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A PRELIMINARY STUDY OF RESOURCE MANAGEMENT IN A HIGHER EDUCATIONAL INSTITUTION

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ABSTRACT

In today's organizational landscape, Information and Communication Technology (ICT) plays a pivotal role in enhancing operational efficiency and facilitating rapid decision-making processes. The extent of ICT investment and implementation has emerged as a critical determinant of organizational success, particularly in the post-COVID-19 era. The shift towards remote operations and processes, driven by COVID-19 protocols, has underscored the importance of ICT devices and tools in ensuring organizational success, regardless of size. This research examines the workplace limitations of human resource management within a higher educational institution. Specifically, it investigates job roles and the utilization of computers in achieving organizational objectives. The findings reveal significant inefficiencies stemming from misalignment between staff job roles and their training, leading to underutilization of their skills and potentials. This paper presents preliminary study highlighting the workplace limitations of human resources in higher educational institutions, emphasizing the need for strategic realignment and utilization of human capital to optimize organizational performance.

Keywords: Decision Support System (DSS), Institutional Repository, Resource Management, Organizational Resources, Lockdown

INTRODUCTION

The COVID-19 lock down destabilized educational institutions especially in Africa with serious consequences (Goolam, 2020) hence institutions have sought for alternative methods to manage their processes and resources (Zhang, 2021; Madeline, 2020). Most of these alternatives involve the use of Information Technology (IT) for increased productivity and effective decision-making (Kabir et al., 2017). Davenport and James (1990) compared information technology capabilities with business process redesign and recommended that IT is a useful tool that should be used to transform business processes (Figure 1). Nigel et al. (2004) noted that previous researches had publicized how IT contributes to the improvement of organizational performance.

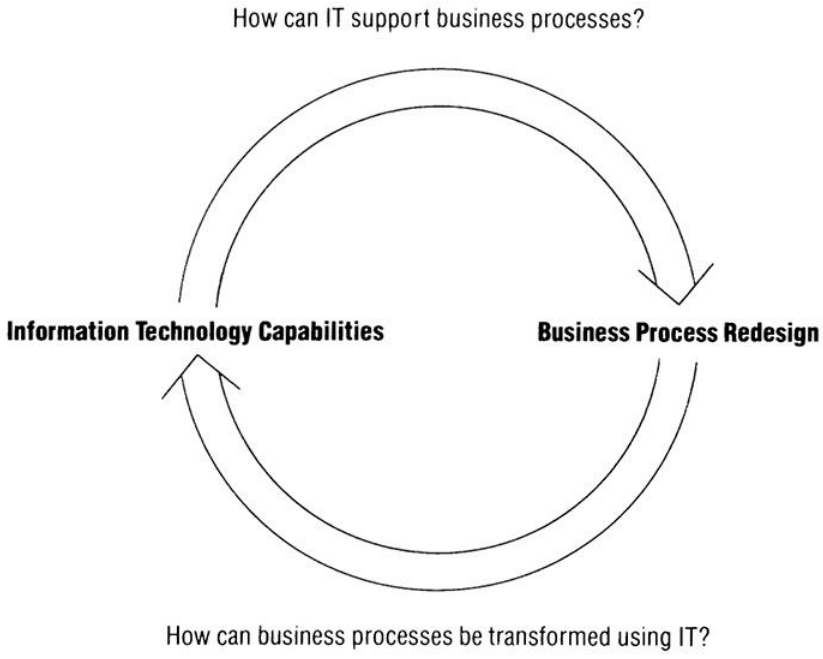

Figure 1: The Recursive Relationship between IT Capabilities and Business Process Redesign. Davenport and James (1990)

In recent years, most organisations have redesigned their business processes using Information Technology tools and devices. Decision Support Systems (DSS) have formed core components in the decision-making process. Decision Support Systems involve developing and deploying IT-based systems to support decision-making processes. Typically, a DSS consists of four components: a language system (LS), a knowledge system (KS), a presentation system (PS) and a

problem-processing system (Holsapple, 2014). The components of a DSS determine its capabilities and behaviours. All the components of a DSS must work together to ensure that organizational resources are optimally utilised (Brianna, 2018). Enbraun (2013) observed that one of the fundamental problems in organizational management is how to manage organizational resources. Variations in organizational performance often originate from both resource differences as well as management of these resources (Pearce et al., 2012). An Organisation must therefore understand the roles its resources play to manage them effectively. It must appreciate the properties of its resources, the opportunities they offer and the steps it must take to exploit those opportunities (Anany, 1998).

Most educational institutions have Institutional resources called Institutional Repositories (IR). These represent a set of services the institution offers to the member of its community for the management and dissemination of digital materials created by the institution and its community members (Lynch, 2003). IR is concerned with collecting, managing, disseminating and preservation of scholarly works created in individual academic institutions (Prabhakar and Manjula, 2017). To ensure that the contents within the repositories remain accessible, retain authenticity, reliability and integrity, a management support system is necessary.

The term "resource" suggests something that is relied upon for the satisfaction of human want. Sources of human satisfaction, health or strength, labour, entrepreneur skills, investment funds, fixed capital assets, technology and cultural and physical attributes may all be referred to as resources (Kafui, 2011). Barney (1991) viewed resources to include all assets, capabilities, organizational processes, attributes, information and knowledge controlled by an organisation that enables it to conceive and implement strategies to improve its efficiency and effectiveness. Resources include items of capital equipment, skills of individual employees, copyrights, trademarks, names, finances, assets, capabilities, processes, attributes, information, and knowledge among others. They are controlled by an organisation to enable it conceive of and implement strategies that improve efficiency and effectiveness. They can be classified into three broad categories namely; tangible, intangible and human resources (Pearce et al., 2012; Eisenhardt and Martin, 2000; Talaja, 2012).

Organizational resources, also known traditionally as factors of production, are necessary for making a product or service (Waseem, 2012). To a large extent, the "ability" of a firm to convert its resources into services determines the capabilities of that resource (Pearce et al., 2012; Tokuda, 2005). Organizational processes are enhanced if the resources are well utilized, managed and controlled (Pearce et al., 2012). This can be achieved using a decision support system. A DSS is a set of computer-based systems used to support decision-making in an organization (Turban and Aronson, 2001). DSS are interactive software systems (Figure 2), which help decision makers to effectively utilize data and models to solve Organisational problems (Newman et al., 2014). DSS do not replace a decision maker but rather assist in considering broader options by generating and analyzing more alternatives (Davenport and James, 1990). Its effect on decision making unfolds in more-productive ways (e.g., faster, less expensively, with less effort), with greater agility (e.g., alertness to the unexpected, higher ability to respond), innovatively (e.g., with greater insight, creativity, novelty, surprise), reputably (e.g., with higher accuracy, ethics, quality, trust), and/or with higher satisfaction by decisional stakeholders (e.g., decision participants, decision sponsors, decision consumers, decision implementers).

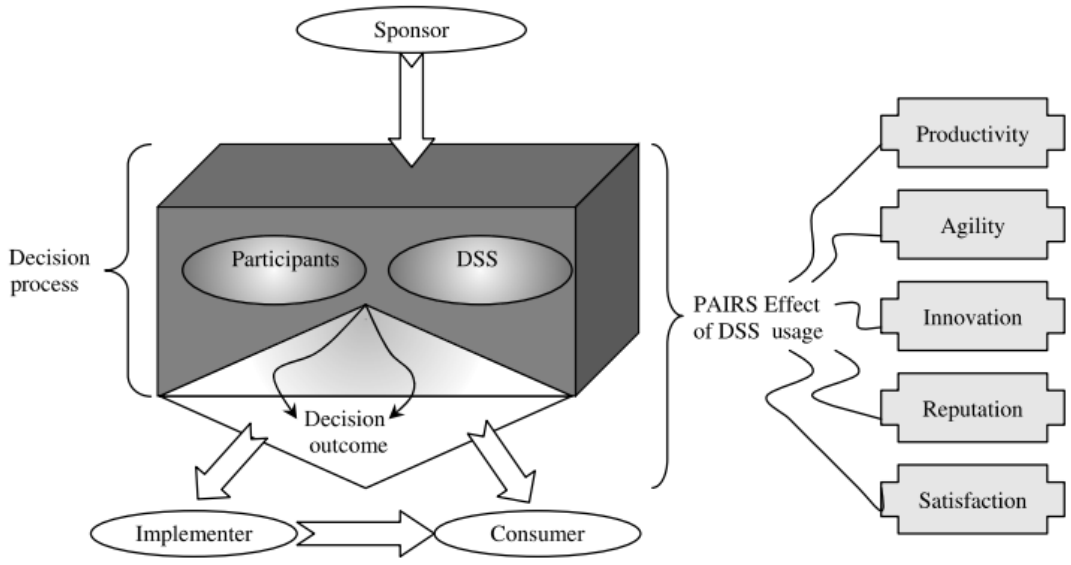

Figure 2: The role of a decision support system in decision making (Holsapple, 2014)

Holsapple (2014) highlighted four components of a DSS (Figure 3): a language system (LS), a knowledge system (KS), a presentation system (PS) and a problem-processing system (PPS). The author added that these components of the DSS determine its capabilities and behaviours. The LS, PS and KS are systems of representation. While the LS consists of all messages which the DSS can accept. The PS consists of all the messages which it can emit. The KS, on the other hand, consists of all knowledge which the DSS has stored and retained.

The KS, LS, and PS, being inanimate and merely systems of representation, are essential elements of a DSS. They are each required and used by the PPS which is the active component of a DSS. The PPS is the DSS's software engine which recognizes and process the problems during the decision making.

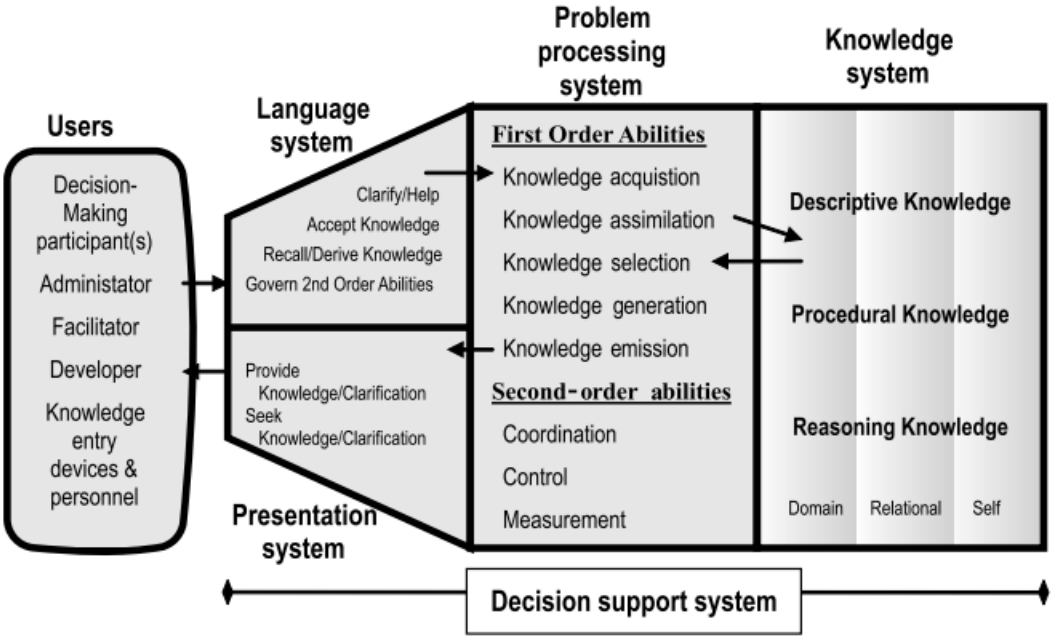

Figure 3: Basic architecture for decision support systems. Holsapple (2014)

Figure 3 clarifies the relationship between the DSS user and its four subsystems. The user, being a decision maker or a participant in decision making, makes a request to the DSS by selecting a desired element of its LS. This request maybe presented back to the user or passed to the PS which in turn processes the particular LS element as requested. During processing the PS can be required to select certain portion of the KS contents, get further knowledge from external sources, or produce new knowledge. The processing can adjust the knowledge held in the KS by integrating new knowledge generated or acquired. This requires that all the resources and processes required for effective decision making must be interconnected, achieve efficiency and minimize waste. This research work is centered on the Resource Based View theory (Penrose, 2009, in Utami and Alamanos 2023). The goal is to determine the strategic resources in higher institutions and how these resources are exploited to achieve competitive advantage. A preliminary study of workplace limitations and resource utilization in a university system in a Post COVID-19 era was conducted. The research findings will serve as benchmarks for further investigations towards designing a DSS for resource Management in Nigerian Higher Educational Environments.

MATERIALS AND METHODS

A case study methodology was adopted in this study. A case-based study, often referred to as a case study, is a research method that involves an in-depth examination of a specific case or instance within its real-life context (Creswell, 2013). In this research, information about higher institutional resources was gathered via interviews, observations, and questionnaire. A descriptive case study (Yin, 2003), was used to identify the resources and custodians in higher institutions in Nigeria. Descriptive case study was selected because it presents a complete description of the phenomenon within its context. First a questionnaire was distributed to elicit data from university employees along the line of job definition, job roles, work performance, Computer and ICT utilization, education and training. Only staff (teaching and non-teaching) of the University of Benin were constrained to respond to the questionnaire. A pilot test of the questionnaire was conducted among 10 employees to ensure validity and reliability, incorporating their feedback and suggestions into the final version. Observations were also made to verify the level of human resource utilization in various workplace activities within the university. Furthermore, in-depth interviews were conducted with key informants from four higher education institutions (a federal university, a state university, a polytechnic, and a college of education) to identify the custodians of institutional resources and understand how these resources are communicated and shared among them, guided by Adejare et al. (2020) which identified 10 initial institutional resource custodians.

RESULTS AND DISCUSSION

A total of 301 responses obtained from the questionnaires were analysed using frequency analysis on Microsoft Excel. The findings are presented in Table 1.

Table 1: Job roles and alignment of Skills

S/N	QUESTION	PERCENTAGE NUMBER OF RESPONDENT	
		Yes	No
1.	Do you think your present office merits your job role? Eg an Accountant working in the hospital.	81.5%	18.5%
2.	Without the use of computers will you effectively be able to deliver in your daily role?	22.2%	77.8%
3.	Are there computers for you to do your work?	7.5%	92.5%
4.	How often do you attend staff training or workshops?	7.5%	92.5%

5.	Do you know and understand your job role/ description perfectly?	94.4%	5.6%
6.	Do you prefer using the computer system for your daily work?	100%	0%
7.	Were you trained on the job before you were given a schedule?	17.4%	82.6%
8.	Have you acquired additional qualifications/ roles since your employment?	82.6%	17.4%
9.	Has any training which you have attended affected your job role?	26.1%	73.9%
10.	Has any additional qualification which you have acquired since your employment been documented?	18.2%	81.8%
11.	Have you ever taken a study that is not related to your first degree?	73.9%	26.1%

The results in Table 1 indicate that most of the respondents (81.5%) are performing jobs that suit their roles and 77.8% acknowledge that computers can make them perform their roles better. It was however observed that 91.5% of the respondents had no access to computers. To create an Institutional Repository (IR), the use of computers and its associated technologies is key to ensuring that the contents are reliable and accessible to all stakeholders (Prabhakar and Manjula, 2017). Therefore, lack of computers and appropriate information communication tools could hinder staff from effectively performing their daily roles. The second data set was analysed using thematic analysis. A total of 28 Resource Custodians were obtained as shown in Figure 4. According to Oxford English Dictionary (2020), Resource Custodians are the individuals or groups responsible for managing, maintaining, and overseeing the allocation of resources within an organization or institution. The findings from the interview showed that data is isolated among the various custodians leading to manual processes. This is one of the fundamental problems of organisations as observed in Enbraun (2013) resulting in waste from inappropriate utilization of certain organizational resources. Though some of the departments/units work with computers, data is shared among custodians by copying data on disks and other external storage devices. This may result in data redundancy and inconsistencies and eventual waste of resources. To overcome this challenge, a Decision Support System is proposed in this study.

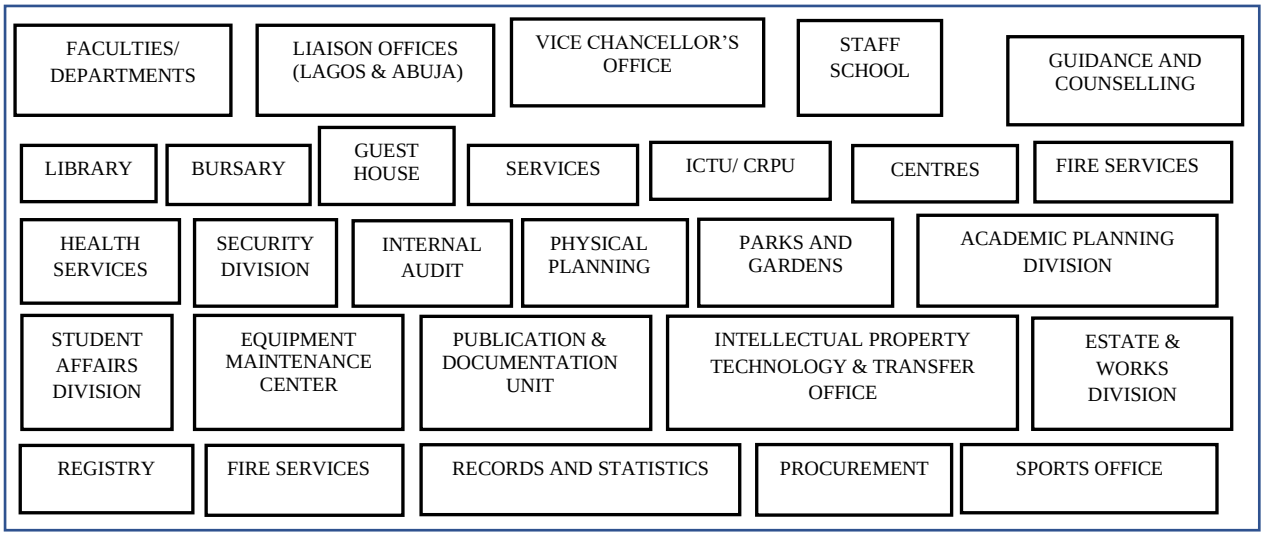

Figure 4: Custodians in Higher Institutions in Nigeria operating in silos

Figure 5 illustrates the proposed DSS, a federated system that leverages data abstraction to offer a unified interface. A federated database integrates data from multiple autonomous databases through a combination of hardware, software, and networking technologies (Heimbigner and McLeod, 1985). Federated databases offer several benefits, including improved data sharing and collaboration, enhanced data integration and consistency, and increased scalability and flexibility. This enables users and applications to access and manage data from diverse, distributed databases through a single query, abstracting the complexities of the underlying database systems. The custodians operate independently, exhibiting significant variability in key aspects, like, Structural composition, Data semantics, supported constraints, Query languages, Data models and Transaction management capabilities. Integrating access control matrices with federated databases provides a secure and controlled access mechanism to distributed data resources.

This heterogeneity reflects the unique characteristics and requirements of each custodian.

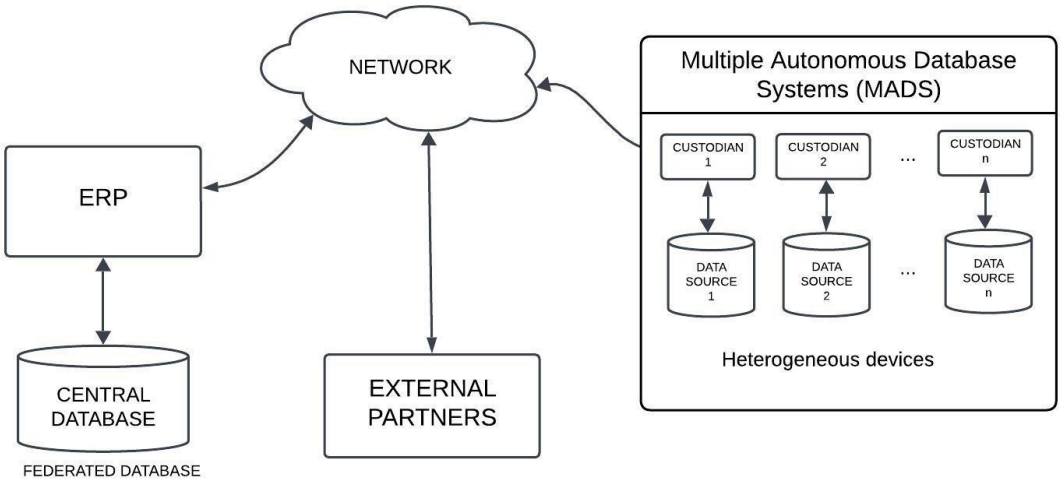

Figure 5: Decision Support System: a federated system

Poor utilization of computers in the studied institution could affect the creation, management and distribution of its IR. To be effective, organisations need to develop and equip the human resource using certain controls to enable them conceive and implement new ideas for effective performance and organizational process improvement (Pearce et al., 2012). It was also observed from the study that 92.5% of the respondents have not acquired any additional training or qualification related to their job roles since employment. And 82.6% affirmed that there was no initial training on the job upon assumption of duty. These can lead to skills obsolescence, limited career advancement, reduced job performance, and organizational stagnation (Aguinis and Kraiger, 2009; Bartlett and Ghoshal, 2002; Katz, 2013; Noe, 2017). This lack of ongoing training and development can result in decreased productivity, job dissatisfaction, and turnover, ultimately hindering organizational growth and innovation. In addition, as indicated in Table 1, 81.8% of respondents have acquired additional qualifications relevant to achieving institutional goals but these qualifications are not documented. This again suggests that the institution may be underutilizing its human capital and lacking a systematic approach to tracking and leveraging employee skills and qualifications (Noe, 2017). This oversight can lead to missed opportunities for talent development, knowledge sharing, and strategic alignment with institutional objectives.

CONCLUSION

This study highlighted the significance of effective resource management in optimizing organizational performance. The underutilization of Information and Communication Technology (ICT) for resource management can lead to a reliance on manual processes, resulting in inefficiencies, resource wastage, and the creation of an "Island of Unreachability" (Idehen and Daodu, 2019).

The findings of this study corroborate existing research (Tariq and Butt, 2021), highlighting that reliance on traditional administrative systems for resource management can result in substantial waste of critical resources. Furthermore, inadequate communication and collaboration among stakeholders can lead to duplicated efforts and unnecessary resource waste (Tariq and Butt, 2021). This research has also underscored the importance of adopting modern technology and innovative practices for resource management. By doing so, organizations can improve efficiency, reduce errors and delays, and enhance communication and collaboration among stakeholders, resulting in cost savings and improved performance (Ganeshan and Vethirajan, 2023).

This study has contributed to the understanding of workplace limitations of human resources in an educational institution. The identification of key stakeholders, referred to as 'resource custodians,' has highlighted the need for effective resource management practices. Furthermore, this research has laid the groundwork for the development of an Enterprise Resource Planning (ERP) system, which aims to optimize the utilization of tertiary institutional resources and improve overall operational efficiency.

Conclusively, this study emphasized the importance of effective resource management in achieving organizational goals and objectives. The findings of this research have implications for policymakers, practitioners, and researchers seeking to improve resource management practices in educational institutions.

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