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Web Navigation Systems and Organizational Efficiency of Telecommunication Companies in Rivers State

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Abstract: *This study examined the relationship between web navigation systems and organizational efficiency of telecommunication companies in Rivers State, Nigeria. The study adopted a cross-sectional survey in its investigation of the variables. Primary data was generated through structured. As a macro level study, the population of the study was the four (4) major mobile telecommunication companies (MTN, Airtel, Glo and 9-Mobile). The four GSM companies are chosen based on their large subscriber base, coverage areas, number of mobile lines, revenue generation, assets and staff strength. Given that the population size was small and can be adequately covered, our study adopts a census method. Hence the sample was also the 4 telecommunication companies. However, for the purpose of date gathering, ten senior managers and supervisory managers of the four (4) mobile telecommunication companies in Nigeria bringing the total number to forty (40) respondents. The reliability of the instrument was achieved by the use of the Cronbach Alpha coefficient with all the items scoring above 0.70. The hypotheses were tested using the Spearman's Rank Order Correlation Coefficient. The tests were carried out at a 0.05 significance level. The tests were carried out at a 95% confidence interval and a 0.05 level of significance. The study findings revealed that there is a significant relationship between web navigation systems and organizational efficiency of telecommunication companies in Rivers State, Nigeria. The study concludes that web navigation systems significantly influence organizational efficiency of telecommunication companies in Rivers State. The study recommends that the systems should be upgraded on a regulated period so as to incorporate better navigation information space for easy access to information. With this, users would not confuse about the next action to take within a webpage.*

Key words: *Web Navigation Systems, Organizational Efficiency, Task Accomplishment, Service Quality*

INTRODUCTION

Increasing and intense competitiveness in the market has made efficiency the most important issue for profit and non-profit organisations for businesses. It comprises of three specific areas of firm outcome which includes financial efficiency, product market efficiency and shareholder return (Richard, Simon & Brut, 2009). It is very vital for managers to know which factors influence an organization's efficiency in order for them to take appropriate

steps to initiate them. Efficiency guarantees the continuity of the organization to be competitive in a global market place. Efficiency can be seen as a multi-dimensional construct consisting of more than simply financial efficiency (Baker & Sinkula, 2005). It describes the extent to which the organization is able to meet the needs of its stakeholders and its own needs for survival (Griffin, 2003). In this sense, efficiency depicts that an organization is achieving its mission and goals.

Zeb-Obipi (2015) posits that corporate efficiency refers to the record of achievements made by an organization (a corporation) at, or over a given, time measurable through several indices. It is measured by the extent to which an organization achieves set objectives or executes its strategies; hence efficiency measures are sourced from both corporate objectives and strategies. Atkinson (2012) defined efficiency as the achievement of results ensuring the delivery of desirable outcomes for a firm's stakeholders. Awino (2011) asserts that for an organization to be successful it has to record high returns and identify efficiency drivers from the top to the bottom of the organization. To achieve efficiency, organisations must pay premium attention to the information searching process.

Information is as old as nature, it preceded the existence of man, it plays key role in shaping and enhancement of civilization, especially as it concern organizations, families, communities, nations and the world in general, in our modern society. It assumes the form of both formal and informal conversation, meetings, telephone calls, personal conversation, letters, reports, memos and trade publications. Hardly can any organization or system perform efficiently without information (Bestman & Ikuru, 2018). Information seeking is a human activity with a goal of obtaining information. Being a subset of the human information behavior field, it is particularly concerned with methods people employ to discover and gain access to information resources (Wilson, 1999). Web information seeking is information seeking in the World Wide Web environment using a browser as the major user interface. Compared to other software environments, web is a much larger and more complex environment with massive information and complex interlinking structures. This poses even more problems for users to find the information they want.

There are basically two generic tactics to seek information on the web: querying and navigation. Querying, or searching, is the process of "submitting a description of the object (for instance, keywords) to a search engine which will return relevant content or information" (Jul & Furnas, 1997). Navigation, or browsing, is the action of moving oneself around an environment in an order, "deciding at each step where to go next based on the task and the parts of the environment seen so far" (Jul & Furnas, 1997). Users use these two tactics together to obtain information on the web. The choice of searching or browsing depends on factors like task type, web site design, user preference, and skill (Nielsen, 2013). While searching has drawn more attention for the past a few years, navigation is still a fundamental way, and even the "last mile", of getting useful information. For example, users still need to navigate through searching results to evaluate the relevance and usefulness of them.

The Web has become very large and complex. It is getting more difficult if people just rely on their intuition and follow embedded hyperlinks to locate information resources. Web navigation systems are commonly provided to guide users through the web information

space. The major goal of a web navigation system is to present an effective content index or guide and support various web navigation behaviors. It allows users to approach an abstract information space in a similar way as they travel in a physical space (Juvina, 2006). Good navigation systems not only make information easier to find and allow users to acquire more useful information, but also contribute to the overall website success.

The purpose of this paper therefore was to examine the relationship between web navigation systems and organizational efficiency of telecommunication companies in Rivers State. The specific objectives of the study included:

i. Examine the relationship between web navigation systems and task accomplishment of telecommunication companies in Rivers State.
ii. Investigate the relationship between web navigation systems and service quality of telecommunication companies in Rivers State.

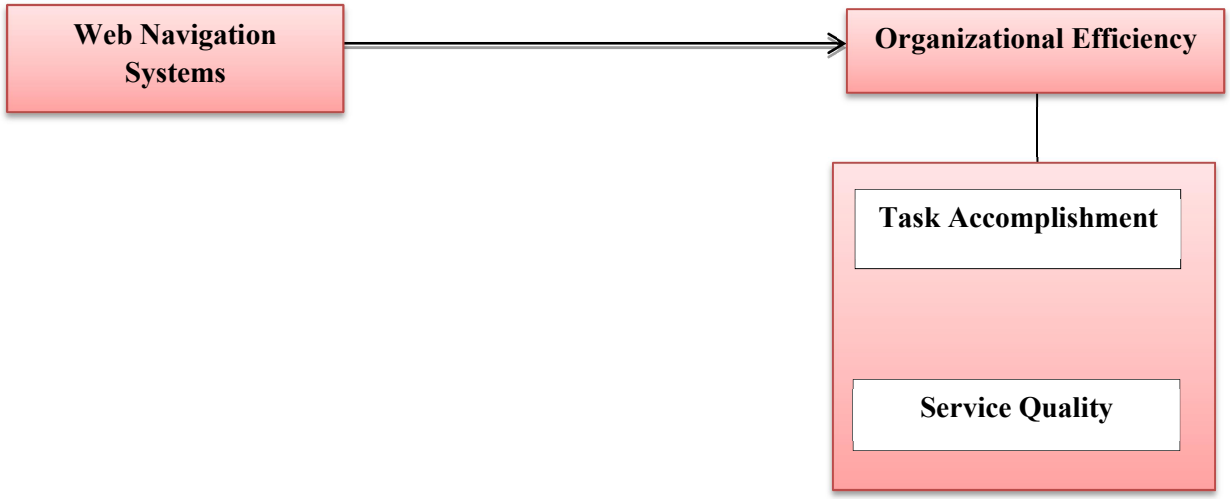

Figure 1: conceptual model for the relationship between web navigation systems and organizational efficiency

Source: Desk Research (2022)

LITERATURE REVIEW

Theoretical Foundation

Resource-Based View Theory

The baseline theory associated with this study is the resource-based theory basically because the resource-based theory suggests that resources that are valuable, rare, difficult to imitate and non-substitutable best position an enterprise for long-term success. These strategic resources can provide the foundation to develop the firm's capabilities that can lead to superior performance over time.

Relating this theory to our study, we can mean that information (communication industry) can increase their level of creativity when their information is authenticated, integrity, available, and management of risk in communication operations.

Although proponents of the resource-based view generally tend to define resources broadly, to include assets, knowledge, capabilities, and organizational processes, Grant (1991) distinguishes between resources and capabilities and provides a classification of resources into tangible, intangible, and personnel-based resources. Tangible resources include the financial capital and the physical assets of the firm such as plant, equipment, and stocks of raw materials. Intangible resources encompass assets such as reputation, brand image, and product quality, while personnel-based resources include technical know-how and other knowledge assets including dimensions such as organizational culture, employee training, loyalty, etc. While resources serve as the basic units of analyses, firms create competitive advantage by assembling resources that work together to create organizational capabilities. Capabilities, thus, refer to an organization's ability to assemble, integrate, and deploy valued resources, usually, in combination or copresence (Amit and Schoemaker 1993; Russo and Fouts 1997; Schendel 1994).

Resource-based theorists contend that physical assets, in and of themselves, can serve as sources of competitive advantage only if they "outperform" equivalent assets of competitors (Barney 1991; Rumelt 1984). Since IT systems can be purchased or duplicated fairly easily by competitors, it is often argued that physical IT resources are unlikely to serve as sources of competitive advantage (Mata et al. 1995). Such a reductionist view of technology, however, seeks to value the infrastructure solely in terms of its individual components, assumes the separability of the IT assets, and ignores the synergistic benefits of integrated systems.

Web Navigation System

Web navigation system is a set of methods that are used by users to access to information on a web page. It is a set of activities that are carried out by users to meet their own information requirements on a particular web page (Farkas & Farkas, 2000). Web navigation systems and navigation tools are the most important factors that determine the usability of web page (Galitz, 2007).

As Rosenfeld and *Morville et al* (2006) describe it "Structure and organization are about building rooms. Navigation design is about adding doors and windows." The navigation system is what enables the user to traverse the information structure. The navigation system is divided into two main categories: the embedded navigation system and the supplemental navigation system. While the embedded navigation system (e.g, global menus, local menus, contextual links) are inherent to the hierarchical structure of an information system, the supplemental navigation system (e.g, site maps, guides, site indexes) is extrinsic to a system's basic structure.

The most crucial (Rosenfeld *et al.,* 2002) information architecture component for users is the navigation system of the information space. It makes the content accessible to the target audience and combines the visual and usable functionality of the organization and labeling system. It is regarded as the most crucial component to the user because it will get

a source of frustration if the user gets lost in the information space. And customers who got lost are in most of the cases lost customers. They simply click away to a competitor website where the navigation system is more usable. There are three kinds of navigation system: embedded navigation system, supplemental navigation system and advanced navigation approaches.

1. Embedded web navigation systems consist of global navigation, local navigation and contextual navigation. Embedded web navigation systems are shown within the information space together with content. The global navigation enables the user to browse through the main areas of the information space, it is unique and identical on most of the sites. The local navigation enables the user to navigate in the actual area of the information space, it may change in different areas. The contextual navigation is embedded into the content, it consists of hyperlinks or breadcrumb navigation. It has the most distinctive granularity (Scratch Media, 2004).

2. The Supplemental navigation is mostly situated beside the content and may consist of sitemaps, indexes and guides or wizards. They provide different ways of accessing content directly in the information space. They are organized different to the overall organization system as an alphabetical order or birds eye view to the content.

3. Advanced navigation approaches aroused in some niche markets. But because of their narrow scope in usability, lack of user experience and their difficulties to implement in an efficient manner they did not become generally accepted navigation systems. Examples for such approaches are personalization, customization, visualization and social navigation. Personalization tries to present navigation options to the user based on his past behavior and information access. It works without direct user interaction. A good example is the amazon.com recommendation system presenting similar books to the user as he already bought. In contrast customization gives the user the full control over the navigation design. A reader of a news portal is able to customize the content areas presented to him on the entering page.

Concept of Organizational Efficiency

Organizational efficiency is the ability for organization to avoid wasting materials, energy, efforts, money, and time in doing something or in producing a desired result. In a more general sense, it is the ability to do things well, successfully, and without waste (Bestman & Chinyere, 2021). Organizational efficiency is all about figuring out how you can be more effective by using fewer resources, as well as less time and less money to achieve the same goal. Organizational efficiency is time-based, effort based and measurable. The main question you must ask when you're trying to determine efficiency is this: "How can I maximize the desirable results, using the least amount of money and time?" (Quain, 2019).

In this light, it can be said that Productivity is doing the right things in the right way. Once you ensure employees are being effective and efficient, you will see a rise in productivity. You should start measuring this productivity on a daily, weekly and monthly basis. You can use metrics such as number of units produced, sales or customer-satisfaction surveys. With effectiveness and efficiency in place, you will be able to establish some baseline measures of the productivity of your company.

Quain (2019) viewed efficiency as once you have employees doing the right things, you can make sure they do things right. Examine all employee tasks and determine if there is a better way to get them done. For example, perhaps your order pickers spend most of their time walking through the warehouse looking for products. To give another example, your back-office personnel may be dictating to front-office salespeople how many orders they can handle. Find more efficient ways to get work done through computerization, streamlined communication channels and rearranging of the physical environment. Daraio and Simar (2007) defined efficiency as the ratio between the quantity of input and output. They continued that efficiency is the quantity of input and output that defines the best possible outcome of a firm in its industry. Daraio and Simar's definition of efficiency clearly points to efficiency of an organization hence the concept organizational efficiency.

Hussey et al (2008) propose that efficiency of an organization is a combination of the perspective, output and input of an organization. The reviewers indicated perspective to include the individual evaluating the efficiency, the entity and their objectives. In terms of output, they referred to the type of product being evaluated and inputs referred to contributions, involvement or ideas to produce the output. The first measure, which is on perspective requires a clear identification of the entity that is evaluating efficiency, the entity being evaluated and the rationale for the assessment. The second measurement (output) identifies the outcome of interest depending on the organization. Lastly, the inputs refer to what can be used to produce the output.

Technical efficiency is defined as the capacity and willingness of an economic unit to produce the maximum possible output from a given bundle of inputs and technology. The latter concept defined as the ability and willingness of an economic unit to equate its specific marginal value product with its marginal cost. Mokhtar, Alhabashi and Abdullah (2006), in their survey of banking efficiency, contend that efficiency refers to the comparison between the outputs and inputs used in the process of producing a product or service. The researchers further propose that the concept of efficiency for them, technical efficiency is the firm's ability to obtain maximal output from a given set of inputs while allocative efficiency means the firm's ability to use inputs in optimal proportions, given their respective prices and production technology.

Measure of Organizational Efficiency

Task Accomplishment

According to Carver and Scheier (2000) individuals manage their behavior in relation to their goals by comparing their current level of performance against the desired level of performance to determine if a discrepancy is present (e.g., performance is below the goal). If a discrepancy is sensed, individuals are expected to engage in behaviors aimed at reducing the discrepancy. For instance, a negative discrepancy, indicating that one's current performance is below the goal, should result in increases in effort so as to reduce the discrepancy and align future performance with the goal (Carver & Scheier, 2000). Koole and Kuhl (2008) stated that en route to achieving a goal (which would end in either accomplishment or failure), individuals often encounter a variety of frustrations or successes, which can shape affective responses. From an AET perspective, attaining a goal

can be viewed as a positive event that elicits positive affect, whereas not attaining a goal can be viewed as a negative event that elicits negative affect (Kruglanski & Kopetz, 2009).

Research on self-regulation has demonstrated a link between goal attainment and affect (Koole & Kuhl, 2008; Kruglanski & Kopetz, 2009). The idea that daily task accomplishment should impact daily affect is consistent with Affective Events Theory (AET; Weiss & Cropanzano, 2006). Weiss and Cropanzano (2006) developed AET to explain how discrete work events provoke emotional reactions, which influence subsequent employee behavior and other outcomes. According to AET, fluctuations in work events result in fluctuations in affect. A key contribution of this theory is that it described in detail the importance of taking a more dynamic, process-based view of work phenomena. We contend that the experience of task accomplishment or failure represents an affective event that has predictable effects on employee emotions (Henkel & Hinsz, 2004; Parrot & Sabini, 1990).

Our focus is on direct perceptions of task accomplishment in each work shift, which is akin to direct assessments of goal-performance discrepancies found in the literature (e.g., Donovan & Williams, 2003). We argue that this direct assessment of task accomplishment is more likely to impact subsequent affect and action than a measure of accomplishment that is calculated as the difference between performance and goals (Carver & Scheier, 1998). As articulated above, various theories of motivation and action (e.g., Carver & Scheier, 2008; Kluger & DeNisi, 1996) view affect because of such discrepancy perceptions. Positive affect typically stems from perceptions that one is performing better than expected, whereas negative affect stems from perceptions that one is performing worse than expected (Bandura, 1997; Carver & Scheier, 1990; Carver & Scheier, 2008).

More recently, Henkel and Hinsz (2004) looked at the effect of goal success or failure on affective outcomes in a laboratory setting. Utilizing a brainstorming task for generating uses for a common object, the authors assigned participants to either a condition requiring them to set their own difficult, specific goal or a condition in which participants were assigned a goal. While success-failure was not directly manipulated in the study, Henkel and Hinsz (2004) believed that, through this manipulation, roughly half of the participants would experience success and half would experience failure (which subsequent analyses confirmed). Overall, results indicated that individuals who attained their goals experienced more positive affect and less negative affect than individuals who did not attain their goals.

Quality Service

In the service quality literature, it is generally agreed that different people understand different things regarding the service quality as a multidimensional notion. Bolton and Drew (2011); and Oliver (2000) defined customers' service quality as the difference between the actual service performance and their expectations. Like Bolton and Drew (2011); and Oliver (2000), Parasuraman et al. (2008: p19) characterized perceived service quality as "the degree and direction of discrepancy between customers' perceptions and expectations".

Service quality reflects the extent to which the delivered level of service matches Customer expectations (Lewis and Booms, 2003). One of the critical tasks of service companies is

service quality management. Quality means the degree of excellence in service performance. Consumers perceive the quality of a service by experiencing the consumption process and by comparing the experience with their expectations. Though consumers are coproducers and their participation also affects the quality, service firms cannot blame the customers. Service organizations have to be responsibility of quality performance through an effective strategic framework

The services marketing literature reveals that "service quality has been variously defined as focusing on meeting needs and requirements, and how well the service delivered matches customers' expectations" (Lewis 2003: p 22). They also proposed that "service quality is a global consumer judgement or attitude, relating to service and results from comparisons by consumers expectations of service with their perception of actual service performance" (Lewis, 2001; p 53). Service quality is the distinction between consumers' expectations for service performance and their perceptions of the service received. Zeithaml and Bitner (2006, p 45) defined perceived service quality as the judgement of a customer about the overall excellence or superiority of a product or service. They also defined service quality as, "the delivery of excellent or superior service relative to customer expectations"

The study in banking sector by Parasuraman et al. (2008, p44) stated that "customers' perceptions of quality are influenced by various gaps which lead to service quality shortfalls and, in particular, that the quality perceived in a service is a function of the gap between customers' desires/expectations and their perceptions of the service that is actually received". Supporting this definition, Lewis (2001) proposed that service quality is a measure of how well the service delivered meets customers' expectations of a product and service. For instance, the service provided by the local commercial bank (Government and private) and multinational banks in Bangladesh can be compared.

Web navigation systems and Organizational Efficiency

Literature review has identified that Information Architecture suffering from a lack of common semantics, that information architects disagree with regards to the goals of the field itself and that consequently when confronted with the complexity of real life, information architects still have to make personal decisions about how much to listen to the users (and user data), how to balance the business needs/goals with information architecture needs, or what to pick as a point of departure before creating Information Architecture strategy.

Research findings of the literature review showcased that the main study characteristics revolve around websites, and/or other channels, creating navigation for better findability and the actual organization of content parts in such a way, which allows users to make associations between them. Terms like information overload, usability, user experience, semantics, taxonomy, metadata often appear in connection with the topic. While related design deliverables are identified to be wireframes, flowcharts, storyboards, blueprints, and/or prototypes. Moreover, the definitions no longer concentrate solely on structuring the website, but the attention switches to the entire digital landscape/ecosystem (Disalvo

et al, 2008; Arango 2011; Maggi, 2013) and the enterprise as a whole environment, business values, goals, strategy, operation, culture (Roger, 2007; Wozniak et al, 2009).

From the foregoing discourse, the study hypothesized thus:

Ho_1: There is no significant relationship web navigation systems and task accomplishment of telecommunication companies in Rivers State.

Ho_2: There is no significant relationship web navigation systems and service quality of telecommunication companies in Rivers State.

METHODOLOGY

The study adopted a cross-sectional survey in its investigation of the variables. Primary data was generated through structured. As a macro level study, the population of the study was the four (4) major mobile telecommunication companies (MTN, Airtel, Glo and 9-Mobile). The four GSM companies are chosen based on their large subscriber base, coverage areas, number of mobile lines, revenue generation, assets and staff strength. Given that the population size was small and can be adequately covered, our study adopts a census method. Hence the sample was also the 4 telecommunication companies. However, for the purpose of date gathering, ten senior managers and supervisory managers of the four (4) mobile telecommunication companies in Nigeria bringing the total number to forty (40) respondents. The reliability of the instrument was achieved by the use of the Cronbach Alpha coefficient with all the items scoring above 0.70. The hypotheses were tested using the Spearman's Rank Order Correlation Coefficient. The tests were carried out at a 0.05 significance level. The tests were carried out at a 95% confidence interval and a 0.05 level of significance.

DATA ANALYSIS AND RESULTS

Table 1: Correlations Matrix between Web navigation systems and Task Accomplishment

			Navigation Systems	Task Accomplishment
Spearman's rho	Navigation Systems	Correlation Coefficient	1.000	.798**
		Sig. (2-tailed)	.	.000
		N	35	35
	Task Accomplishment	Correlation Coefficient	.798**	1.000
		Sig. (2-tailed)	.000	.
		N	35	35

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS Output

Ho_1: There is no significant relationship between web navigation systems and task accomplishment of telecommunication companies in Rivers State.

The result of correlation matrix obtained between web navigation systems and task accomplishment was shown in Table 1. The correlation coefficient of 0.798 confirms the direction and strength of this relationship. The coefficient represents a positive correlation between the variables. The test of significance shows that this relationship is significant at p 0.000<0.01. Therefore, based on observed findings the null hypothesis earlier stated is hereby rejected and the alternate upheld. Thus, there is a significant relationship between web navigation systems and task accomplishment of telecommunication companies in Rivers State, Nigeria.

Table 1: Correlations Matrix between Web navigation systems and Service Quality

			Navigation Systems	Service Quality
Spearman's rho	Navigation Systems	Correlation Coefficient	1.000	.824**
		Sig. (2-tailed)	.	.000
		N	35	35
	Service Quality	Correlation Coefficient	.824**	1.000
		Sig. (2-tailed)	.000	.
		N	35	35

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS Output

Ho_2: There is no significant relationship between web navigation systems and service quality of telecommunication companies in Rivers State.

The result of correlation matrix obtained between web navigation systems and service quality was shown in Table 1. The correlation coefficient of 0.824 confirms the direction and strength of this relationship. The coefficient represents a positive correlation between the variables. The test of significance shows that this relationship is significant at p 0.000<0.01. Therefore, based on observed findings the null hypothesis earlier stated is hereby rejected and the alternate upheld. Thus, there is a significant relationship between web navigation systems and service quality of telecommunication companies in Rivers State, Nigeria.

DISCUSSION OF FINDINGS

This study investigates the relationship between web navigation systems and organizational efficiency of telecommunication companies in Rivers State. The findings revealed that there is a positive and significant effect of navigation enhances organizational efficiency of telecommunication companies in Rivers State. The finding of the study corroborates with the study on information security and organizational efficiency, according to the study carried out by Kaplan and Nagel (2006) which postulate that to improve the effectiveness of boards in accomplishing their duties to the organizations they are accountable for, attention shall be taken for information needs and an adequate information architecture, comprising both formal and informal channels, conveying relevant information for short- and long-term strategic issues.

Based on literature, the finding supports Roger (2007) which emphasized that information architecture is a framework that helps the organization to design, implement, and manage a business plan and to incorporate it with the technology domain efficiently. It is used to assist the enterprise in running its business processes, operations, and perform changes such as meeting business goals effectively and improve decision making process. Therefore, it is commonly known for integrating and aligning business strategies with information technology (IT) resources.

CONCLUSION AND RECOMMENDATION

This study concludes that web navigation systems significantly influence organizational efficiency of telecommunication companies in Rivers State. Therefore, the study recommends that the systems should be upgraded on a regulated period so as to incorporate better navigation information space for easy access to information. With this, users would not confuse about the next action to take within a webpage.

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