5	1.01
Common Project Execution	Internal Process	3.3	5.93	5	7	0.98
Common-Service Presentation	Internal Process	3.39	5.74	6	8	0.74
Dispute Resolution	Internal Process	3.39	5.70	7	9	0.81
Crises Management	Internal Process	2.21	3.50	8	11	1.5
<i>Innovation in HC</i>	<i>Innovation & Learning</i>	4.47	9.98	1	2	1.05
<i>Standards Adoption</i>	<i>Innovation & Learning</i>	3.3	5.54	2	10	0.73

In this research, according to the holistic viewpoint of BSC framework, one process is chosen from each perspective. It means that, other processes better ratings and lower rankings in each perspective are ignored. As a result, it is possible that a selected process, such as licensing strategy, ranks lower than a non-selected strategy, such as export development, by virtue of its inclusion in a different BSC perspective. The outcome of Step 3 is that financial management, licensing strategy, subsidiaries performance appraisal, and innovation in an HC were chosen as strategic processes for SG, as highlighted in Figure 4.

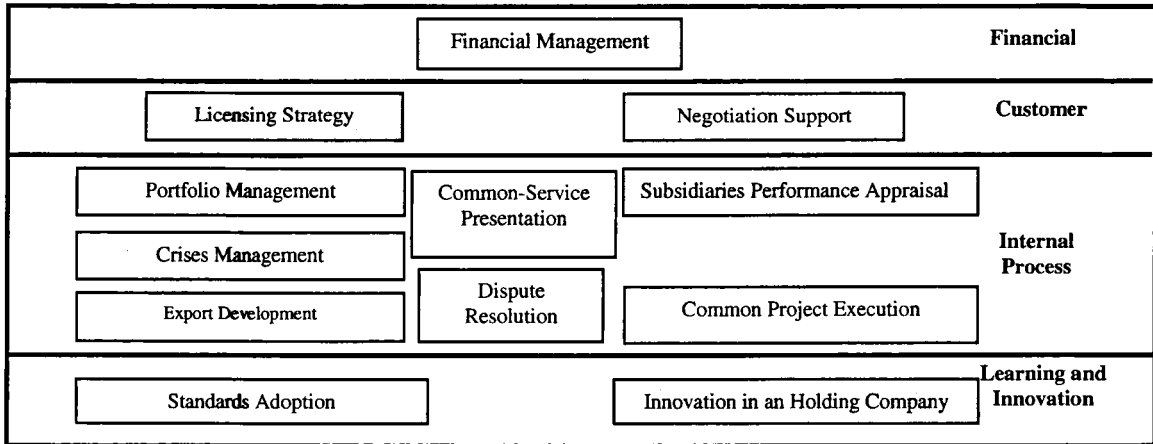


Figure 4. Strategic processes of HCs in the SG BSC framework

Step 4: Defining the Critical Success Factors for SG Based on Its Strategic Processes

Critical Success Factors (CSFs), a concept suggested by Rockart (1979), are used in many organizations. An organization's CSFs depend entirely on its objectives. Organizations should focus on clarifying the priority of CSFs to achieve long-term success (Rockart, 1979). Therefore, top managers were interviewed to define their CSFs for SG. Their focus was on CSFs at the HC level, not in subsidiary level. CSFs were defined on the strategic processes to align directly with SG's strategy. The CSFs are shown in Table 6. It should be noted that all processes are presented in Table 6 to show the ability of SG to change any strategic process that cannot be executed for any reason to another process.

Table 6. The CSFs and KPIs of research case study

Process Name	Perspective in BSC	CSF	KPI	CSF No.
Financial Management	Financial	Increasing the subsidiaries' profit	Decreasing the time of investment return	CSF1
		Decreasing the grievance of subsidiaries	The amount of actual investment to forecasted investment	CSF2
Licensing Strategy Negotiation Support	Customer	Promulgating the brand of HCs	Increasing the brand acceptance among customer	CSF3
		Increasing subsidiaries' customer satisfaction	Increasing the satisfaction of final customer from products and services (%)	CSF4
		Increasing subsidiaries satisfaction	Increasing the satisfaction of subsidiaries from the services of HCs (%)	CSF5
Subsidiaries Performance Appraisal, Portfolio Management, Export Development, Subsidiaries Capacity Planning, Common Project Execution, Common-Service Presentation, Dispute Resolution, Crises Management	Internal Process	Executing the common projects among subsidiaries successfully	The number of projects in proper time and budget	CSF6
		Increasing the capacity of subsidiaries	Calculation of vacant capacity	CSF7
		Increasing the subsidiaries managers' knowledge	The number of training courses for managers	CSF8
		Increasing the agility in responding to the market	The number of new products and services	CSF9
		Decreasing the crises in subsidiaries	The number of remained crises to solved crises	CSF10
Innovation in an Holding Company, Standards Adoption	Innovation & Learning	Improving business processes through subsidiaries' suggestion	The number of changed business processes	CSF11
		Increasing the quality of business processes in HCs	The number of quality certificates	CSF12

In ranking the CSFs, three aspects are studied: strategy, importance and difference with other companies. The strategy and the importance of CSFs are widely used in ranking the CSFs (Kaplan & Norton, 2000). Another aspect, difference with other companies, is also studied to differentiate the rank of CSFs for HCs. Validation test and ranking of each CSF based on Friedman test are shown in Tables 7 and 8.

Reliability Analysis- Scale (ALPHA)

N of cases= 15.0

N of Items=

12

Alpha= 0.8342

Table 8. The ranking of each CSF based on Friedman test

Process Name	Perspective in BSC	CSF No.	Strategic Rank	Difference with other Companies Rank	Importance Rank	Total Rank
Financial Management	Financial	CSF1	5	7	1	3
		CSF2	7	2	11	9
Licensing Strategy Negotiation Support	Customer	CSF3	2	3	3	2
		CSF4	1	1	2	1
		CSF5	9	5	8	5
Subsidiaries Performance Appraisal, Portfolio Management, Export Development, Subsidiaries Capacity Planning, Common Project Execution, Common-Service Presentation, Dispute Resolution, Crises Management	Internal Process	CSF6	10	9	10	10
		CSF7	4	6	6	4
		CSF8	6	8	4	6
		CSF9	3	10	5	7
		CSF10	11	4	7	8
Innovation in an Holding Company, Standards Adoption	Innovation & Learning	CSF11	8	11	9	11
		CSF12	12	12	12	12

Step 5: Defining the Information Systems Needs (ISNs) and Comparing Them with Current Systems

In step 5, top managers of SG reached a consensus on what systems were required to meet CSFs. Table 9 lists these ISNs, identifies them with their associated CSF, BSC perspective, and strategic process group, and compares them with current systems.

Table 9. ISNs and current systems of SG Company

Process Name	Perspective in BSC	CSF No.	Total Rank	ISNs	Current Systems
Financial Management	Financial	CSF1	3	Liquidity control system	Enterprise financial investment
		CSF2	9	Budget management system	-
Licensing Strategy Negotiation Support	Customer	CSF3	2	Informatics system	Update and active website
		CSF4	1	Contract management system	-
		CSF5	5	Service management & control system	-
Subsidiaries Performance Appraisal, Portfolio Management, Export Development, Subsidiaries Capacity Planning, Common Project Execution, Common-Service Presentation, Dispute Resolution, Crises Management	Internal Process	CSF6	10	Enterprise project management system	Project control system
		CSF7	4	Capacity planning system	-
		CSF8	6	Managers evaluating system	-
		CSF9	7	Environmental investigation system	-
		CSF10	8	Reporting system	Web – based report system
Innovation in an Holding Company, Standards Adoption	Innovation & Learning	CSF11	11	Knowledge management system	-
		CSF12	12	Quality assurance system	Document control system

DISCUSSION

In this research, one process is chosen from each perspective according to the holistic viewpoint of BSC framework. Next, top managers were interviewed to define their CSFs in SG. After ranking the CSFs, top managers identified ISNs required to meet CSFs. The rank of CSFs helps to identify the importance of ISNs. Placing importance on satisfying the ISNs, which are related to the highest ranked CSFs, was one of the most valuable outcomes of the process. The applications related to the ISNs have higher priority than other applications. The strategic processes are enabled by these applications, so they are more related to the business objectives. The application portfolio of SG is shown in Figure 5.

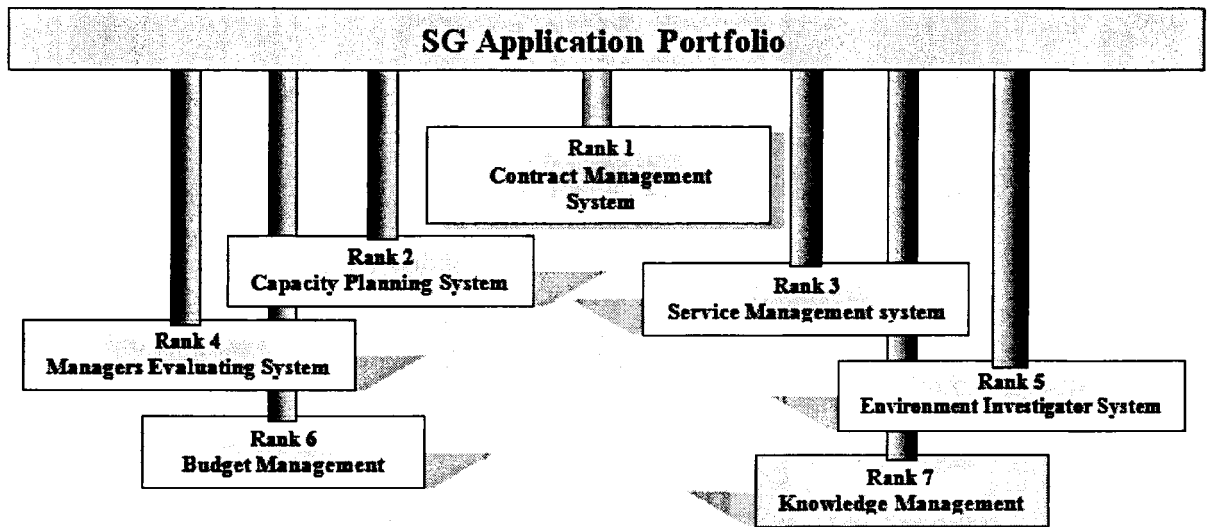


Figure 5. The implementation priority in new SG applications

Based on the Friedman test and BSC framework, SG's strategic HC processes were identified as financial management, licensing strategy, subsidiaries performance appraisal, and innovation in an HC. According to these strategic processes, the CSFs were identified by top managers of this company and ranked by the results of questionnaire #2. In addition, ISNs were identified and compared with the current systems.

Although an informatics system and a liquidity control system have higher ranks than a capacity planning system, considering SG's current systems, the capacity planning system has a top implementation priority. The other top implementation priorities that help the company meet its strategic goals are as follows: contract management system, capacity planning system, service management system, managers' evaluation system, environment investigator system, budget management system and knowledge management system.

The company has an update website, which is very useful in brand promulgation. The other effective systems are an enterprise financial management system, a web-based report system, a project control system and a document control system.

While culture has been shown to moderate the relationship between planning and performance (see Hoffman, 2007), the role of culture is not addressed in this study because it is most likely very limited. Starting in 2003, in response to an Iranian initiative on Information and Communication Technology (ICT) known as TAFKA, many Iranian companies and agencies began to practice information systems strategic planning. Since there was little previous experience with ISSP in Iran, most ISSP projects benchmarked similar projects in developed countries. Some private companies, especially those involved in IT, were more ready to implement ISSP due to their familiarity with the technology and their general acquaintance with new business methods. Also, they were more inclined to benchmark and implement western strategic planning practices. Other reasons for private companies to benchmark western company practices in IT were as follows: (a)

Their management structure was less affected by political change and remained relatively stable; (b) Due to their competitive situation, they were already experienced in benchmarking the practices of developed countries' companies and they were interested in accepted scientific rules of the world. Given the above situation, there was no reason to expect Iranian culture to limit the generalizability of the ISSP process followed by SG.

CONCLUSION

This case presents a version of the ISSP methodology customized to the different nature of HCs. Previous approaches for implementing the ISSP methodology emphasized the Strategic Business Unit in the definition of information systems while in this paper the emphasis was on the Strategic Business Process. Defining information systems on processes for meeting CSFs is the same in both methodologies. The ISSP process presented in this paper had five steps. First, the main processes of managerial HCs were identified based on a literature review. Then, they were customized by SG management. Third, in light of limitations in budget and time, SG defined the processes which were most critical to achieving its objectives. A BSC framework was used as a holistic viewpoint to determine the processes, termed "Strategic Processes," which were most strategic in nature. Next, CSFs aligned with these processes were determined. Lastly, ISNs were identified based on these CSFs. They were also specified to and compared with current SG systems. According to the CSF ranking, the implementation priority of ISNs is clear to SG top managers. This implementation priority list plays a key role for SG in achieving its business objectives. Considering these results, the answer to all three research questions is positive: 1) It is possible to apply the ISSP methodology in a HC; 2) The process described above should be considered in performing an ISSP in a HC environment; and 3) It is possible to implement an ISSP methodology on Strategic Business Processes instead of Strategic Business Units.

This research is based on a single case. It has illustrated only one method of ISSP for a managerial holding company, and there are likely many others. Generalization has to be interpreted cautiously and limitations of the case study should be kept in mind. For further research, it is recommended that this framework be replicated with other companies in other environments. Additionally, to complement and extend this research, further researches can be directed toward applying the BSC framework with CSFs to the conduct of ISSP in investment holding companies.

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APPENDIX 1: QUESTIONNAIRE NO 1.

Please circle the number to indicate the importance of each process. To add the new processes which are related to the SG, you can use number 14 and other columns below it. (The type of strategy is segmentation here)

	Very Important			Not Important	
	1	2	3	4	5
1 Portfolio Management	1	2	3	4	5
2 Licensing Strategy	1	2	3	4	5
3 Negotiation Support	1	2	3	4	5
4 Financial Management	1	2	3	4	5
5 Dispute Resolution	1	2	3	4	5
6 Standards Adoption	1	2	3	4	5
7 Subsidiaries Performance Appraisal	1	2	3	4	5
8 Subsidiaries Capacity Planning	1	2	3	4	5
9 Common-Service Presentation	1	2	3	4	5
10 Common Project Execution	1	2	3	4	5
11 Crisis Management	1	2	3	4	5
12 Export Development	1	2	3	4	5
13 Innovation in a Holding Company	1	2	3	4	5
14	1	2	3	4	5
15	1	2	3	4	5
16	1	2	3	4	5
.	1	2	3	4	5
.	1	2	3	4	5

APPENDIX 2: QUESTIONNAIRE NO 2.

Please determine the importance of CSF, differentiate with other companies and strategic extent with a number between 1 to 5. (5= Much Important- 1= Not Important)

Extent of Being Strategic	Difference with other Companies	Importance of CSF	Key Process Indicator	Critical Success Factors	SG Strategic Processes	BSC Perspective
			Decreasing the time of investment return	Increasing the subsidiaries' profit	Financial Management	Financial
			The amount of actual investment to forecasted investment	Decreasing the grievance of subsidiaries		
			Increasing the brand acceptance among customer	Promulgating the brand of HCs	Licensing Strategy Negotiation Support	Customer
			Increasing the satisfaction of final customer from products and services (%)	Increasing subsidiaries' customer satisfaction		
			Increase the satisfaction of subsidiaries from the services of HCs (%)	Increasing subsidiaries satisfaction		
			The number of projects in proper time and budget	Executing the common projects among subsidiaries successfully	Subsidiaries Performance Appraisal, Portfolio Management, Export Development, Subsidiaries Capacity Planning, Common Project Execution, Common-Service Presentation, Dispute Resolution, Crises Management	Internal Process
			Calculation of vacant capacity	Increasing the capacity of subsidiaries		
			The number of training course for managers	Increasing the subsidiaries managers' knowledge		
			The number of new products and services	Increasing the agile ness in responding to the market		
			The number of remained crises to solved crises	Decreasing the crises in subsidiaries		
			The number of changed business processes	Improving business processes through subsidiaries' suggestion	Innovation in an Holding Company, Standards Adoption	Learning and Innovation
			The number of quality certificates	Increasing the quality of business processes in HCs		