

Critical Overview of Information Management, DIKAR Model and Technology in the 21st Century

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Abstract: Globally, business and non-business organizations in the 21st century continue to experience changes as a result of advances in and access to technology. Scientific and technological advances had impacted on virtually all spheres of human endeavor in the 21st century. Access to technology has significantly altered information flow and the way information is managed in the 21st century. Advance in technology has impacted the practice of Office and Information Management, in particular. The phenomenon *Information and Communication Technology*(ICT) continues to transform the manner in which Office and Information Managers carry out their primary responsibility of gathering, storing and disseminating information for organizational efficiency. Office and Information Managers in the 21st century exist in a fast-paced and dynamic environment where information is not only huge but in extreme constant flow. The 21st century is characterized by the dynamics and volatility of technology. In this paper we attempt a critical analysis of the problem of managing information in the 21st century with particular reference to the responsibilities of Information Managers, and by extension, Office and Information Managers. This analysis of the problem of managing information in the 21st century with respect to the tasks of Information Managers is carried out against the background of the intents and contents of what is generally referred to as the DIKAR model. The paper established that the DIKAR model remains a desideratum for Information Managers in the 21st century. Against the background of the dynamics of the 21st century interplay between Information Management and Information Technology, and also in view of the desirability of the DIKAR model the paper emphasizes the place of human competencies such as critical thinking and creativity in the management of information.

Keywords: *Information Management, Technology, DIKAR Model, 21st Century*

I. Introduction

Effective and efficient discharge of the responsibilities of Information Managers in the 21st century requires that the Information Manager be up to date with the dynamics of Information and Communication Technology. The phenomenon Information and Communication Technology is fast changing the landscape of not only *information* and *management*, but also of *Information Management* in itself.

Both as a practice and as a discipline Information Management has an intellectual history of being concerned essentially with information, and in particular, with the management of information. Existing literature on the history of Information Management demonstrates the centrality of the concepts *management* and *information* to the discipline and practice of Office and Information Management, for example (Black, 1999). In the 21st century however, the Information Manager is faced with the challenges of a constantly changing environment which Warren and Burt (1987) describe as a VUCA World.

To achieve its objective of carrying out a critical analysis of the problem of managing information in the 21st century, and in view of the need to outline the intents and contents of what is generally referred to as the DIKAR model,

the paper is divided into five sections. Following the present introductory section the second section attempts to highlight the nature of information management in the 21st century. The third section attempts to conceptualize the phenomena *information* and *information technology*. In the fourth section, an attempt is made to outline the intent and content of the DIKAR model visavis seeing the interplay between the DIKAR Model, information management and information technology. In the fifth and concluding section, the paper makes recommendations on the critical competencies of the information manager in the 21st century.

II. Information Management in the 21st Century

Information management is the process of information identification, production, classification, storage, dissemination and utilization considering the organizational, cultural, social as well as technological components (Mastura et al., 2017). The management of information is strategic to decision making in management, governance or administration. As Medhi puts it “information management is key to organizational success” (Mehdi et al.,2013).

In general, organizational performance in any sector requires effective and efficient information management skills and competencies. It is the strategic role which information management plays in every business or public organization that necessitated the need for organizations, down the ages, to engage information management experts. Various nomenclatures have been deployed to refer to professional information managers such as Records Officers, Clerical Officers and Information Officers, among others.

Particularly in the 21st century, and given the strategic role of information to organizational success, it is the trend that organizations now establish Information Management Units and engage the services of personnel now referred to as Information Managers. The 21st century nomenclature *Information Manager* is however deeper in meaning than earlier nomenclatures such as Clerical Officers, Records Officers and Information Officers. The nomenclature Information Manager in the 21st century has a technological connotation which reflects the realities of the impact of science and technology on the information management cycle. It is increasingly becoming impossible to refer to the information management cycle in the 21st century without referring to information technology.

The 21st century has been characterized as a VUCA world. The VUCA world according to Warren and Burt is a world of Volatility, Uncertainty, Complexity and Ambiguity. The Office and Information Manager in the 21st Century exists in a world where information is in unprecedented constant flow and in phenomenal abundance. The volatility of information in the 21st century is suggestive of the position that no information is in fact certain. Every information is by extension complex and ambiguous. The fact that the world is volatile suggests no condition is certain. The uncertainty of events or conditions makes decision making complex. The complexity of the situations in which decisions are made often lead to ambiguities or misrepresentations.

Technology in the 21st century has deepened the realities of the VUCA world. Organizations globally continue to experience accelerated changes and development as a result of access to technology. Technology is redefining and reshaping the workspace. Access to technology has led to improved quality of life in various climes. In workplaces of deep ICT penetration there has been improved effective and efficient service delivery. More precisely, the processes and procedures of managing information has been transformed through the inextricable interplay of digitization and digitalization.

Characterized by a paradigm shift from analog information management processes to digital information management processes, the 21st century is aptly referred to as the Information Age; an age characterized by diverse, continuous and voluminous flow of information. The 21st century is the age of information explosion and exploration. Information gathering, storage, dissemination and disposal is gradually and technically becoming no longer the business of professional Information Managers, but the business of anyone who is information and computer savvy. What the dynamics of managing information in the 21st century suggests is that it is no longer business as usual for managers of information.

The *technologization* of information management comes with issues and challenges for the Information Manager in the 21st century: for example, is the global and deep penetration of Information and Communication Technology a threat or an advantage to Information Managers?; Is it the case that the advances in the applied sciences - particularly in Information and Communication Technology - could lead to job losses for professional Information Managers? Are disciplines such as Office and Information Management going into extinction with the advances in science and technology? To further appreciate the import of the concerns of digitization of information management processes, we examine closely the interplay between information and information technology.

III. Information and Information Technology

Speaking generally, technology presents itself a double-edged sword in the 21st century. Advances in technology is known to have contributed to human wellness- in the areas of healthcare and provision of educational

services, for example. Advances in technology are however also known to have generated man-made problems of biological weapons and warfares, among others. Specifically, technology is a double-edged sword for professional Office and Information Managers; depending on level of deployment, technology can make or mar the information management practitioner. Technology is known to have eased the process of identifying, gathering, classifying and disseminating information, for example.

The digitization and digitalization of the processes of information management is also known to have enhanced the productivity of Office and Information Managers, among others. There is also the concern that the profession Office and Information Management is fast extincting in the global and technology-driven workplace. The Office and Information Manager in the 21st century is faced with the challenges of managing enormous and constantly flowing data. The phenomenon often referred to as Big Data not only poses challenges to Information Managers but also poses a challenge to decision-making (as decision makers are confronted with countless alternatives to rely on in the decision-making process). The research and advances in Robotics or Artificial Intelligence is also, for example, promissory of paperless and humanless offices or offices where there is need for reduced paperwork or minimal human interaction.

At this point it is instructive to examine the concept *information*. As evidenced in the works of several scholars the concept of information is one that has come with various meanings and conflicting notions (Knox, 2007). Information means different things to different people. Both in terms of connotation and denotation, what is meant by information is often determined by the context of usage. The concept of information is not only superfluous and polysemous but characterized by multiplicity of connotative and denotative meanings, For our purposes however we concur with Davies and Ledington (1991: 2) that information is something more than data.

The word *data* is etymologically derived from the Latin word *dare* which means 'to give' (which also may be misleadingly interpreted as 'to give information'). Data however is properly speaking a formal representation of facts or concepts which are capable of being communicated, interpreted or processed by humans or machines. The symbols of logic (such as ~ and <), the English alphabets (A to Z), and numbers (0, 1 - 9) are all formal representations (or technically speaking, data).

The phenomenon *information* has a deep and transcending meaning over and above the concept *data*. For the purposes of this paper we define information as data processed, organized or classified in such a manner that it makes meaning or gives value to the receiver. A critical value of any piece of information for example is the fact that the receiver can rely on it for decision making. For any decision to be meaningful it must be founded on information. Conversely for information to be truly foundational of any decision, it must be delivered or transmitted to the receiver in a timely, adequate and complete manner. Rather than inform, an untimed, incomplete and inadequately processed data can only deform.

The concept *Information Management* is borne out of the need to ensure that rather than being deformed by incomplete and inaccurately processed data, decisions are informed by timely delivered, accurately processed and completely accessed data. To this extent information management is conceived as the process by which relevant information is provided to decision makers in a timely manner (Davis, 1997). Technically speaking, Information Management aims to get the right information to the right person at the right time (Susan Maley, 2016).

Management is a generic term which itself suggests organizing and processing resources in such a manner that some set objectives - or organizational goals - are achieved. Thus all of the underlying principles of management comes to play in Information Management. The Information Manager is a manager of a strategic resource, information. The productivity or performance of the Information Manager is determined by how s/he effectively or efficiently processes information.

Prior to the 21st century the management of information had been largely analog. The 21st century has birthed a surge in the use of technology to drive the processes of managing information. The concept *Information Technology* is a phenomenon that is deeply rooted in the 21st century philosophy of digitization and digitalization of the information management process. The concept *technology* in itself refers to the application of scientific know how for practical purposes.

Technically speaking then we define Information Technology as the application of any physical infrastructure, storage or networking devices, such as computers, in the management of all forms of electronic data. According to Boar (1997) Information Technology refers to those technologies engaged in the operation, collection, transport, retrieving, storage, access presentation, and transformation of information in all its forms. A term coined by the *Harvard Business Review* the phenomenon Information Technology is almost inseparable from Information Management. Information management in the 21st century is largely technology and science driven. The digitization of data and the digitalization of the processes of managing data is a hallmark phenomenon of the 21st century.

At this juncture it becomes obvious that the Information Manager requires an information management model capable of addressing the needs of managing information in the now digital and vastly technology-driven globe. The volatility, uncertainty, complexity and ambiguity that surrounds *information* in the 21st century is suggestive of the need for an information management model that the Information Manager of the 21st century can rely on for effective and efficient service delivery.

IV. DIKAR Model, Information Management and Information Technology

At this juncture we espouse the intents and contents of the DIKAR Model of Information Management as a background to seeing a plausible response to the challenges posed by the advances in technology to the Office and Information Manager, for example. As propounded by Venkatra man (1996) DIKAR is an acronym for that information model that stresses the place of Data, Information, Knowledge, Action and Result in the decision making process.

The concern of Venkatra man is with evolving a model that simply, but also comprehensively, captures ideas surrounding the management of information for organizational result or output. Technically put, DIKAR represents an acronymic framework for conceptualizing the place of Data, Information, Knowledge, Action and Result in decision making.

For the purposes of this paper we illustrate the import of the DIKAR model through an analysis of the interplay between Information Management, Information Technology and DIKAR thus:

- **Data** is digitally storable in computer devices.
- **Information** is obtained from appropriately interpreted digitally stored data.
- **Knowledge** is derived when information is appropriately understood in content and context.
- **Actions**, to be considered significant for managerial purposes or decision making, must be founded on knowledge.
- **Results** are achieved when actions are well founded on knowledge.

The ultimate import of the above outline of the interplay between Information Management, Information Technology and DIKAR itself is that meaningful results can be delivered only when appropriate actions are taken. It is also given that there is nothing like appropriate actions or decisions if such action is not founded on knowledge. Furthermore knowledge derives from information; and, information in itself is a phenomenon founded on appropriately interpreted data.

Thus with the DIKAR model, the Information Manager is able to bridge the gap between when information becomes knowledge and when knowledge translates into action. Bridging the gap between when information becomes knowledge and when knowledge translates into action however requires that the Information Manager develops capacities or competencies that meet the challenges of a volatile, uncertain, complex and ambiguous (VUCA) world.

V. Conclusion

In response to the challenges of the fast-paced information driven-world it becomes imperative that the Information Manager is ever more dynamic. In the 21st century VUCA world the Information Manager must be willing to learn and unlearn; s/he must be at alert and be able to adapt to new possibilities and realities.

To survive in a globally *technologized* and information-driven world, the Information Manager must acquire, in our view, the corollary competencies and abilities requisite for implementation of the DIKAR model for information management. Every item, step or stage in the DIKAR model presumes the Information Manager is a critical thinker. The possession of a critical attitude of the mind is for example needed by the Information Manager to be able to transform data to information and information to knowledge.

Advances in the field of Information Technology has eased the process of storing, retrieving and deleting data and information. It should however be noted that it takes human rationality to be able to translate data to information, information to knowledge, knowledge to action, and action to results. The computerization of data and data processes is not enough to bring results. The human factor is key to transitioning from data to results. The essentially human phenomena of rationality, creativity and originality are key to effective and efficient information management in the 21st century and beyond.

Computerization of data will not produce results. Humanization of data will. Data is *humanized* when it is subjected to critical reasoning. Critical reasoning engenders creativity, originality and new possibilities. Every decision making process is in the ultimate a human process. Computers do not decide; humans, in the ultimate do. Thus to survive in the 21st century, the Information Manager must not only develop the capabilities to deploy technology for the

purposes of managing information, the Information Manager must also develop and sharpen the core competencies of creativity and originality.

On the strength of the criticality of critical thinking to management of information, and also against the background of the significance of the DIKAR model, it also becomes imperative that the curriculum for training future managers of information be appropriately deepened to reflect interdisciplinary courses like Critical Thinking and Information Management; Philosophy of Information Management; and, Information Management and Sustainability, among others.

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