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Bottleneck as a Determinant Factor Influencing the Implementation of Knowledge Management in Ministerial Establishments in Rivers State

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Abstract: *This study investigated bottleneck as a determinantfactor influencingthe implementationof knowledge managementin River State Ministries. The focus of the study was mainly on techno-centric aspect of knowledge management and how its implementation can fail due to bottleneck usually occasioned by the observation of hierarchical power structure in the ministries.The study was a descriptive survey. As such bottleneck as a variable was employed to describe how technology-assisted knowledge management can be influenced. The population of the study comprised all the employees of Rivers State Ministries of Information/Communication and Budgeting and Planning. On a-10% basis, a sample of 400 employees was randomly drawn from the two Ministries, 200 being the number drawn from each of them. The instrument for collection of data was a questionnaire code-named 'Bottleneck as a Factor Influencing Implementation of Knowledge Management Assessment Questionnaire (BFIIKMAQ).Out of 400 questionnaire administered, 370 was well-filled, retrieved and used for the study.The internal consistency of the validated instrument was measured using Cronbach statistical tool which yielded the reliability index of 0.73 at 0.05 Alpha level. Mean and standard deviation were used to answer the research questions, while z-test was used to test the hypothesis. The study found among other things thatRivers State Ministries do not manage their knowledge related assets and processes well. Hierarchy-induced bottleneck influences implementation of IT-driven knowledge management in Rivers State Ministries very negatively. This result was further affirmed by hypothetical proposition which revealed that there exists no significant difference between the mean ratings of male and female employees of Rivers State Ministries on theextent hierarchy-induced bottleneck influences their Ministries' technology-assisted knowledge management effort . The following recommendations were made: the pursuit of IT-driven Knowledge management should be prioritized so as to combat hierarchy induced bottleneck, special funds should be established for provision of IT-driven Knowledge management and employees should be exposed to training IT-driven Knowledge management and process and retraining programmes organize annually to improve the IT-driven Knowledge management scheme.*

Keywords: *Knowledge Management, hierarchy-induced bottleneck. Implementation, IT*

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I. Introduction

Management asa field of study or an organizational activity has been tremendously influenced by globalization. One of the great impacts of globalizationin this cotemporary era is rendering all the countries of the world borderless, thereby enabling knowledge sharing and exchange at speed of the light. No more can international boundaries limit the free flow of information resources among the citizens of the world. The today's citizen of the globe have come to depend so much on knowledge economy entirely driven and predicated on information technology (IT). Knowledge economy begets knowledge management (KM) because it is out the quest to effectively harvest the benefits accruable from the former that the latter becomes necessary. In other words, Knowledge management is a strategic management approach to reap the benefits of knowledge economy.

Knowledge is the practical application of information, skills or expertise one has in dealing with or solving problems, while management is the ability to use any given resources or assets in a proper manner in order to actualize set goals. Ackoff cited in Sbaffoni (2013) statedthat contentof the human mind can be classified into categories namely, data which comprises raw data, facts and symbols; information which is processed data that is considered very useful and provides answers to "who", "what", "where" and "when" questions; and knowledge which involves the application of data and information and answers "why" questions.

Knowledge is information that changes something or somebody – either by becoming grounds foractions, or by making an individual (or an institution) capable of different or more effective action. To have the knowledge is to have the capacity to understand and give a meaning to information and facts. Understanding

entails trying to appreciate why about somebody or something and giving a meaning to information and facts involves applying wisdom in order to provide answers to why about somebody or something (Sbaffoni,2013). For instance, the question why is it that in recent days there is so much delay in the service delivery in this organization will pass for understanding; while giving a meaning to information and facts occurs if the person who has asked the above question goes further the cause of the delay and then invent solutions to deal with the delay.

Solow cited in Sbaffoni (2013) adduced a major reason why knowledge management became important and seriously sought for by most organizations. According to him, it was discovered in 1960s by the economists that increasing in productivity was not fully described by formula including traditional factors such as land,capital and labour. The economists discovered that there is something else to be taken into account the notion of knowledge innovation. Competiveness depends on innovation and innovation depends on knowledge. Technological revolution has established knowledge as a key issue. Knowledge does not diminish if it is used or shared. Knowledge may become lost when not put into practice. One major way of putting knowledge into practice is by managing it. Knowledge is no knowledge if it cannot be retrieved.Knowledge has been categorized into : (1)structured knowledge,e.g.,document ,database, minutes of the meeting, data base, minutes of a meeting;(2)unstructured knowledge, e.g. telephone calls, scattered notes, informal discussions;(3) critical knowledge, e.g. key knowledge for a given business , especially the one eventually at risk (Sbaffoni ,2013).

According to Liu (2014), in our daily life, we deal with huge amount of data and information. Data and information is not knowledge until we know how to dig the value out of it.This is the reason we need knowledge management.Unfortunately, there is no universal definition of knowledge management, just as there is no agreement as to what constitutes knowledge in the first place. Girard & Girard (2015) perceivedknowledge management (KM) as the process of creating, sharing, using and managing the knowledge and information of an organisation. It refers to a multidisciplinary approach to achieving organisational objectives by making the best use of knowledge (Liu, 2014). Web-based dictionary, Wikipedia definedknowledge management (KM) as the process of capturing, developing, sharing, and effectively using organisational knowledge efficient handling of information and resources within a commercial organization. Addriessen cited in Sbaffoni (2013) defined knowledge management as the process to acquire, organize and communicate knowledge. The International Atomic Energy Agency (IAEA) cited in Sbaffoni (2013) defined knowledge management as systematic and integral approximation which permits to identify, manage and share the knowledge within an organization, and to interconnect people to create new collective knowledge useful to the objectives of the group.

Knowledge and expertise is constructed in many different ways such as spiral, social process from whereinformation, interaction, collaborative activities, experience are learned. Knowledge management enables the creation, distribution, and exploitation of knowledge to create and retain greater value from core business competencies (Sbaffoni, 2013). Knowledge management is the process through which organizations generate value from their intellectual and knowledge-based assets(Levinson, 2009). From Levison's definition, we can form the understanding that intellectual assets have to do with all mental efforts of organisational manpower to provide solutions to present and future challenges of the respective organizations in which they have been employed to work for ; while knowledge assets deals with three main things namely, information, skills and expertise.Therefore, it can be said that knowledge management involves handling the mental efforts, information, skills, and expertise of people hired by an organization effectively with a view to actualizing both present and future goals. Knowledge is an intangible resource of an organization. If this intangible (unseen) resource is properly managed it will give rise to tangible (seen) benefits such as money, employment, businessexpansion, increased infrastructural facilities, increased capital investments, etc.

American Productivity and Quality Center (APQC) defined knowledge management as a collection of systematic approaches to help information and knowledge flow to and between the right people at the right time (in the right format at the right cost) so that they can act more efficiently and effectively to create value for the organization. When defined broadly, knowledge management is a highly robust discipline that is represented in almost every large organization. Admittedly, it is practised under many names- knowledge sharing, social learning, and virtual collaboration are common variations and the duties of knowledge management often get rolled into other functions such as strategy, IT, human resource, and organisational learning. But as long as organisations recognize the need to connect employees to information, expertise and one another, they will need knowledge management infrastructure and people who know how to manage it.

Liu (2014) and Sanchez (1996) positedthatknowledge management efforts have a long history, including on-the-job discussions, formal apprenticeship, discussion forums,corporate libraries, professional training and mentoring programmes.They suggested sources of knowledge to manage can emerge from both non-electronic and electronic means.Non-electronic means like on-the-job discussions, formal apprentice, professional trainings came before electronic ones, which emerged in the mid of the 20th century.

There are two different aspects for managing knowledge. One is techno-centric and the other one more holistic, integral, organizational which makes a use of knowledge as a multidimensional concept. Techno-

centric focuses on technologies, ideally those that enhance knowledge sharing and creation (Alavi & Leidner, 1999) ;Rosner, Grote, Hartman, Hofling & Guericke 1998). Organizational focuses on how an organisation can be designed to facilitate knowledge processes best(Addicot,McGivern, & Ferlie,2006). However, focus of study is directed at the techno-centric aspect.

The focus of knowledge management is connecting people, processes and technology for the purpose of leveraging corporate knowledge (Liu, 2014).

a. Culture/people–The biggest enabler of successful knowledge-driven organizations is the establishment of a knowledge-focused culture/ how do you increase the ability of an individual in the organisation to influence others with their knowledge.
b. Structure/Process– the business processes and organisational structures that facilitate knowledge sharing. Its approach varies from organization to organization. There is no limit on the number of processes.
c. Technology – a crucial enabler rather than the solution. It needs to be chosen only after all the requirements of a knowledge management initiative have been established.

In an elaborate fashion, American Productivity and Quality Center espoused the reasons why organizations want to make knowledge management (KM) an integral part of their system.According to it, there are many reasons why organizations begin a knowledge management effort. Sometimes the impetus is demographics: A lot of senior experts are about to retire and the organization wants a way to document their know-how and experience, or a bunch of new people get hired and KM is seen as a way to get them up to speed more quickly. Other organizations turn to KM in response to change or crisis. A merger, acquisition, or restructuring can make an organization recognize the need to break down siloes between groups and improve cross-boundary knowledge sharing and collaboration. Likewise, if an embarrassing mistake makes the papers or a safety incident puts lives at risk, leadership may decide that KM can reduce the risk of similar errors occurring in the future. Still other organizations simply recognize that they are leaving money on the table by not learning from past experience and reusing intellectual capital across projects, locations, and business units.But regardless of what motivated their launch, successful KM programs ultimately move beyond their original business case to address a range of knowledge needs and add value to the business in all sorts of ways (American Productivity and Quality Center).

According to APQC, for knowledge management to be successful, organizations which want to integrate it into their culture need a formal knowledge must have a documented knowledge management strategy and roadmap. Why is this important is that we find that too many organizations decide they are going to integrate knowledge management into their system without a clear idea of why or the specific goals they want to achieve. If they start by defining a strategy, it forces will force them to figure out what their organizations needs in relation to knowledge and knowledge management. What is it that knowledge management can help the business do better? To figure out the answer to that question, the organizations which want to integrate knowledge management into their culture have to interview senior leaders, line managers, and whoever else they can. Then they have something that is actually important to aim for, and something that (hopefully) everyone can agree on. The next step is to create a formal strategy and roadmap around the goals to be identified. A clear strategy has to be one that articulates where the organization wants to go and how it will get there. This helps the concerned organization to align what it is doing with the broader business strategy and build credibility for the tools and approaches it puts in place. It also helps the KM group stay focused and jumpstarts conversations with internal business partners whose buy-in and support the organization needs along the way (American Productivity and Quality Center).

From management perspective, bottleneck is unnecessary delay caused by observation of formal hierarchy of power in the exercise of routine functions in an organization.The hierarchy of power is observed within an administrative channel of a formal organization and flows from top to bottom. Hierarchy is usually structural in that it is weaved into the power structure of organizations. For instance, in the university setting in Nigeria, the vice-chancellor is on the top and ably assisted by the deputies. Orders and directives from his office get to the next rank of structure down to people at the bottom, who may be students, security personnel, messengers, cleaners, etc. If people who are supposed to act but they are not acting because they are complying with hierarchical power structure existing in an organization by waiting for their superiors to act first, there will be bottlenecks in the operational process.

A bottleneck is one process in a chain of processes, such that its limited capacity reduces the capacity of the whole chain. The results of having a bottleneck are stalls in production, supply overstock, pressure from customers and low employee morale(Lu, Shen& Lan, 2006).There are both short and long-term bottlenecks. Short-term bottlenecks are temporary and are not normally a significant problem. An example of a short-term bottleneck would be a skilled employee taking a few days off. Long-term bottlenecks occur all the time and can

cumulatively significantly slow down production. An example of a long-term bottleneck is when an employee is not efficient enough and as a result has a long queue.

Lu, Shen& Lan,(2006) noted that identifying bottlenecks is critical for improving efficiency in the production line because it allows organisations to determine the area where accumulation occurs. Lu, Shen& Lan,(2006) highlighted ways of identifying bottlenecks in an organization as follows:

a. Accumulation

When input comes in faster than the speed of the process, accumulation starts to occur.[2] This means that the organization does not have enough capacity, is not being fully utilized (inefficient in use) or has an under-qualified persons.

b. Throughput

Since the production line is directly linked to the output of employees, it allows for the identifying of the main bottleneck in the production process. In changing each employee's throughput, it will be possible to assess which employee affects the overall output the most, and hence determine the bottleneck in the chain of processes.

c. Full capacity

By using the utilization percentage of each production unit, it is possible to determine the employee which uses the highest percentage of its capacity. This employee is bottlenecking the other employees by 'forcing' them to operate at a lower capacity. However, if all employees in the chain of processes are running at a similar capacity level, increasing the capacity of the lowest employee will not create a significant improvement to the total output.

d. Wait times

In the case where several production units are already running at full capacity, tracking the down time of employees will allow you to identify employee who is causing delays. Usually the employee with the highest wait or down time in the chain of processes is a bottleneck. The result of this is the employee being underutilized.

e. Fishbone diagram

A fishbone diagram is a graphical means for finding possible problems in a chain of processes. By collecting the different data related to the problem, and inputting them into the diagram, it becomes easier to analyze the data in the order it was used and hence determine the root of the problem. This is commonly used to find the bottleneck in a chain of processes due to being able to single out the employee precisely responsible for the delay in production(Lu, Shen& Lan, 2006).

Having bottlenecks in production comes with many consequences. These include (a) stalls in production which may be as a result of one employee slowing down the entire chain of processes and consistently leaving the other employees unable to continue while it accumulates a large queue. This inefficiency significantly slows down production as many resources such as time, people and machines are being paid to wait.[1] (b)supply overstock which suggests that in the event of accumulation in the long-term, the capacity at which the bottlenecked employee is working could be so slow that the accumulated resources that are in the queue need to be stored. The cost of storing resources is significant as it takes resources to transport the materials back and forth as well as requiring space, another potential cost.(c)fall in employee morale:the result of bottlenecks could require more work from employees as well as longer hours. In addition, there is the factor of stress and frustration with the bottlenecked employees. This could result in loss of efficiency as employees may not be very motivated to work.Bottlenecks can result in the overloading of employees. Overloading employees can lead to the employees getting demoralized or worn out and result of this would be potential stretches of downtime in the long term(Lu, Shen& Lan, 2006).

Importance of knowledge management systems in combating bottlenecks in organizations cannot be overemphasized. They have been highlighted by Liu (2014) as: (a) fostering innovation by encouraging the free flow of ideas, (b) improving decision making (c) improving customer service by streamlining response time (d) boosting revenues by getting products and services to market faster (e) enhancing employee retention rates by recognizing the value of employees' knowledge and rewarding them for it and (f) streamlining operations and reduce costs by eliminating redundant or unnecessary processes.

The implementation of knowledge management encompasses all the processes towards toeing the roadmap designed for the realization of strategic plans for entrenching the culture of knowledge management in an organization. In the presence of bottlenecks, knowledge management is likely to fail. Bottleneck, especially the one stemming from observation hierarchical power structure of an organization, leads to delay, waste of time

andeffort; itkills initiatives and innovative ideas from the subordinates. It is antagonistic to managing knowledge with technologies. KM assisted technologies support flexibility and easy accessibility and thus will not likely work effectively in an organizational context that encourages bottleneck. Therefore, bottleneck as a factor can determine or cause the failure of KM implementation.

William (2015) submitted that bottlenecks in an organization can be prevented by way of encouraging knowledge management efforts such as planning, organizing, motivating, and controlling of people, processes and systems in the organization to ensure that its knowledge-related assets are improved and effectively employed. Knowledge-related assets include knowledge in the form of printed documents such as patents and manuals, knowledge stored in electronic repositories such as a "best-practices" database, employees' knowledge about the best way to do their jobs, knowledge that is held by teams who have been working on focused problems and knowledge that is embedded in the organization's products, processes and relationships (William,2015).

Certain technologiessupport knowledge management and discourage bottlenecks. These technologies have been roughly correlated to four main stages of the KM life cycle:

1. Knowledge is acquired or captured using intranets, extranets, groupware, web conferencing, and document management systems.
2. An organizational memory is formed by refining, organizing, and storing knowledge using structured repositories such as data warehouses.
3.Knowledge is distributed through education, training programmmes, automated knowledge based systems, expert networks.
4. Knowledge is applied or leveraged for further learning and innovation via mining of the organizational memory and the application of expert systems such as decision support systems.

According to Alavi and Leidner (1999) and Gupta and Sharma, (2004) Knowledge management (KM) technologies that prevent bottlenecks in organizations can be categorized as follows:

(a) Groupware : Software that facilitates collaboration and sharing of organisational information. One of the earliest successful products in this category was Lotus Notes: it provided tools for threaded discussions, document sharing, organisation-wide uniform email, etc.

(b)Workflow systems: Systems that allow the representation of processes associated with the creation, use and maintenance of organisational knowledge. For example, the process to create and utilise forms and documents.

(c)Content management and document management systems: Software systems that automate the process of creating web content and/or documents. Roles such as editors, graphic designers, writers and producers can be explicitly modeled along with the tasks in the process and validation criteria. Commercial vendors started either to support documents (e.g. Documentum) or to support web content (e.g. interwoven) but as the Internet grew these functions merged and vendors now perform both functions.

(**d) Enterprise portals:** Software that aggregates information across the entire organisation or for groups such as project teams (e.g. Microsoft SharePoint). (e)e-Learning : Software that enables organisations to create customised training and education. This can include lesson plans, monitoring progress and online classes.

(e) Planning and scheduling software: Software that automates schedule creation and maintenance (e.g. Microsoft Outlook). The planning aspect can integrate with project management software such as Microsoft Project ((Alavi & Leidner,1999).

(f) Telepresence : Software that enables individuals to have virtual "face-to-face" meetings without assembling at one location. Videoconferencing is the most obvious example.

These categories overlap. Workflow, for example, is a significant aspect of a content or document management systems, most of which have tools for developing enterprise portals (Gupta & Sharma,2004).

According to Liu (2014), with increased use of computers in the second half of the 20th century, specific adaptations of technologies such as knowledge bases, expert systems, information repositories, group decision support systems, intranets, and computer-supported cooperative work have been introduced to further enhance knowledge management efforts.

Liu (2014) maintained that the objective of knowledge management is to dissipate efforts in effective managing and maximising the intangible assets of the organisations. It is pertinent to note that today's knowledge management is more of electronic based. Contemporary knowledge management which leverages much more on information technologies has not been properly internalized in organizations found mainly in

developing countries such as Nigeria. In Rivers State, productivity level of government ministries seems to be falling because of bottleneck which still characterizes their operations coupled with lack of culture of technology-assisted knowledge management.

Aim and Objectives of the Study

This study aims at investigating hierarchy-induced bottleneck as a determinant factor influencing technology-assisted knowledge Management in Rivers State Ministries.

Research Questions

The study is to be based on the following research questions:

1. How does Rivers State Ministries manage their knowledge related assets and processes?
2. To what extent does hierarchy-induced bottleneck influence technology-assisted knowledge management in Rivers State Ministries?

Hypothesis

The study is to be based on this hypothesis:

$H0_1$**:** There is no significant difference between the mean ratings of male and female employees of Rivers State Ministries on theextent hierarchy-induced bottleneck influences their Ministries'technology-assisted knowledge management effort.

II. Methods

The study was a descriptive survey. As such bottleneck as a variable was employed to describe how technology-assisted knowledge management can be influenced. The population of the study comprised all the employees of Information/CommunicationMinistry together with those in the Budgeting and Planning Ministry. On a-10% basis, a sample of 400 employees was randomly drawn from the two Ministries, 200 being the number drawn from each of them.The instrument for collection of data was a questionnaire code-named 'Bottleneck as a Factor Influencing Implementation of Knowledge Management Assessment Questionnaire (BFIIKMAQ).This instrument was had two sections. Section A had the demographic related information of the respondents, while Section B contained the items of questionnaire. Out of 400 questionnaire administered 370 was well-filled, retrieved and used for the study.The internal consistency of the validated instrument was measured using Cronbach statistical tool which yielded the reliability index of 0.73 at 0.05 Alpha level. Mean and standard deviation were used to answer the research questions, while z-test was used to test the hypotheses. To obtain the criterion mean for scoring the questionnaire, the all the points of the Likert-scale were added up and divided by 4, that is, 4+3+2+1/4 = 2.50. Therefore, any calculated mean that is 2.50 and above indicates acceptance and any one below it (2.50) indicates rejection.

III. Results

The results generated from the data collected were analyzed and presented in the Tables below.

Research Question One: How does Rivers State Ministries manage their knowledge related assets and processes?

Table 1: Mean and Standard Deviation Analysis Presenting How Rivers State Ministries Manage their Knowledge Related Assets and Processes

S/No.	**Items**	Male : 200			Female: N= 170		
		$\overline{X}$	SD	Remark	$\overline{X}$	SD	Remark
1.	Inviting former experienced chief executives to share IT-related job ideas and experiences.	2.02	1.10	Disagree	1.90	1.01	Disagree
2.	Engaging employees in IT assisted mentoring	1.96	1.12	Disagree	1.56	1.02	Disagree
3.	Organising power-point seminars where renowned experts are invited to give talks on how contemporary job challenges will be successfully tackled	1.79	1.22	Disagree	1.40	1.00	Disagree
4.	Preserving the video clips and tapes on ways the renowned ex-administrators tackled certain challenges of the ministries.	2.09	1.11	Disagree	1.64	1.03	Disagree
5.	Ensuring constant power supply to ensure that IT-assisted knowledge sharing and learning is up and running.	1.80	1.31	Disagree	1.38	1.04	Disagree
6.	Providing IT-assistedinfrastructures	2.60	1.00	Agree	2.53	1.02	Agree
7.	Constant maintenance of IT-assisted infrastructures	1.52	1.33	Disagree	1.49	1.35	Disagree
8.	Establishing special funds for the integration of IT-assisted knowledge sharing and learning.	1.32	1.24	Disagree	1.42	1.05	Disagree
9.	Providing in-job and out-job IT usage training and	2.15	1.02	Disagree	2.10	1.23	Disagree

	retraining						
10	Providing special incentives and rewards for categories of employees who distinguished themselves in IT usage.	1.40	1.25	Disagree	1.35	1.31	Disagree
11.	Creation of the position of Chief Knowledge Officer in the Ministry.	1.20	1.42	Disagree	1.10	1.51	Disagree
	Weighted Overall Mean $\overline{X}$ $\overline{X}$	**1.80**	**1.19**		**1.52**	**1.14**	

Table 1 shows that for male and female respondents,apart from item 6,all the items had their weighted mean values above the criterion mean of 2.50. This result therefore indicates that Rivers State Ministries do not manage their knowledgerelated assets and processes well. This is further affirmed by the weighted overall mean values for both male and female respondents. Male and female respondents had their weighted overall mean values of 1.80 and 1.52 respectively below the criterion mean of 2.50 (i.e., $\overline{X}$ $\overline{X}$ =1.80 and 1.52 < 2.50).

Research Question Two: To what extent does hierarchy-induced bottleneck influence technology-assisted knowledge management in Rivers State Ministries?

Table 2: Mean and Standard Deviation Analysis Presenting the Extent Hierarchy-induced Bottleneck Influences Technology-Assisted Knowledge Management

S/No.	Items	Male : 200			Female: N= 170		
		$\overline{X}$	SD	Remark	$\overline{X}$	SD	Remark
1.	Seeking the authorization of the superiors before taking good initiatives.	3.51	0.88	Agree	3.29	0.98	Agree
2.	Limiting decision making to superiors to the exclusion of the subordinates.	3. 62	0.92	Agree	3.43	0.86	Agree
3.	Piling up of untreated urgent matters	3.71	0.61	Agree	3.57	0.72	Agree
4.	Restricting free flow of information sharing and learning.	3.86	0.63	Agree	3.64	0.91	Agree
5.	Causing work overload	3.82	0.73	Agree	3.79	0.89	Agree
6.	Slowing down taking actions in meeting emergencies that require urgent attention.	3.75	0.77	Agree	3.52	0.92	Agree
7.	Discouraging the improved services to clients by slowing down response time.	3.84	0.56	Agree	3. 62	0.84	Agree
8.	Preventing innovation by discouraging the free flow of ideas	3.79	0.92	Agree	3. 55	0.83	Agree
9.	Retarding revenues by getting information and services to market slower	3.91	0.48	Agree	3.84	0.60	Agree
10.	Discouraging the streamlining of operations and cost reduction by not eliminating redundant or unnecessary processes.	3. 63	0.82	Agree	3.68	0.97	Agree
	Weighted Overall Mean $\overline{X}$ $\overline{X}$	**3.74**	**0.73**		**3.59**	**0.85**	

Table 2 reveals that all the items for both males and females had their weighted mean values far above the criterion mean of 2.50. This result therefore indicates that hierarchy-induced bottlenecks, to large extent, exert overwhelming negative influence on technology-assisted knowledge management in Rivers State Ministries. This result was further confirmed by the weighted overall mean values for both male and female respondents. For both, the calculated overall mean values stood at 3.74 and 3.59 respectively, indicating that male and female employee accepted the position that hierarchy-induced bottlenecks overwhelmingly exert negative influence on technology-assisted knowledge management in Rivers State Ministries.

Test of Hypothesis

$H0_1$**:** There is no significant difference between the mean ratings of male and female employees of Rivers State Ministries on theextent hierarchy-induced bottleneck influences their Ministries' technology-assisted knowledge management effort.

Table 4: Z-test Analysis of Difference between the Mean Ratings of Male and Female Employees of Rivers State Ministries on the extent Hierarchy-induced Bottleneck Influences their Ministries' Technology-Assisted Knowledge Management Effort.

Variables	N	$\overline{X}$	SD	DF	Z_{cal}	Z_{table}	Level of Sign.	Decision	Remark
Male	200	3.74	0.73	368	1.80	1.96	0.05	Accept	No Significant Difference
Female	170	3.59	0.85						

Table 5 shows that z-calculated is 1.80, while z-table is 1.96 at 0.05 level of significance. The degree of freedom is 368. Since z-calculated is less than z-table (i.e., 180< 1.96), the hypothesis is accepted. Therefore, there exists no significant difference between the mean ratings of male and female employees of Rivers State

Ministries on theextent hierarchy-induced bottleneck influences their Ministries' technology-assisted knowledge management effort.

IV. Discussion of the Results

The discussion here is to be carried out on Table by Table fashion and will permit deductions where necessary.

In Table I the result revealed that that Rivers State Ministries do not manage their knowledge related assets and processes well. This proposition was arrived at as the respondents positively indicated that Rivers State Ministries do not invite former experienced chief executives to share IT-related job ideas and experiences., do not engage employees in IT assisted mentoring ,do notorganize any power-point seminars where renowned experts are invited to give talks on how contemporary job challenges will be successfully tackled neither do they preserve the video clips and tapes on ways the renowned ex-administrators tackled certain challenges of the ministries, ensure constant power supply to ensure that IT-assisted knowledge sharing and learning is up and running,constant maintenance of IT-assisted infrastructures. The ministries also have notestablished special funds for the integration of IT-assisted knowledge sharing and learning, do not provide in-job and out-job IT usage training and retraining, provide special incentives and rewards for categories of employees who distinguished themselves in IT usage and neither have they created any position of Chief Knowledge Officer in the Ministries.From this result it could be deduced that the implementation of IT-driven knowledge management have not at all begun in the Rivers State Ministries. And deriving a lot of gains inherent in IT-driven knowledge management is not possible, particularly for now. This result is in conformity with the study ofGupta Sharma (2004) which revealed that in developing world (such as in Nigeria and Rivers State), Knowledge management, particularly IT-assisted one, has been relegated to the background.

Table 2 revealed that that hierarchy-induced bottleneck, to large extent, exerts overwhelming negative influence on technology-assisted knowledge management in Rivers State Ministries. The fact remains that in the face of seeking the authorization of the superiors before taking good initiatives, limiting decision making to superiors to the exclusion of the subordinates,piling up of untreated urgent matters, restricting free flow of information sharing and learning, work overload and slowing down action taking in meeting emergencies that require urgent attention, the implementation of technology-assisted knowledge management cannot work. It was also revealed that hierarchy-induced bottlenecks discourages the improved services to clients by slowing down response time, preventing innovation by discouraging the free flow of ideas, retard revenues by getting information and services to market slowerand discourage the streamlining of operations and cost reduction by not eliminating redundant or unnecessary processes. This result is further affirmed by hypothetical proposition emerging from Table 3 which revealed that there exists no significant difference between the mean ratings of male and female employees of Rivers State Ministries on theextent hierarchy-induced bottleneck influences their Ministries' technology-assisted knowledge management effort. This means that male and female respondents were in unison in believing that hierarchy-induced bottleneck significantly influences technology-assisted knowledge management. The result is in tandem with the study of Alavi, & Leidner *(1999)*which found that the strict observation of hierarchy of power structure in an organization will the implementation defeat technology-assisted knowledge management.

V. Conclusion

Relying on the results discussed, it is could be concluded that that Rivers State Ministries do not manage their knowledge related assets and processes well. The culture that supports and encourages successful implementation of IT-driven knowledge management is not yet in place. Hierarchy-induced bottleneck is seen influencing implementation of IT-driven knowledge management in Rivers State Ministries very negatively. The culture, process and infrastructures that support and encourage IT-driven knowledge management in Rivers State Ministries have to be imbibed and embedded. This will undoubtedly help Rivers State Ministries to gain a lot of competitive advantages and live up to the today's expectations.

VI. Recommendations

Thestudy made that following recommendations:

1. The pursuit of IT-driven Knowledge management should be prioritized so as to combat hierarchy-induced bottleneck.
2. Special funds should be established for provision of IT-driven Knowledge management.
3. Employees should be exposed to training IT-driven Knowledge management and process and retraining programmes organize annually to improve the IT-driven Knowledge management scheme.
4. State Government should create the position of Chief Knowledge Officer in each ministries and place renowned and seasoned experts to head the office.

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