

Data Information System Strategies in Business Intelligence

¹Karthikeyan K

¹Department of Computer Science and Engineering, SNS College of Engineering, Tamil Nadu, India.

¹sns.cse.karthik@gmail.com

ArticleInfo

International Journal of Advanced Information and Communication Technology

(https://www.ijaict.com/journals/ijaict/ijaict_home.html)

<https://doi.org/10.46532/ijaict-2020037>

Received 12 June 2020; Revised form 30 July 2020; Accepted 20 October 2020; Available online 05 December 2020.

©2020 The Authors. Published by IJAICT India Publications.

This is an open access article under the CC BY-NC-ND license. (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

Abstract - The application of Information Systems (IS) in business necessitates critical comprehension of the business, management activities and the initiatives that structure various business systems. Various IS can be presented as management and business remedies to issues affecting the enterprise and influenced by the ecosystem. The initiatives in IS have significantly influenced how business is run in the modern competitive age. The advent and development of technology have allowed opportunities to be availed to people to prepare the business for challenges in this competitive environment. To effectively manage IS-centred frameworks, it is fundamental to implement effective approaches, which define framework, including the ways of managing them. Strategic data system alignment provides a fundamental approach to maintain and develop IS frameworks, which support operations in business. IS alignment plans and organizational plans are fundamental for enhanced Business Performance (BP). This research paper reviews the critical elements of strategic data system alignment in the transforming organizational conditions in developed countries.

Keyword - Strategic Data System Alignment; Information Systems Alignment Information Systems (IS); Business Performance (BP).

1. Introduction

Information Systems (IS) is presently considered as information skillset, which business individuals should possess. IS are fundamental since they allow businesses to prosper and survive, including helping them to expand their service reach, providing new products and services. IS represents a critical technology and when not properly lined and controlled with the enterprise strategies, it will potentially diminish the company's capacity to succeed in the competitive world. Strategically including IS in the business incorporates shifting IS experts inside the organizational units, facilitating activities, which are connected to the business, creating business events, and recruiting professionals with considerable educational qualifications into critical IS analytics jobs. Doing this implies the advent of non-IS experts into performing IS roles and necessitating organizational managers to effectively supervise the events hence introducing IS and IT and creating awareness of the IS project events. To incorporate this into the smoothly-operational business framework and to enhance productivity, business analysts have to align IS with the required business strategies. The

main purpose of Strategic Data System Alignment is to aid in the process of implementing data systems meant to be integrated with the required business strategies.

The integration of Strategic Data System Alignment allows the transformation of data into a usable manner for coordinating the business workflow in the company, which also incorporates enhancing the process of making proper decisions and mitigating organizational problems. IS-centred application can formulate means of attaining competitive advantage based on generic approaches of cost leadership, market focus and product differentiation. Business analysts are not expected to ignore IS because they are vital for the contemporary organizations. Data systems affect the manner in which business analysts manage, plan and decide how workers are shaped and the kind of products to be produced, include how, when or where these products are produced. In contemporary frameworks, there is an advanced dependence between business strategies, procedures, rules and business IS. The kind of alignment between organizational processes, and the supportive software frameworks is presently the main centre of research. It was emphasized for the first time five decades ago and from that moment; different researches have been done focussing on the alignment concerns. Over the past few years, different scholastic references have focussed on the problem that has been proposed by companies, practitioners and researchers. However, most of these researches are still at their earliest stages [1].

The showcased through case analyses, empirical researches and surveys that IS and Business Performance (BP) are related, and businesses cannot be termed competitive when IS strategies and business approached are not linked. The researchers propose assumptions that are viewed from different levels, which are from strategic ones to functional ones. Certainly, the strategic alignment of IS prevails whenever processes, activities and goals of BP are connected with the data systems, which are in support of them. Contrary to that, the functional level of the alignment evaluation between the prevailing business procedures and the software frameworks is fundamental for the process of conducting the optimization of the software. In research, various terminologies are utilized to signify the concept of alignment [2]. This is referred to as

'fit' or 'bridge', which are also known as linking, harmonizing, integrating and fusing in other terms. To concentrate in other researches concerning the alignment of data, it is fundamental to keep in mind what has presently been addressed in the sophisticated art with detailed investigation of the past research addressing the gaps in research. In that case, this research projects a literature analysis focussing on comprehending the various forms of researches done on this issues; the essential issues covered by the projected alignment techniques, including their effective application at an operational context. The projected analysis implied a critical analysis of research that considers the various alignment themes. This evaluation focussed on identifying differences and commonalities among the projected approaches. The analysis first concentrated on the various journals on the alignment theme.

Even though business analysts proceed to present their concerns for IS business value, illustrated as IS contribution to BP, IS alignment or strategic alignment with business strategies, Strategic Data System Alignment has been viewed as a prevailing concern facing business analysts in the modern competitive world. Even though IS strategic alignment and business value are aspects treated separately, researchers have connected both issues by focussing that company's incapacity to realize effective value from IS investment is as a result of the absence of Strategic Data System Alignment. In case payoffs from the investment on IS has been considered functional alignment, then the attempts to evaluate or influence IS organizational value has to reflect on the dimension to which organizational strategies or IS are structured. Similarly, in case the business focussed on repositioning or transforming its strategic alignment, a number of considerations have to be provided to the subsequent transformation of the payoffs the company accepts from the major IS investment.

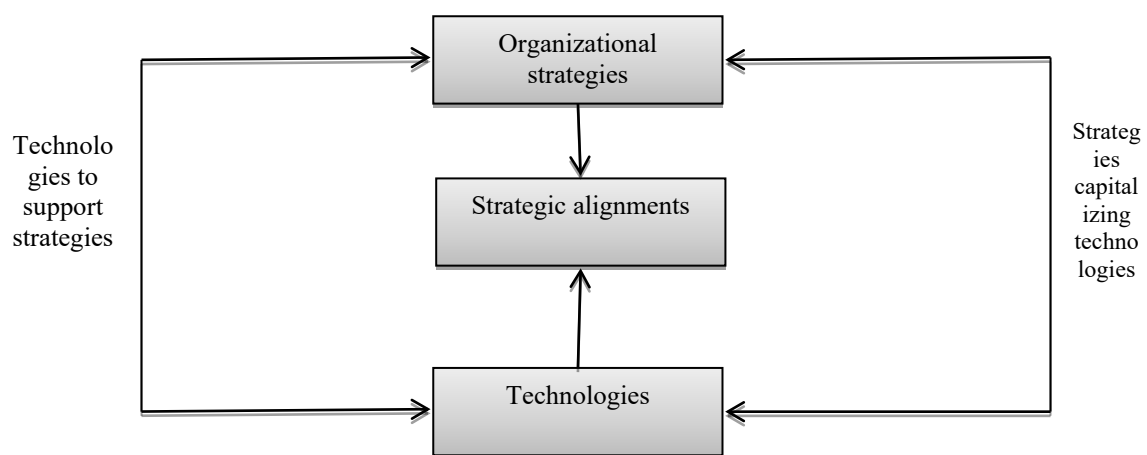
Empirical IS sources have not yet evaluated the effects of strategic alignments for IS business value. To focus on

the issues, this paper has introduced the conceptual framework including the management practices (signifying the determinants of the Strategic Data System Alignment). Through the process of undertaking the strategic alignment in this manner, we purpose to evaluate how business executives can utilize management practices based on the concept of the strategic alignment to effectively delivery enhanced levels of IS business values and BP. We evaluate the manner in which this framework can be assessed based on the application of the procedure-oriented view on strategic alignment on the processes in the business value chain. Lastly, based on the application of dynamic capacities, and the resource-centred perspective of the business, we issue insights on how strategic alignment can be assessed. To achieve the formal presentation of the research rational, this paper has been organized as follows: Section II provides an analysis of the strategic data system alignment; Section III evaluates IS and its organizational alignment. In Section IV, an evaluation of the alignment and business structure is provided. Finally, Section V concludes the paper and provides future direction of the research.

2. Analysis Of The Strategic Data System Alignment

Strategic Alignment Definition

Strategic alignment is visualized under two critical headings, strategy shortfall, and technological shortfall. As indicated in Fig 1 below, technological shortfalls arise whenever the company's IS capacities diminish to provide enough support for its organizational strategies. As such, the company is evaluated based on IS capacities. On the other hand, the strategic shortfalls arise whenever the company's organizational strategy fall to consider its present IS capacity. For example, business opportunities are present in the ecosystem where technological support is present, yet a number of reasons the organizational strategy has neglected to consider these prevailing merits.



IS demerits + Strategic shortfalls = Mis-alignment

Fig 1: Exploration of the strategic alignment strategies

In reference to Fig 1, we can conclude that strategic alignment provides the extent to which IS strategic support is based on business approaches. The explanation serves to concentrate our analysis on the kinds of activities meant to implement business strategies and IS. This allows for dynamic evaluation of strategic alignment than when we were typically concentrating on strategic planning activities and strategic objectives, as evident in the past literature sources [3].

Conceptual Framework of Strategic Alignment

Based on the past literature content on strategic choices, the alignment content represents a connection of consistent choices and over four critical domains including the business strategies, IS strategies, business infrastructure, procedures and IS processes. Whereas this provides an explanation of what alignment is, it is not effectively

considered a strategic alignment framework, which is a continuous procedure, not does it consider the management activities utilized in shifting organization over to strategic alignment. Management procedures in business are considered as an alignment approach, which handle the management issues of communicating the strategic choices being made into the operational practices and administrative decision-making process. Actually, these alignment approaches represent the kinds of tools, which allow IS and the business to manage and effectively oversee the processes and contents of data alignment [4]. The samples to this incorporate engaging the business practitioners in the planning process of IS, enhancing the promotion of dialogue between business executives and IS, or formulating shared IS mission and mutual identification of IS and business mission.



Fig 2: Conceptual framework of strategic alignment

Based on the discussion presented above, we have established a conceptual framework including various determinants: the IS organizational values and management practices based on the strategic alignment aspects as shown in Fig 2. In the upcoming section, we discuss how the process-level view can be applied to assess the framework practically. Different literature sources have addressed the potential advantage of adopting the process-centred view on IS organizational values. It is evident that the first order implications of IT investment has to be evaluated at minimal operating process dimension in the company since this is normally the level at which initiatives are implemented. This can effectively support the argument that companies derive business value from IS investment, which also considers the evaluations of the implications on the intermediate organizational processes

[5]. The intermediate procedures incorporate the wide-range operational and managerial processes, which includes the company's value chain. In case we focus on adopting process-centred measures of IS organizational value, we have to consider the adoption of process-level measures vital for strategic alignment. There are some advantages connected with the process-level measures of strategic alignment.

Firstly, the process-level measures are considerably capable of yielding significant insights into the places where the business has been misaligned hence aiding in the isolation of bottleneck value within the business. In case the strategic alignment was evaluated at firm level, business executive and IS might actually tell that the company has not been aligned properly even if they might not have enough data to eliminate the misalignment sources. Secondly, the data analysts have presented the

evident challenges to evaluate the strategy at the company level due to its multi-faceted condition. In case we adopted the process-level view, we might represent the strategies as a connection of routines or activities in every business procedure. Explaining the strategies in this manner as connection of intersecting events is fitting to the explanation of the procedures as a sequence that is ordered to the designed business activities [6]. This implies that we eliminate forcing the fit strategies into a single established generic strategic form. Evaluating IS and organizational strategy at the procedure-level permits us to consider closely the critical events within the procedural configurations and to evaluate the extent to which IT supports the activities. Consequent to that, there are considerable supports for the adoption of the procedure level view on strategic alignment aspect.

In the modern age of business, have the knowledge of IS has been viewed as significant since many companies require these systems to prosper and survive. IS has now become a fundamental segment of the various forms of businesses since data systems provide a chance for companies to incorporate business strategies. A strategic plan is not considered the same as the operational plan. A strategic plan has to be directional, conceptual and visionary, which is different from the operational plan that is measurable, implementable, focused and tactical. For example, compare the planning process for a typical vacation (how to travel, strategic travel issues, who accompanies, budget, duration, when and where) with the last preparations (transport, packing, weather, funding, deadlines, tasks and the operational aspects) [7]. An overhaul of the entire process of planning is required and it is insufficient for companies to be subjected to unplanned continuous transformation. Contrary to that, rational or formal routines are fundamental under these conditions. IS planning has not become fundamental as a business concept to effectively leverage IS application to enhance effectiveness, re-engineering organizational procedures, gaining competitive advantage, or competing effectively. It was vital to know that the same approaches are not utilized for the development of the business plans. Actually, there are not real theories or models meant to structure a typical IS plan; however, there are IT stuff trained to identify the novel technologies alongside the business requirements and needs. From the viewpoint of business, IS represents a management and business remedy to mitigate the problems brought about by the ecosystem.

To completely comprehend the widely aspect of the business, management and IS dimensions, it is fundamental to evaluate the remedies to the problems and challenges in business ecosystem. The management has to identify the kind of evaluation approach that is in place for these alignments to be feasible. IS approaches can be considered as approaches meant to implement data systems, which identifies business requirement and systems meant to support the general business strategies

and they plan to maintain or achieve competitive advantage. An IS approach has to incorporate business requirements for the upcoming alignment, which has to be next to the business strategy. It has to prioritise and define the investments required to attain the application portfolio. Strategic Data System Alignment has been identified as a procedure of identifying the requirements of IS of the business at its highest level. Strategic Data System Alignment planning is considered as the procedure of identifying the portfolio of computer-assisted applications, which will aid the business in executing its organizational plans and realizing its organizational goals [8]. Strategic Data System Alignment presents a comprehension of data required to realize organizational objectives and enhance the implementation of data systems. Before establishing IS frameworks, IS experts have to set IS frameworks of planning to induce the various elements required to create IS approaches, which will be coherent and work with the alignment of the corporate approaches. At the first stages of the framework setting, detailed plan of the work has to be structured. The typical model of IS includes:

- Stage 1: The initial aim, scope, and process of the IS approach
- Stage 2: The IS planners have to connect to the various directions via in-depth analysis of the purpose of the data needs, organizational requirements and the business processes.
- Stage 3: The IS planners can properly envisage IS plans, which are considered useful for the business. This stage allows the considerations and pre-requisites to investigate instead of overlooking the IS planner for creating IS approaches that can be implemented in the business.
- Stage 4: IS planning model permits the IS planner to evaluate well-structured IS strategic plans that can explore and examine the features, which are critical for the business. This leads the planners to create IS strategies, which are known to follow the right channel.

3. IS and Organizational Alignment

The alignment of IS to the business strategic goals has been seen as a major concern for business analysts over the past few years. alignment is explained as the capability to showcase positive connections between data systems and the acknowledged fiscal measures of BP. One of the widely utilized alignment models is the Strategic Data System Alignment [9]. This is considered as a multi-dimensional framework, as shown in Fig 3, to identify the external and internal dimensions and how the model integrates functionally with business strategies.

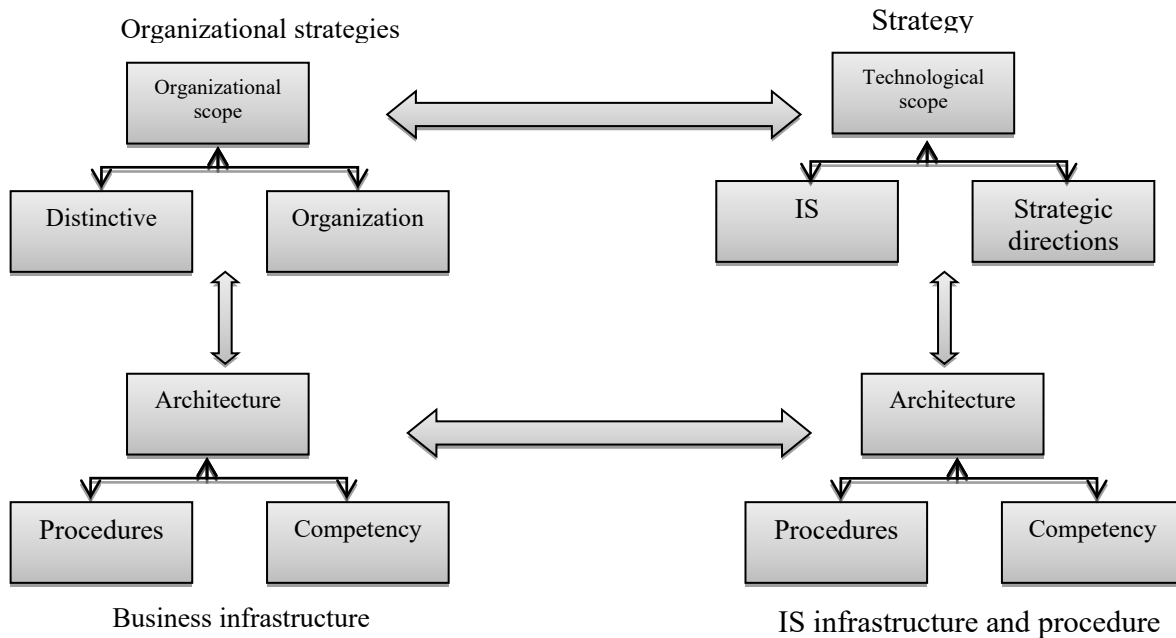


Fig 3: Multi-dimensional framework

Fundamentally, the majority of the frameworks of alignment are centred on the business structures and their fundamental objectives. This framework places more alignment at the basis of the business need. Numerous of these frameworks reveal the effects of the company's objectives on the alignment as this form of model concentrates on the linkage between technology and strategy. To structure an attainable dimension of alignment within the business, the IS purpose has to be identified with the business structure [10]. Direct advantage of the business strategic alignment represents a perception of

high business value of IS. Alignment produced by tactically positioned IS enhances the stature of IS within the business. Researchers argued that an effective application of this framework result in business capability to leverage IS resources on normal basis to support competitive advantage in the organizational marketplace. They show the requirement for a transition in IS orientation from inner focus to the one, which fits strategically in external IS domain ecosystem. Fig 4 indicates the interdependence between strategy and technology and how this affected by business culture.

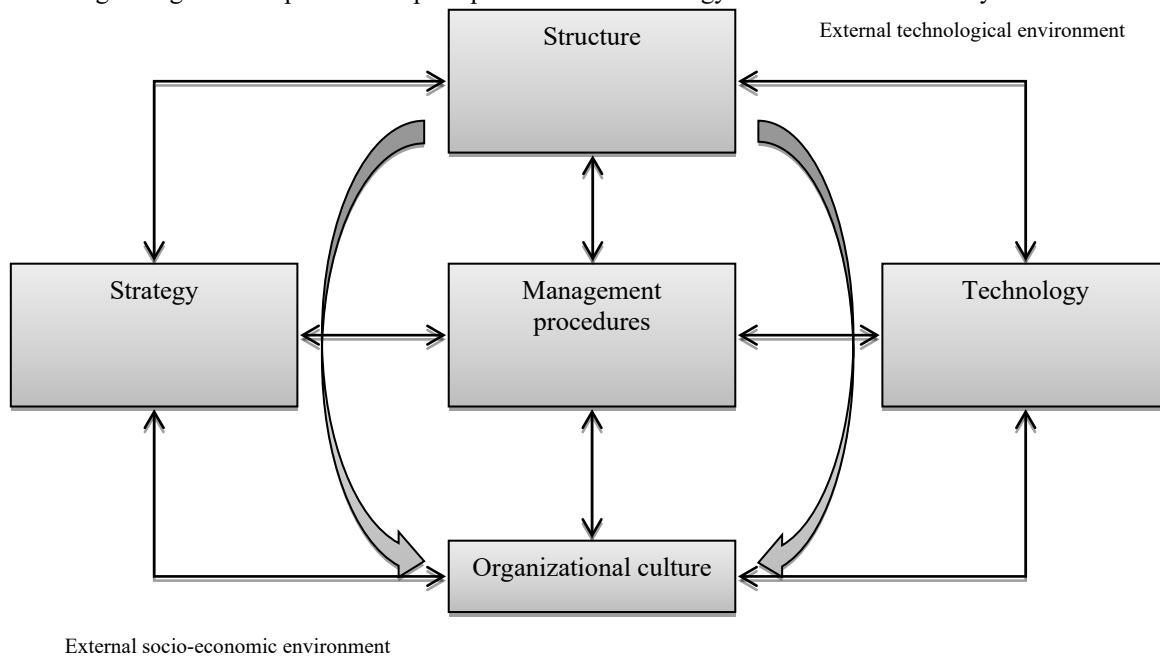


Fig 4: Five forces affect the business aims

The framework indicates the connections might affect by external and internal socio-economic and technology ecosystem. This implies that the business might be highly vibrant and alignment might require being re-evaluated, adjusted and monitored.

4. Alignment And Business Structure

Business practitioners have to foresee to attain to effective alignment between the business and IS for smooth operation of the business. Numerous business structure IS and data flow in a manner to be centralized therefore amounting to the control of data that might stimulate enough power structure in the organization. While, IS can give encouragement how businesses are structured, it can centralize decision-making at a particular level as it enhances the capability to process data. Transformations in procedures, rules, and strategy progressively necessitate transitions in telecommunications, databases, software and hardware [11]. The connection between the business and IS amounts from the advancing scope of the framework applications and projects. Technology is a fundamental alignment aspect of IS with organization strategy. This is dependent on the forms of IS infrastructure utilized as a resource to aid in granting organizational objectives. In alignment infrastructures with organizational strategies, it is difficult when transforming organizational strategies and IS infrastructure. For IS and business strategies to be aligned, it is fundamental to define organizational objectives and IS goals and analyse the structuring of objectives. It is fundamental for effective alignment, which IS experts be incorporated during business planning and experts to be incorporated during IS planning.

At the earlier stages of any data systems project, the development has to reveal its connection to organizational plans and the manner in which this is lined up corporate aims. The IS project plans have constantly be analysed to allow the alignment to acclimatize with the transforming organizational ecosystem. At the planning stage of the IS project, it has to be aligned with organizational aims. It is also fundamental to contrivance performance targets and measures, and assesses BP after and before implementation. The alignment of IS with organizational strategy might necessitate the business to transform different elements of the organization business cultures, structures, and operation [12]. The attainment of such successes for alignment will depend on the successes of the business capability to effectively manage this alteration. The level of transformation to align and improve business with IS strategy will be dependent on the organizational situation, and the dimension to which alignment is presented. The alignment of IS plan and organizational plan creates information resources supporting the organizational objectives and assuming the opportunities that arise from the utility of IS. IS plan alignment with organizational plan represents direct connection in IS plan to organizational plan mission, strategies and objectives. Businesses undergo six critical phases of IS development [13]. Every stage includes four active procedures-application assortment, users' awareness, IT resources and business management plan. The development rate is contrasted with the business expenditure.

5. Research Results

This research applies triangle methodology fundamental of the study done on many companies. The information sets incorporated the queries to the IS and organizational managers of SMEs and their perspectives are contrasted with existing literatures and the present organizational documents for providing consistency to research questions. The queries were transferred to the respective IS and business managers of SMEs and the other sets of information were gathered from the company's websites, and yearly reports. The information gathered from the industries is being contrasted to the research results. The significance of this research is that the perspectives are completely based on SMEs.

Although SMEs cannot signify all the intercontinental industries, thus, it would be considered improper to contrast the findings between the industrial sectors and SMEs. On the planning perspective, consider the projects from the aspect of the users' preference, assess their needs, gather essential data, design systems and select tools for testing and implementation. Past researches identify some similar findings about management, which are essential for implementation and planning of IS. IS executives do the implementation and planning of IS and executives in business who undertake the executive committee gave them the business opportunities and directions [14].

From the questionnaire, one executive replies that his obligation was to plan for the business consumers for IS application and infrastructure, since IS advisors are for the best solutions and best practices. IS facilitates in leveraging data towards BP and success. The preparation of strategic plans is meant for multiple-step processes covering programs, goals, strategies, values, objectives, mission, and vision. The first phase is to structure realistic vision for the organization. The strategic level framework aids the management to address and handle strategic problems and the long-term trends in the business and in the external ecosystem. Principle concern matches the business capacity to transform, embracing opportunities and goals happening in medium to long-term (duration of more than five years) in external ecosystem. There are some processes, which are the same in all businesses with a number of them being company-specific.

When issuing a solution, the industries have to identify the critical business procedures affecting the functionality of organizational functions. One of the business executives reply this manner, "planning is dependent on the client necessities and centred on the client' business and most planning is done to minimize risks." Here, SMEs signified their care for client satisfaction as the basis to the organizational strategies. The industries feel the impact of IS implementation since some focus on finding the best remedies for the customers to fit his requirements and needs, for the present IS vendors, if not to focus on the development of products that follow the needs of clients. Planning is dependent on the client needs and centred on client business as most clients are searching for IS as a return on investment. In that case, our purpose is to utilize IS to meet the needs of clients, cost reduction and business continuity. Planning is centred on the right levels of the present solutions and how to secure business and

minimizing organizational risks. A number of the effects assist and optimize companies to accomplish organizational goals. The industries enhance their efficiency and competence by implementing the structured strategies. Nonetheless, a number of these effects are not considered beneficial. Change management represents the procedure of aiding organizations and individuals shifting from their old ways of handling business and the means of responding them [15]. In that case, a novel framework is more compared to typical software and hardware, which is also based on business consideration and people. Significant novel frameworks necessitate cultural transition in the business. With efficient training and communication, the effect of this transition can be controlled. Failure can also be mitigated through the management of transitions. Issues that happen when implementing novel IS can be tracked to deficiencies in the processes of development.

6. Conclusion and Future Directions

IS alignment in business is still a prevailing concern for managers. The literature sources utilized in this research have evaluated the context of this issue, proposing and exploiting potential remedies to it. The recurrent themes, which have been evaluated in research as prescriptive management measures to enhance the aspect of IS-business alignment include the elevations of IS functions to strategic levels in the business, complete incorporation of IS strategic planning with organizational strategic plans, and more direct support for organizational vision in strategic IS technologies. A critical consideration of the research in the modern day and the prevailing recognition in practitioner researches of alignment issues in business show that much effort has been done regarding the theme. The results and findings have shown features to the IS process and organizational planning. In reference to the answers provided in the research result section, it has been identified that there are similarities in the planning patterns between corporations. All the replies indicate the fundamental concern about customer satisfaction. Corporations evaluate their approaches by focussing on customer satisfaction as a critical business objective. This indicates how planning is termed as a critical input from customer satisfaction. Organizational executive comprehend the relevance of IS frameworks. The general benefits, which organizations might achieve are enhanced business procedures, enhanced effectiveness of organizational processes, and enhanced customer satisfaction. Nonetheless, to comprehend the merits, the business procedures have to undergo some transformations, which means that future research has to concentrate on the adjustment of the effects of these processes of implementation. IS frameworks are presently utilized to automate business procedures and SMEs are utilizing the frameworks to enhance the effectiveness and efficiency of the business activities.

References

- [1]. A. Issa-Salwe, M. Ahmed, K. Aloufi and M. Kabir, "Strategic Information Systems Alignment: Alignment of IS/IT with Business Strategy", *Journal of Information Processing Systems*, vol. 6, no. 1, pp. 121-128, 2010. Doi: 10.3745/jips.2010.6.1.121.

- [2]. J. Gartlan and G. Shanks, "The Alignment of Business and Information Technology Strategy in Australia", *Australasian Journal of Information Systems*, vol. 14, no. 2, 2007. Doi: 10.3127/ajis.v14i2.184.
- [3]. J. Lee, "Outsourcing Alignment with Business Strategy and Firm Performance", *Communications of the Association for Information Systems*, vol. 17, 2006. Doi: 10.17705/1cais.01749.
- [4]. M. Broadbent and P. Weill, "Improving business and information strategy alignment: Learning from the banking industry", *IBM Systems Journal*, vol. 32, no. 1, pp. 162-179, 1993. Doi: 10.1147/sj.321.0162.
- [5]. P. Powell, "Causality in the alignment of information technology and business strategy", *The Journal of Strategic Information Systems*, vol. 2, no. 4, pp. 320-334, 1993. Doi: 10.1016/0963-8687(93)90009-y.
- [6]. P. Tallon, "A Process-Oriented Perspective on the Alignment of Information Technology and Business Strategy", *Journal of Management Information Systems*, vol. 24, no. 3, pp. 227-268, 2007. Doi: 10.2753/mis0742-1222240308.
- [7]. F. Jie and I. Puspitasari, "Making the Information Technology (IT) Business Alignment Works: A Framework of IT-based Competitive Strategy", *International Journal of Business Information Systems*, vol. 34, no. 1, p. 1, 2020. Doi: 10.1504/ijbis.2020.10015159.
- [8]. A. Gonçalves, M. Bruno, E. Polo and H. Correa, "The Strategy Of Outsourcing Information Systems And The Alignment Between Business Strategy And It", *Gestão & Regionalidade*, vol. 26, no. 77, 2010. Doi: 10.13037/gr.vol26n77.189.
- [9]. M. Furukawa, S. Hirobayashi and T. Misawa, "A Study on the "Flexibility" of Information Systems (Part 3): MIS Flexibility Planning Scheme for IT/Business Strategy Alignment", *International Journal of Business and Management*, vol. 9, no. 6, 2014. Doi: 10.5539/ijbm.v9n6p88.
- [10]. S. Mitropoulos, "A simulation-based approach for IT and business strategy alignment and evaluation", *International Journal of Business Information Systems*, vol. 10, no. 4, p. 369, 2012. Doi: 10.1504/ijbis.2012.048334.
- [11]. R. Khadem, "Alignment and follow-up: steps to strategy execution", *Journal of Business Strategy*, vol. 29, no. 6, pp. 29-35, 2008. Doi: 10.1108/02756660810917219.
- [12]. A. Singh and D. Singh, "The Study of Alignment of Business and Information Technology Strategy in Indian Banking Sector", *Paripex - Indian Journal Of Research*, vol. 2, no. 1, pp. 84-88, 2012. Doi: 10.15373/22501991/jan2013/32.
- [13]. J. Luftman, "Assessing It/Business Alignment", *Information Systems Management*, vol. 20, no. 4, pp. 9-15, 2003. Doi: 10.1201/1078/43647.20.4.20030901/77287.2.
- [14]. H. Liang, N. Wang, Y. Xue and S. Ge, "Unraveling the Alignment Paradox: How Does Business—IT Alignment Shape Organizational Agility?", *Information Systems Research*, vol. 28, no. 4, pp. 863-879, 2017. Doi: 10.1287/isre.2017.0711.
- [15]. M. Queiroz, P. Tallon, T. Coltman, R. Sharma and P. Reynolds, "Aligning the IT portfolio with business strategy: Evidence for complementarity of corporate and business unit alignment", *The Journal of Strategic Information Systems*, vol. 29, no. 3, p. 101623, 2020. Doi: 10.1016/j.jsis.2020.101623.