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TECHNOLOGY INTELLIGENCE AND ORGANIZATIONAL PERFORMANCE OF FIRMS IN RIVERS STATE

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ABSTRACT

This study sought to analyze Technology Intelligence and Organizational Performance The findings revealed Technology Intelligence has positive relationship between Organizational Performance of Firms in Rivers State. It was therefore recommended that firms in Rivers State should emphasize on building a positive Strategic Intelligence to meet customer's expectation and offer more benefits to customer. Managers and supporting organizations should not only focus exclusively on either technological intelligence or process innovation, but should give due emphasis on the combined and synergetic approach to get the maximum firm performances benefits from these capabilities.

Keywords: Technology Intelligence, Organizational Performance, Firms

INTRODUCTION

In today's environment, where competition is very high amongst various businesses regardless of demographical boundaries, it becomes a challenge for the businesses to get and then maintain a distinguished position in the industry. Nowadays, the creation of value in organizations based on the creation of knowledge has become a factor of increased interest. It is because of the need of facing different changes that have been created in the environment, especially at the technology level. Business environment and technology are changed rapidly. Therefore, key decision makers in an organization must make decisions promptly in order to cope with the fast moving situation even though there are not adequate amount of information support, Richard, Devinney, Johnson, & Yip, 2008.

Technology is a major determinant for innovation and success in organisations and governments. Intelligence is the set of activities used to find, acquire, analyze and evaluate information in order to help you prepare for decision-making and guide your choices. Technology intelligence thus become important since it helps supplement the missing fact and support the key decision makers, Gerdsri, (2012). Technology Intelligences is an important tool for businesses. It enables companies to communicate effectively with customers and deliver high standards of customer service. Technology Intelligences is a key element in allowing employees to collaborate easily from wherever they are located, remote or local, *Veugelers, Mark; Bury, Jo; Viaene, Stijn (2010)*. Mobile Technology Intelligence gives companies the opportunity to introduce more flexible working by allowing employees to work efficiently from home or other, more remote locations.

The Internet has contributed to the growth of data sources for technology intelligence and this is very important for the advancement of technology intelligence, *Veugelers, Mark; Bury, Jo; Viaene, Stijn (2010)*. Technology intelligence is one of the latest management tools that enable companies to be successful in today's rapidly changing technological environment. Technology intelligence gives organizations the ability to be aware of technology threats and opportunities. It is important for companies and businesses to be

able to identify emerging technologies in form of opportunities and threats and how this can affect their business. Technology intelligence is not new but is more important now that organizations and societies are being disrupted by the shift to an information and networking-based economy, *Bergeron, Pierrette; Hiller, Christine (2005)*. Also known as Competitive Intelligence, there are different stages of the evolution process, *Chaudhuri, Surajit; Dayal, Umeshwar; Narasayya & Vivek (2011).*

Technology Intelligence (TI) is an activity that enables companies to identify the technological opportunities and threats that could affect the future growth and survival of their business. It aims to capture and disseminate the technological information needed for strategic planning and decision making. As technology life cycles shorten and business become more globalized having effective Technology Intelligence capabilities is becoming increasingly important, Mortara, Kerr, Phaal . and Probert 2007. Technology Intelligence has been conceived as a capacity that allows identifying technology developments in time, and moreover, it comes up as a model that links the necessities of the market to technology innovation, *Norling, Parry, Herring, Jan, Rosenkrans, Wayne, Stellpflug, Marcia, Kaufman & Stephen (2000).* In this way, it allows to differentiate among technology fields in use and those of interest that can be limited through future functions of the product and the weak signals in technology trends. Its main operative function is to capture and give information to develop knowledge about technology threats and opportunities. Savioz, Scacchi, and Tschirky, 2001 defines it as a systematic model to gather, analyze and disseminate information about the technology environment in order to find new opportunities.

Technology intelligence

Technological intelligence assesses the present and new technologies as well as predicting the future technologies and dealing with basic researches, patents, etc. Technological intelligence is evaluated by the factors like the fundamental and applied research level, the number of articles, and having safe industrial processes (Gabber, 2007). Also Technological intelligence is a new tool for the strategic intelligence through which it presents a mechanism to create stable systems of the knowledge management towards the present technologies. Technological intelligence evaluates the benefits and expenses of the new and present technology and the future discontinuity technology (Viviers et al., 2005). Generally, this intelligence includes information gathering from articles, papers, fundamental and applied researches, methods, norms, and industrial processes (April and Bessa, 2006). Technological intelligence entails monitoring technology advancements and their specific application to the products, procedures and processes that define the core activities in any given industry. Technological intelligence entails careful planning and organising to capture competitive intelligence about the R&D budgets, directions and priorities of competing organisations (Koseoglu et al., 2019). Calof and Wright (2008) and Tahmasebifard (2018) averred that technological intelligence about rivals could influence competitive advantage an organisation enjoys. Indeed, all stakeholders populating an organisation's value chain are potential targets of technological espionage, and these include suppliers, customers, government, and also social media.

Technology intelligence is the part of competitive intelligence that supports the projects and scientific investment decisions and helps decision makers in estimating the relative strengths of other organizations. It suggests that the innate nature of all effective measures has its root in intelligence. Among the major types of intelligence (including,

military intelligence, political intelligence, economic intelligence, etc.), technology and scientific intelligence plays such a specific role that often becomes an indispensable part of other types of intelligence.

Technology intelligence, as a branch of competitive intelligence, places its emphasis on research operations and development of organizations, but it can involve other activities such as strategic planning, technology acquisition, and investment on technology and equipment. Inasmuch as technology intelligence is constituent of competitive intelligence, most of research studies on competitive intelligence refer to technology intelligence as well. Intelligent technology is a process which is introduced for improving the performance and development of the technologies accompanied by innovation via identifying potential options of new technologies, and reducing the possibility of failure in the case of technological inconsistencies. This definition includes technology monitoring, technology assessment and technology prediction (Majidfar , 2010).

Technology intelligence is defined as information sensitive to business about the development of external sciences and technology that can affect the company's competitive position. Technology intelligence is defined as information sensitive to business about the development of external sciences and technology that can affect the company's competitive position. Adopting technology intelligence is nothing more than an informal technology monitoring and is also a structured process that involves four major steps (Norling et al, 2000): firstly, planning, organizing and conducting competitive intelligence efforts, secondly, intelligent information gathering, thirdly, analysis of data and lastly, dissemination of results for practical uses. Ashton and Klavans also defined technology intelligence as business sensitive information on scientific or external technology developments, opportunities and threats that can influence a company's competitive position. They have emphasised that technology intelligence has its focus on external organization problems, and is sensitive to business and pragmatic. The Coburn' definition of technology intelligence is presented as, the analytic process that changes the scattered information on competitor's technologies into appropriate and applied strategic technology about position, inclinations and amount of their activities.

Concept of Organizational Performance

Organizational performance refers to the "firm's market and financial performance, which is positively related to the firm's economic value" (Slater and Narver, 1994, p58) According to the definition there are three important concepts can be highlighted. Those are Market performance, Financial Performance and Economic value. In this study specially consider about the Market performance of the industry. Not only that according to Hunt and Morgan (2015) organizational performance in competitive terms (i.e., compared to relevant competitors), because a market-oriented culture has been posited as one of a firm's competitive capabilities and sources of advantage. The literature argues that a market-oriented culture provides a unifying focus of organizational efforts in the delivery of value to customers while also providing a comparative impetus with competitors' activities (Kohli and Jaworski 2010). Therefore, a market oriented firm is more likely to achieve high levels of customer satisfaction, to keep existing customers loyal, to attract new customers, and subsequently to attain the desired level of growth, market share, and hence of organizational performance (Homburg, 2010).

According to another scholars like Yamin (2001), Gunasekruan (2008) and Mavondo, (2010), Organizational performance refers to how well an organization achieves its market

oriented goals as well as its financial goals (Yamin, 2001, Gunasekruan 192008, Mavondo 2010). When consider about this definition there are two important concepts illustrated. In this study consider about the market oriented goals.

Organizational Performance can be seen as a multidimensional construct consisting of more than simply financial performance (Baker and Sinkula, 2005). Organizational performance is described as the extent to which the organization is able to meet the needs of its stakeholders and its own needs for survival (Griffin, 2003). According to Daft (2000) and Ricardo and Wade (2001), organizational performance means an appropriate use of resources in an effective and efficient manner. This concerns how an organization is able to achieve its goals. As Organization Performance has been considered in depth now but still remains debatable subject among organizational scholars (Barney, 2007). However, it is generally measured in two dimensions, i.e., financial and non-financial. The financial dimension means profitability, return on investment, return on asset (ROA), return on sale (ROS), return on equity (ROE), stock price, export growth, sales growth, revenue growth, operational efficiency, market share and organizational success (Gimenez, 2010; Stewart, 2010; Thomas & Ramaswamy, 1996). The Non-financial performance, on the other hand, measures OP in terms of organizational commitment, job satisfaction, employee turnover, innovativeness, customer satisfaction, quality, and flexibility in resource utilization (Kaplan & Norton, 2001).

Organisational performance refers to an organisation's ability to attain its goals by using resources in an efficient and effective manner (Daft, 2010). Consequently, it is an evidence of the output of members of an organisation measured in terms of revenue, profit, growth, development and expansion of the organisation. Organisational performance suffers from the conceptual problem of distinguishing between performance and productivity (Hefferman & Flood, 2010). While productivity has to do with the ratio depicting the volume of work completed in a given amount of time, performance is a broader indicator that could include productivity as well as quality, consistency and other factors (Ricardo and Wade, 2011). According to Daft (2010), organisational performance is defined as an organisation"s ability to attain its goals by using resources in an efficient and effective manner. Consequently, it is an evidence of the output of members of an organisation measured in terms of revenue, profit, growth, development and expansion of the organisation. In the same vein, organizational performance refers to the ability of an enterprise to achieve such objectives as high profit, quality product, large market share, good financial results, and survival at pre-determined time using relevant strategy for action (Koontz and Donnell, 1993). Organizational performance can also be used to view how an enterprise is doing in terms of level of profit, market share and product quality in relation to other enterprises in the same industry. Accordingly, it is a reflection of productivity of members of an enterprise measured in terms of revenue, profit, growth, development and expansion of the organization (Kehinde, Jegede, and Akinlabi, 2012).

Relationship between Technology Intelligence and Organizational Performance

Empirical evidence has shown that there is a positive and strong relationship between technological intelligence and organizational Sustainability. Technological intelligence as a strategic and tactical resource is globally recognised as a source of competitive advantage in the business environment. Firms today are undergoing an increasingly competitive environment shaped by globalization, advances in technology, social and economic changes as well as fast shortening product life cycle which has led to hyper-competition (

Muthama & Ngugi, 2012). According to (Albrecht, 2003), he coined the concept of organizational intelligence into seven dimensions. Each of the seven dimensions of organizational intelligence contains a set of behaviors, structural characteristics, processes or specific way they function. Each of these characteristics has their own causes or history. Technology intelligence, as a branch of competitive intelligence, places its emphasis on research operations and development of organizations, but it can involve other activities such as strategic planning, technology acquisition, and investment on technology and equipment.

Inasmuch as technology intelligence is constituent of competitive intelligence, most of research studies on competitive intelligence refer to technology intelligence as well. Intelligent technology is a process which is introduced for improving the performance and development of the technologies accompanied by innovation via identifying potential options of new technologies, and reducing the possibility of failure in the case of technological inconsistencies. This definition includes technology monitoring, technology assessment and technology prediction (Majidfar , 2010).

Technology intelligence is defined as information sensitive to business about the development of external sciences and technology that can affect the company's competitive position. Organisational performance has been identified as the central determinant of firms" competency in retaining customers (Yee, Yeung, & Edwin, 2010). Firm"s performance measurement can be divided into two components namely financial performance (Kaplan & Norton, 2001) and non-financial performance, which respectively evaluates firms" monetary and non-monetary dimensions (Avci, Madanoglu, & Okumus, 2011). Financial performance reflects the firm"s financial situation which can be evaluated using indicators such as profit margin, return on assets (ROA), returns on sales (ROS), return on investment (ROI) and others (Yee at al. 2010).Firm performance comprises the actual output or results of a firm as measured against its intended outputs.

Contingency theory

Coined by Lawrence and Lorch (1967, p.209), the contingency theory considers that an organization and its subsystems may be contingent to external and internal characteristics. This means, for example, that one or several organizational variables may depend on other variables. Galbraith (1973) emphasized these concepts using two main assumptions: (1) there is no single best way to organize and (2) any one organizing method is not equally effective. These two assumptions were adopted as a main foundation for the contingency theory. Moreover, Kast and Rosenzweig (1973) argued that "the contingency approach attempts to understand the interrelationships within and among organizational subsystems as well as between the organizational system as an entity and its environments. It emphasizes the multivariate nature of organizations and attempts to interpret and understand how they operate under varying conditions". The idea is that there is no single best way of designing the organization and thus any organization must "fit" into the environment. Several studies adopted this perspective for studying the interdependency of the firm with the external environment (Lawrence and Lorsch, 1967; Donaldson, 1984; Ghoshal and Nohria, 1989). Organization theory applied the concept of contingency in order to find answers regarding what kind of organization is most suited to the different environments (Daft, 1987, p.24).

Contingency was also extensively used to study these factors, be they internal or external, which are connected to improved performance. Several studies included information as an

important contingency factor in the competitive advantage of the firm (Smith et al. 1991). Weill and Olson (1989) suggested a framework interested in applying the contingency theory to the marketing information system.

The idea of considering the CI as an organizational subsystem suggests that the function may depend on both the external environment and the internal environment. In other words, the CI function may be contingent to both organizational variables and their competitive environment variables. Therefore, an understanding of these contingencies may critical to the success of the CI function. The variety of external environment conditions seems to affect organizations in different ways. Lawrence and Lorsch (1967) described extensively how the different environmental characteristics present organizations with different requirements. For instance, the lack of information was considered one aspect which affects the perception of environmental uncertainty. The importance of congruence, or "fit" between the information characteristics of the organizational environment and the Information-processing activity of the firm was a major conclusion of the contingency theoretic perspective within organizational behavior (Galbraith, 1973; Lawrence and Lorsch 1967).

CONCLUSION

This study looked at Technology Intelligence and Organizational Performance of Telecommunication firms in Rivers State. All the relationships were strongly, moderately significant positive related. It is evident that from the study that Technology Intelligence when emphasized in the trading relationships, will lead to repeated purchases hence consumer loyalty.

This also enables Strategic Intelligence Industry to ensure that the greater the Technology Intelligence, the higher the consumer loyalty levels. This research concluded that businesses operating in an intensily price based competitive environment, dependent on high economies of scale and with low levels of staff-customer interaction are bound to suffer shocks in their market positions and profitability unless huge investments are made in more relational strategies like Strategic Intelligence, Technology Forecasting and Market Intelligence.

The study concluded that, the quality of a service is subjectively perceived by the study further concluded that a positive Technology Intelligence makes it easier for a firm to convey its brand value to consumers and also generates favorable Organizational Performance among people.

The study concluded that since highly satisfied customers are expected to make future purchases and recommend the source to other customers, high levels of customer satisfaction are likely to lead to Organizational Performance. The study also concluded that there exist very high levels of Organizational Performance of Telecommunication firms in Rivers State..

RECOMMENDATIONS

The study recommends that companies must focus on those attributes of Market Intelligence which consumers' use to judge the Market Intelligence worthiness of the services offered.

1. The study further recommends that of Telecommunication firms in Rivers State should emphasize on building a positive Strategic Intelligence to meet customer's expectation and offer more benefits to customer.

2. Managers and supporting organizations should not only focus exclusively on either technological intelligence or process innovation, but should give due emphasis on the combined and synergetic approach to get the maximum firm performances benefits from these capabilities..
3. Telecommunication firms need to be more innovative in the use of refined telecommunication know-how in new product development.
4. Firms should endeavor to focus on identify their customers expressed needs that guide them in developing products and services.
5. Finally the study recommends that firms ensure customer satisfaction as it is a good predictor of future purchase behaviour, an indication of behavioural loyalty of the customer.

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