ISSN 2201-2796

Aligning IT/IS goals with business objectives; facilitating knowledge discovery for enhancing organizational performance: A review study

[1]Wilkister Atieno Dinda
Department of Information Technology, Mount Kenya University
wdinda@gmail.com

[2]Njeru Mwiti Kevin
Department of Information Technology, Zetech University, Nairobi, Kenya
njerukevin@gmail.com

[3]David Kibaara
kibaaragichuiri@gmail.com

[4]Alexander Muriithi Njoroge
Dedan Kimathi University, Nyeri, Kenya

[5]Kevin Murithi Njagi
Department of Information Technology, Mount Kenya University
knjagi@gmail.com

Abstract: **Information Systems (IS) are becoming increasingly important for business and industry to improve their competitiveness in an ever dynamic market. This paper analyzes the strategic management approaches and the strategic significance of Information systems in information driven business economies. The various strategic IS concepts are identified and the importance of aligning IS and Information Technology (IT) goals and business goals is highlighted. Considering the growing interest and the vital role of Information Systems in improving the competitive position of firms, this paper reviews both academic and practitioner research in this area to provide insights in aligning IS and corporate objectives. It concludes that based on the strategic importance of IS, there is need to develop a framework that leverages IS/IT strategies with business objectives.**

Index Terms: **Strategy; corporate objectives; integration; Alignment; business**

I. Introduction

For virtually every business operation today, information systems (IS) are an essential and indispensable component [1]. The complexities of IT and the fact that it permeates almost every level of the business leaves the organizations more vulnerable than ever to the inherent risks of remote access and the vast amounts of information processed and held by the IS. With this, events that impact IT, which previously could be contained within the IT department, can now easily affect the entire business. The risk of data loss, corruption of data and information and the fact that the scope of the business now extends beyond the physical demarcation of firms and organizations leaves these organizations more vulnerable to fraud and economic sabotage than ever before. These risks, if not well managed could prevent an organization from achieving its corporate goals and objectives.

An Information System is a reflection of the organization. The data it holds and processes reflects the physical activities taking place in the organization and the information that Information Systems produce is meant to support the core functions of the organization. Because of this, it is important that when developing Information Systems in an organization, the goals of the IS and the corporate goals\objectives are aligned [2]. This ensures that the business information systems (BIS) developed within the organization are able to support the business in achieving its long term goals. It ensures that the Information Communication Technology (ICT) adopted by the organization serves well its core business / organizational objectives.

The goal of developing a strategy is to develop a sustainable competitive advantage [3]. [4] argues that despite efforts to align business strategy with IS strategy, alignment has proved difficult to achieve and the existence of integrated IS plans do not always ensure alignment. This means that there is need to find out link between what systems the organization adopts and how they relate to its long term goals. Competitive advantage is defined by [5] as a business concept that identifies and describes attributes that would enable a firm outperform its competitors. There are generally two forms of competition, Operating effectiveness (production) or Competitive position (marketing). Competitive advantage can be achieved by various ways including niche markets; product differentiation; adopting alternative distribution channels; alternative manufacturing processes; employing selective pricing and employing fundamentally different cost structures [6].

In developing and implementing IT and its related Information systems therefore, it becomes essential to consider and integrate the corporate goals and IS goals. This enables proper usage of IS without compromising the competitive position of the firm. Apart from the risks that come with the use of IS to a business, alignment of IS goals and corporate goals enables an organization to effectively use IS to achieve its corporate goals. There is an obvious IT capability gap in terms of responding in a timely manner with the correct new or modified IT service in support of changes in business requirements; therefore, the business is at risk of failing to achieve its strategic goals [2].

II. Review of related literature

Corporate strategy versus IS strategy

A corporate strategy is the starting point for corporate behaviour. It expresses an organization's ambitions, sets out its chosen direction and describes the principal initiatives and projects necessary to achieve its mission. Business schools, management gurus and strategy boutiques regularly develop new approaches and methodologies for strategy formulation and all acknowledge its overwhelming importance in setting the tone for the organization and its prospects for success [2]. Despite the recognition of this significance, aligning an organization to its strategy remains one of the most elusive and unsatisfactory areas of management endeavour.

IS strategy must be considered at the highest levels of corporate strategies just like any other strategies such as corporate strategy, competitive strategy and functional level strategy [7]. Scholars of management research have given remarkable amount of attention to IS strategies and competitive advantage, however, the strategic aspects of aligning IS and corporate objectives have hardly been analyzed by the IS community [8]. This assertion is supported in another research by [9] who argues that the potential of innovative information systems to support the achievement of corporate targets can only unfold if the IS strategy is aligned with the corporate strategy of the firm. However, this topic has hardly been investigated by the IS research community and the lack of a conceptual framework that leverages IS implementation and a firms competitiveness [10]. More efforts need to be directed towards aligning Business and IS strategies in order for organizations to achieve the twin goals. To achieve corporate objectives, corporations need to integrate IS as part of their corporate strategy. To achieve a competitive advantage, business and industry need to incorporate IT in their core business function. However, as much as their arguments are right, the researchers stress that over focusing on large corporations while ignoring the contribution that IT can bring in small and medium businesses negates the economic gains that could otherwise have been achieved in an economy [11].

Prior research has identified different streams of IS research which are related to IS strategy, such as research on Strategic Information Systems Planning, IS alignment, and IS-based creation of competitive advantage. However, business executives are struggling to identify sustainability based sources of competitive advantage and to integrate environmental aspects into their corporate strategy. This means that for an organization to gain a competitive edge over its competitors, a clear analysis of all its business activities and processes and the development of an inherent strategy on the application and role of IS/IT is essential. In the field of computing and information systems, this entails an examination of not just the information systems in use but also an examination of the business processes and activities in order to identify areas in which IS/IT can be used as a reengineering tool to improve the performance of the business as well as enhance business savings through reduction of operational costs. These savings can then be transferred to customers through low cost products which is a vital competitive strategy.

Information Systems Planning

Information Technology Planning is a discipline within the Information Technology domain that is concerned with making the planning process for information technology investments and decision-making a quicker, more flexible, and more thoroughly aligned process. According to Architecture & Governance Magazine [12], (Strategic) IT planning has become an overarching discipline within the Strategic Planning domain in which enterprise architecture is now one of several capabilities. The article notes that IS planning involves four major issues; Aligning the IS strategy; Designing IT architecture; Allocation of IS resources; Completion on time and within budget. Several approaches have been used to integrate business strategy and information systems (IT) strategy. Most of these approaches are planning oriented [4] and assume structured environments under full control [2]. These approaches contrast with the real environment organizations face where uncertainty, flexibility and changeability prevail. Even if some organizations do not have a formal planning process, they still need to be able to develop their business direction [7]. This direction should be clear enough to allow organizations to focus on those IS projects that add business value.

[6] Proposes the following strategic process;

Industry and competitive analysis → Strategy formulation → Implementation plan → Strategy reassessment

This five stage process identifies the four key stages that every strategy formulation process should go through from conceptualization to implementation and reassessment. the industry and competitive analysis phase ensures that the organization is able to analyze the environment in which it operates and provide options for growth based on the projections and analysis of current environment, practitioner views, government reports and analysts reports. This is essential because a strategy is a roadmap for success that tries to determine how you compete in the market and focuses the efforts of the entire company in one direction. The role of strategy reassessment is to ensure that the overall strategy is achievable and to revise sections that the organization deems inadequate. This is also essential as technology grows obsolete fast hence there is a need to ensure that the organization relooks its strategy in relation to the new technologies in the market.

Planning for IT investments is critical to the delivery of quality IT services in the organization and the provision of quality information that is critical for accurate decision taking within the organization [13]. Considering that Information Systems are a critical tool for intelligence gathering, then proper planning on Information Systems investments is essential not just for success of IS investments but also for the success of the entire organization in general. IS can also be used as a planning tool, through proper use of IS for intelligence gathering; Business Intelligence (BI); Competitive Intelligence (CI); Market Intelligence and many others, then the success of any digital firm is hinged more on proper employment of IS to enhance the market position of the firm. In this case, the role of data mining and artificial intelligence can be exploited to illuminate the dark data in the organization hence ensuring maximum benefits of the firm from the data it holds.

Importance of a strategy

The major purpose of a strategy is alignment [2]. Strategy gets the people in an organization together, to make good choices reinforcing each other’s choices because everybody is pursuing the same goals with an aim of achieving a competitive advantage. Strategy ensures that decisions all along the chain of command from senior management to operational level managers (supervisors) and to the rest of the team are geared to delivering strategic objectives [7]. [14]Proposes three generic strategies which if well implemented can allow a firm not just remain in competition but also gain a competitive advantage. These strategies include focus on a particular niche, cost leadership and differentiation. Focus on a particular niche/market strategy is built around serving a particular target market very well. This may include focusing on a particular buyer group, segment of the product line, or geographic market [15]. The idea behind this is that a firm is able to serve its narrow strategic target more effectively or efficiently than competitors who are competing more broadly. Through the effective implementation of this strategy, a firm can achieve differentiation by better meeting the market needs or lower costs through specialization or both [6].

Differentiation is about creating your products to be unique. However, there are always two approaches to differentiation; for market leaders, their drive is to retain their dominant position in the market hence their aim is to try as much as possible and differentiate their products from those of their competitors [6]. This enables their customers to differentiate their products from those of their competitors as easily as possible. For businesses that trail the competition in the market, their application of differentiation is meant to make their products’ as similar as possible to those of the dominant companies. The main idea is to ensure that customers don’t differentiate the products in the market hence gaining from this [3].

The cost leadership strategy ensures that the business offers the lowest prices in the market. Through this, the company is able to control the market and gain a competitive edge over others. However, differentiation can provide insulation against competitors because of brand loyalty by customers and a resulting lower sensitivity to price. Cost leadership can be achieved through cost control within the organization.

Of importance in this is to identify how IT can be applied to achieve each of these strategies. For example, IT can be used to identify and eliminate areas of waste by providing alternatives. The use of E-commerce for example opens new channels for sale by the identification of new market segments; it also eliminates the middlemen who are a critical component that adds costs through value chain [2]. These products thus can be delivered to customers at a lower cost. Use of Information Systems also encourages customer pull as opposed to manufacturer push supply chain management which reduces the inventories. Thus, aligning IS strategy and corporate objectives is important because it identifies and defines these key areas and defines a path of how the business can be able gain a competitive advantage [13]. The main objective of strategic management therefore is to identify how competitive advantage can be created and sustained. Strategies determine the firm’s market position and identify necessary key resources being required to assure long-term competitiveness [10].

Defining IS strategy

It is important that we bring out the difference between IT and IS for the purpose of this paper. Information Technology transmits processes or stores information whereas an Information System (IS) is an integrated and cooperating set of software using information technologies to support an individual, group or societal goals. According to the business dictionary, an Information System is “a combination of hardware, software, infrastructure and trained personnel organized to facilitate planning, control, coordination and decision making in an organization: Information Technology is defined by Oxford dictionary as “the use of electronic equipments especially computers for storing and analyzing information [16]. This means that the focus of IT is on the technology whereas the focus of Information systems is on the information processed and availed by the technology.

An IS strategy is defined by [5], as strategy as a plan to adopt information systems according to organizational demands in order for the information and systems to support the overall business strategy/objectives. This is supported by another argument by [17] an IS strategy ties together the organization's goals, information needed to support those goals and the implementation of computer systems to provide information to meet the organization's demand to support those goals.

According to [11], IT for long has been considered an implementation tool thus not intrinsically involved in defining the strategy. More and more, new business opportunities and markets are being created by the growth of IT. The growth of Information communication technology (ICT) has stamped its role in organization to a critical component in decision making. According to [11], Information Technology has become a key component of every business and industry and most have great expectations on IT for the future of their business

Role of IS/IT in defining corporate objectives

Any business-IT/IS alignment model or strategy must ultimately pursue the goal of continually optimizing returns to the business from IT investments. These investments include investments in projects, capital, service, support, maintenance, and any other IT effort or expenditure [18]. The key success factor for aligning IT spending and an effort with business needs is mutual leadership and accountability. Regardless of its role, every IT activity, project, or service must play a part in creating business value. Also, an IT agenda must work towards achieving business-related and not IT-related metrics in order to improve alignment. Furthermore, organizations should be aware of their IT resources, which is something that most businesses often neglect to do. This is important because their organization's competitiveness depends a lot on the quality of their technology resources and whether these resources are efficient enough to meet changing market needs.

Improved access to information, made easier by the continuous development of technologies and networks, will be a key feature of future society. Its application to support decision-making by organizations, enterprises or individuals, will facilitate better and, eventually, more innovative approaches and answers to the opportunities and risks in a rapidly changing world [13]. In today's challenging business environment, it is vital for organization to access useful information and knowledge [19]. Information Systems are an umbrella concept for tools, techniques and solutions that helps managers to understand their business situation and take measures that enhance their competitive position in the industry. The utmost importance of every information system within an organization is provision of information to support the decision making process within the organization. The quality of this information is greatly influenced by the quality of an organizations IS/IT systems and how well aligned these systems are to the objectives of the organization. IS/It alignment with business objectives thus helps organizations effectively use their Information Systems gain value through proper and more accurate and timely intelligence that would more directly dictate what direction the business takes. In view of this therefore, the information strategy of an enterprise which is defined within the larger IS strategy will provide the essential characteristics for the information generated from the organization's systems [20].

Incorporating an 'Information Economy' Strategy within an Enterprise

The growth of the internet and communication networks has introduced a new approach in which the visibility of an organization is extended beyond the confines of the physical organization, location or state into digital firms or digital economies with a global presence. This new economy has been boosted by the development of infrastructure that supports the internet, ICT and digital technology [21]. The business community has been fundamentally changed since the advent of the internet. Small and medium enterprises which operated at a local level now have an international presence; Multinational companies which operated unquestionably in almost every corner of the world because of their strong financial muscle now face stiff competition from firms in emerging economies; internet has made it virtually easy to market and sell products at comparatively lower prices. What this means is that the last decade has seen an unprecedented growth of the internet and businesses thus have experienced a complete alteration of the market so that almost every firm has unlimited space to compete in the market. Consumers now have a wide array of products to choose from [6]. With these occurrences, the possibility for firms to continuously survive in this dynamic business environment can be pegged on its ability to innovate and retain its existing customers. This can only be possible if these organizations are able to effectively gain insight into their operations and analyze their operational data to accurately gather market intelligence and customer intelligence and trends to understand their purchase patterns. This will enable the business to design the right products for the customer and deliver them when they are needed most.

An organization's information economy ensures that the firm focuses on using information as a key driver for gaining a competitive advantage. It ensures that the right technologies, personnel and procedures are assembled and effectively applied to analyze every aspect of the vast amounts of data the firm collects and mining it to provide the relevant knowledge for influencing the direction the firm takes. Knowledge is defined by [16] as the awareness or familiarity gained by experience of a fact or a situation. In the business/IS case, we define knowledge as the awareness or understanding of the relationships among the pieces of data. This awareness is essential as it gives an organization insight into its business activities and makes the data more meaningful for effective decision taking.

Knowledge extraction

In business, knowledge refers to the awareness or understanding of the relationships among the pieces of information/data. To process data into information, we need knowledge. Knowledge enables an organization to extract different meanings from the data that it holds. Knowledge also enables the organization to make business decisions based on the different perspectives in which they critically view the information or data they hold. All businesses have an extensive pool of knowledge whether from understanding of customer needs, its products and services or staff experience. The way a firm gathers shares and exploits this knowledge is central to an organization's ability to develop successfully (inforentrepreneurs.org).

Much of dark data in organizations is simply unstructured data [2], thus an organization needs an inherent information strategy that will enable it to extract all the aspects of the organization that are relevant in enhancing its competitive position in the market [12]. Thus knowledge extraction is essential. Knowledge extraction refers to the creation of knowledge from unstructured and structured sources [19].

III. Conclusion

IT/IS strategy and business alignment concepts is one of the most critical strategies for firms to gain a competitive advantage. An Organization strategy defines the direction the business plans to take, IS strategy ties together the organizations goals, defines the structure of the information essential to achieve these goals and galvanizes the system to support these business goals. Thus, no organization can effectively use its IT/IS unless it creates a link between the objectives of the business and the goals of its IS/IT. Linking an IS/IT goals and the business objectives enables the organization to invest in the right IT infrastructure and to design and develop the right systems in line with its objectives. Considering the strategic importance of IS/IT, there is need for the research community to develop a conceptual framework that leverages an organization's IT/IS strategies and business objectives.

References

1 IBM. Aligning IT with strategic business goals. *IBM Global Technology Services* (2012), 1-12.

2 ORACLE. The Challenge of Strategic Alignment:The role of Scorecards & Dashboards in Strategy Execution. *FSN & Oracle* (2008), 1-14.

3 Teece, David J. Business Models, Business strategy and Innovation. *Elsevier Ltd* (2009), 172-194.

4 Gutierrez, Anabel. *Alignment of Information Systems' projects with business strategy: Evolution of thinking and practice*. Regent's University, London, 2014.

5 Issa-Salwe, Abdisalam and Aloufi, Khalid. Integrating competitive advantage with strategic Information Systems planning. *Academy of Taiwan Information System research*, 8, 1 (2011), 1-12.

6 Smith, Bob. *E-Business strategies*. Virginia Tech, Nashville, 2001.

7 Johnson, Gerry and Scholes, Kevan. *Exploring Corporate Strategy, 6th edition*. Financial Times/Prentice Hall, 2002.

8 Jenkin, Tracy A., Webster, Jane, and McShane, Lindsay. An agenda for green Information Technology and Systems Research. *Information and Organization* (2011), 17-40.

9 Casadesus-Masanell, Ramon and Ricart, Joan E. From strategy to business models and to tactics. *Havard Business School* (2009), 1-45.

10 Loeser, Fabian, Erek, Koray, Schmidt, Nils-Holger, Zarnekow, Ruediger, and Kolbe, Lutz K. Aligning Green IT with Environmental Strategies: Development of a Conceptual Framework that Leverages Sustainability and Firm Competitiveness. (Detroit Michigan 2011), Proceedings of the Seventeenth Americas Conference on Information Systems.

11 Beveridge, Colin. *Aligning IT with business strategies*. Manchester.

12 A&G. IT Architecture in Action: Bridging business and IT strategies. *Architecture and Governance*, 4, 2 (June 2008), 19-25.

13 CETISME. *Economic Intelligence: A guide to beginners and practitioners*. Commission foe European Communities, European Commission, 2002.

14 Porter, Michael. competitive strategy. *The academy of management journal* (1980).

15 Kevin, Njeru Mwiti, Kamau, john Wachira, Wanyembi, Gregory Wabuke, Dinda, Wilkister Atieno, and Njagi, Kevin Murithi. ENTERPRISE LEVEL GREEN IS STRATEGY FOR DEVELOPING ECONOMIES: CASE OF KENYA. *Interational journal of Application or Innovation in Engineering and Management (IJAIEM)*, Volume 4, Issue 1 (January 2015), 132-139.

16 OXFRORD UNIVERSITY PRESS. *Oxford English dictionary*. Oxford University Press, London.

17 Kekwaletswe, Ray M. and Mathebula, Palesa Chuene. Aligning Information Systems strategy with the Business Strategy in a South African Banking Environment. *2014 Proceedings of the Conference for Information Systems Applied Research, Baltimore, Maryland USA* (2014), 1-13.

18 Elmorshidy, Ahmed. Aligning IT With Business Objectives:A Critical Survival And Success Factor In Today's Business. *The Journal of Applied Business Research*, 29, 3 (June 2013), 819-828.

19 Rouhani, Saeed, Asgari, Sara, and Mirhosseini, Seyed Vahid. Review Study: Business Intelligence Concepts and Approaches. *American Journal of Scientific Research*, 50 (2012), 62-75.

20 Kevin, Njeru Mwiti, Munene, Zipporah, Kimani, Mwangi Robert, Njagi, Kevin Murithi, and Mbagara, Bildad. TOWARDS GREEN ICT DRIVEN ECONOMIES: ASSESSING THE GOVERNMENTS ROLE IN GREEN ICT ADOPTION. *International journal of application or innovation in Engineering and management*, 4, 3 (March 2015), 120-131.

21 Combe, Collin. *Introduction to E-business management and strategy*. Elsevier Ltd, Oxford, 2006.

22 Orsato, Renato J. *Competitive Environmental Strategies: When Does it Pay to be Greeen?* Califonia, 2006.

23 Olson, Eric G. Creating an enterprise-level ‘‘green’’ strategy. *Journal of Business Strategy* (2008), 22-30.

24 Richard T. Watson, Marie-Claude Boudreau, Adela Chen, Mark Huber. Green IS: Building Sustainable Business Practices. *University of Georgia* (2011), 1-17.

AUTHORS

Njeru Kevin holds a Master of Science in Information Technology from Mount Kenya University and a BSc. Computer Science from Gretsa University. He has published and presented several papers in various conferences on green computing and competitive strategies. His research interests include Green Computing, Business intelligence, Computer Networks, Databases, and health informatics.

Wilkister Atieno Dinda, is a lecturer at Mt. Kenya university in the department of information technology. She holds a master’s degree in management of Business Administration from the university of Nairobi, and BSC. Computer science from Kenyatta university, she’s a second year PHD student at Mount Kenya University, she has strong interest in software engineering, management information systems, accounting information systems and operations management.

David Kibaara obtained his master of science in Electronic Business Management from the Universityof Warwick (UK) and is currently a second year PHD student at the university of South Africa (UNISA). He has published in the area of Information Systems and has been a lecturer in a number of universities in Kenya. He is an active member of the Institute for the Management Information Systems (IMIS) and Association of chartered public Accountants (ACCA)

Alexander Murithi Njoroge is a lecturer at Dedan Kimathi University. He holds a masters in Computer Science from the University of Nairobi and has widely lectured in various universities in Kenya. His research interests include information systems, artificial intelligence, health informatics and databases.

Kevin Murithi Njagi is Lecturer at Mount Kenya University in the department of Information Technology. He holds a Master of Science in software Engineering and a Bsc. Computer Science. He has a wealth of knowledge and experience in teaching in the areas of programming, software Engineering, hardware and software maintenance and data communications and networking. He has research interests mainly in software security, Information Technology Systems and Computer Networks.