An Exploratory Study of the Application of Big Data in Organizations in Ghana

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Abstract:-"Data really powers everything that we do." – Jeff Weiner(Weiner, 2015). Oftentimes than not once the word data is mentioned, one's mind goes to the concept of collective information of much proportion. This concept has been expanded to include information of great size that is beyond our initial expectations. The study sets out to explore the evolution of data as we know it, throwing light on the enormousness of current data possibilities, such as it is now termed; Big Data. The Study explores the value of this technology and adoption of Big Data processes to private businesses in Ghana. The research adopts the use of qualitative and interpretive approach in the quest to answer the research questions. Through the process of interviews and documentary reviews, the participants of this research included 3 main groups of personnel:

1. **MDs of the selected organisation.**
2. **IT Managers / IT Heads of the selected organisation**
3. **Staff/ Direct Users of the technology**

Also for in order to understand the regulatory landscape:

1. **Data Protection Agency**

The interpretive findings of this study reveal that Ghanaian private organizations deal with unique environmental challenges and expectations, and as such, leadership must be poised to implement deliberate structures and lifestyle that lead to a transformational mind-set. The first stage includes company's accepting primarily that there's value addition in the adoption of Big Data and this value addition out weights any cost of investments they may need to do. It is also important it recognize the leadership trait that any person steering the affairs of the company should have in order to sustain the implementation of any big Data strategy adopted. Reason being that one cannot move forward in the implementation of the required technology if leadership is conservative and comfortable with status quo. The organization must also seek to enforce the right culture one that informs their drive to continuously improve their process as well as one that allows for information sharing for the making of relevant decisions. Additionally, as organizations are dependent on environmental factors like policy implementation that does not stifle innovations it is essential for them to seek to shape government frame work that affects the industry. Finally, is the actual investment into big data tools like Hadoop and development of skill sets to actually get the work done.

Keywords:-Big Data, Big Data Process, Value, Leadership, Culture,

I.   INTRODUCTION

Big Data general is a term used to describe very large amount of Data or Information that exist in the field of many sectors and platform. Big Data though is not concerned about the actual existence of the data but the use or sheer value of the data available. The work in the area of Big Data has been on a speedily rise with many companies and technology expects weighing in and expanding the technology around it.

The very importance of Data in its every form is what Big Data is about. It is therefore concerned with data formats like: Structured, Semi- Structured and Non –Structured Data. These terms are adequately explained under the Literature review but suffice it to say they represent the 3 basic types of formats within which data presents itself.

Though the term Big Data is fairly recent as would be realized under the historical evolution of the use of the term, storage and use of Data has been existent as far back as the 18000 BCE.

The main things that differentiate Big Data from the normal existence of Data language are the actual humongous size of data Big Data is concerned with, the speed within which this data is seen or realized and the sheer diversity of the data. These very essential differences have led to the creation of a specific technology to handle Big Data. The technology here refers to the unique Infrastructure and computing demands that Big Data has over traditional data handling, storage and use.

The science of Big Data is very interesting but the value of it is what makes it so irresistible. The Importance of Data for

most organizations spanning across various sectors cannot be over emphasized. Organizations thrive on relevant information to stay relevant and where necessary grow profitable. One cannot under any circumstances make a strategic decision without the relevant information to support and shape those decisions. This is what Big Data brings to the table, not just the opportunity to access some aspects of data available, but rather the possibility of using every type of data available.

The value of data is not a privilege of a certain organization size. Though it is agreed that the depth of need and the systems employed would be determined by the overall size, objective and resources of the organization in question, Information is the life source of any successful business be it a Small Company (SMEs), Large Company or Multilateral.

Over the years, businesses in Ghana as well as in other countries have employed the use of various analytics tools to assist in the organization, storage and use of the information available to them both externally and internally. The question though is how this provisioning has evolved to include the astronomical growth in data availability and its resultant challenges in acquisition and usage.

II. RESEARCH OBJECTIVES

The main objective of the study is to investigate the extent to which Big Data is being adopted and made use of in Ghana and to determine factors associated with the adoption of Big Data in Ghana, introducing a framework for adoption.

1. To investigate the extent to which Big Data has been adopted in the Ghanaian private sector;
2. To determine the contributing factors that impede the adoption of Big Data in Ghana
3. To ascertain the strategies, in place to establish a Big Data process, delving, into
4. To develop a model for the introduction of big data.

III. RESEARCH QUESTIONS

1. How do organizations align their strategies to their environment in ensuring the application of relevant information?
2. How do stakeholders of the organization strategically align themselves to the evolution of Big Data?
3. How does leadership determine unique factors with regards to information management system and its role in meeting the organization's objectives?
4. How do regulatory provisions complement the growth of Big Data and its strategies among organizations?

IV. JUSTIFICATION OF STUDY

In a country where are usually late in the adoption of leading technologies, it is important that in the adoption process we consider the unique demands of our environment in order to ensure successful implementation of same. The Study would amongst other things:

1. Raise Societal and Organizational consciousness on the importance of having a Well-structured Big Data framework as a tool to promoting efficiency.
2. Make available relevant information on issues that have an influence on the successful or otherwise adoption of Big Data in Ghana.

V. LITERATURE REVIEW

Data aggregation and use especially in this 21st century is a fascinating process and offers more insight and answers to questions we don't even know we have. It is the path the world is moving to in terms of data collection and storage. This paper would seek to explore the use of Big Data in Ghana; if it is in use at all.

Our current world population stands at 7.2 billion (Worldometers, 2014) and 1/3 of these people are connected to the internet. According to McKinsey(Bughin, Chi, & J. Manyika, 2010, pp. 2-4) 5 billion people are using different mobile devices. Due to this these billions of people are generating enormous amount of data through the usage of these devices. This is what we call Big Data. (Che, Safran, & Peng, 2013, pp. 1–15)(C, Kavitha, & Rani, Big Data and Hodoop, 2014, pp. 5-14)

There has been more data captured and processed over the last 2 years than there has been in the whole world's existence. Specifically, 90% of all data was generated within the past two years, according to IBM. Honestly speaking this should not be a surprise at all considering the various platform for data collection introduced in the latter part of the 20th century. In our current stage of globalization, there exist various channels like: social media, cell phones, GPS signals, online payment platform, online mailing platforms, chat platforms, online research centres and many more which are collecting, storing and using information from more than 1billion people at a time.

The complexities in the data being collected and the share volume of interaction between people and things is what is being referred to as Big Data.

IBM most appropriately in the earlier stages of definition of BIG Data introduced what was referred to as the 3 Vs of Big Data;

Volume: this simple refers to quantity. The V of Big Data speaks to an incredible amount of information to be stored.

Just imagine if we should use Facebook the cumulative amount of picture's alone that they are having to store so all the members using them can have access to this. This might make a more profound impact if u can observe that the user rate of Facebook may be more than the whole population of Malaysia. Do u realise the number of pictures we are talking about here?

Velocity: this V in Big Data is all about speed. This is the speed at which the information being stored is coming in for processing. In Big Data every information is valuable which means non-must be lost with. Imagine the amount of information and or searches Google has to process in a Minuit even if it's a quarter of the world hooked to internet using it. And somehow this speed must not affect results being produce for the respective searches. Can u push your mind to capture this mind-boggling speed within which things must work?

Variety: the other V, variety also presents another challenge that Big Data seeks to deal with. Simple, this is how varied the information coming for storage are. They are not only pictures. We are looking at but videos, text, audio…. We get the picture (literally). This open up a whole new conversation of the varied nature of Big Data, being the information falling into categories like Structured, Semi Structured, Un-Structured. But that is another paper.

These 3Vs, have now been extend to even 5 Vs adding;

Veracity: referring to the quality and accuracy of the information being captured and use. With a large base of data sources, control of the way the data is presented is almost uncontrollable. Yet Big Data provides the means to make use of all the type of information considering typos etc.

Value: borrowing the quote "The goal is to turn data into information, and information into insight." –(Fiorina, 2004). Suffice It to say that all the information in the world is of no benefit if we cannot glean value from it.(Mayer-Schoönberger & Cukier, 2013, pp. 114-170)In Big Data, information captured is realized to be;

- Structured
- Semi Structured
- Unstructured

There isn't enough literature on the managerial outlook leading to the adoption of Big Data in any organization. But it is without argument that there is a need for a managerial dimensional change and a high-level roadmap to prepare any organization for the adoption of Big Data. According to (Erl, Buhler, & Khattak, Big Data Fundamentals Concepts, Drivers & Techniques, 2015)in their book "Big Data Fundamentals: Concepts, Drivers & Techniques"

"Big Data adoption can enable the sort of innovation that fundamentally alters the structure of a business, either in its products, services or organization. However, innovation management requires care: too many controlling forces can stifle the initiative and dampen the results, and too little oversight can turn a best-intentioned project into a science experiment that never delivers promised results".(Erl, Buhler, & Khattak, Big Data Fundamentals Concepts, Drivers & Techniques, 2015)

They argue that the innovative nature of Big Data requires a "shift in mindset" as it would ultimately cause a change in the organizations service delivery, product development and organizational structure. The sheer capabilities of Big Data to provide uncommon insights and analytics necessitates the creation of structures that would protect not only the information being collected and processed but the organization as well. As illustrated in the above-quoted book,

"Issues related to tracking the provenance of a dataset from its procurement to its utilization is often a new requirement for organizations. Managing the privacy of constituents whose data is being handled or whose identity is revealed by analytic processes must be planned for. Big Data even opens up additional opportunities to consider moving beyond on-premise environments and into remotely-provisioned, scalable environments that are hosted in a cloud. In fact, all the above considerations require an organization to recognize and establish a set of distinct governance processes and decision frameworks to ensure that responsible parties understand Big Data's nature, implications and management requirements".

(Erl, Buhler, & Khattak, Big Data Fundamentals Concepts, Drivers & Techniques, 2015)

Organizational rudiments needed to ensure data analytics yield the required value should not be taken lightly. These rudiments include "data management and Big Data governance frameworks. Sound processes and sufficient skillets for those who will be responsible for implementing, customizing, populating"(Erl, Buhler, & Khattak, Big Data Fundamentals Concepts, Drivers & Techniques, 2015)

It is very important that during the preparation stage the source and quality of the data to be used for the Big Data analytics be assessed. Since "Outdated, invalid, or poorly identified data will result in low-quality input which, regardless of how good the Big Data solution is, will continue to produce low-quality results. The longevity of the Big Data environment also needs to be planned for. A roadmap needs to be defined to ensure that any necessary expansion or augmentation of the environment is planned out to stay in sync with the requirements of the enterprise".(Erl, Buhler, & Khattak, Big Data Fundamentals Concepts, Drivers & Techniques, 2015)

VI. RESEARCH METHODOLOGY

A. Research Population

The population of this paper would look at the private sector specifically Small Medium Enterprise (SME) as well as Large Enterprises. "The National Board for Small Scale Industries (NBSSI) which is the regulatory body for SMEs in Ghana defines SMEs in terms of both fixed asset and number of employees. It defines an SME as an enterprise with turnover greater than US$200,000 and not more than US$5 million equivalent". Looking at the various components that make up the private sector, interest would be placed on the Telecom sector. The SMEs for the Telecom sector consist of the ISPs, the Value-Added Service Providers (VAS). Whereas the large organizations for the telecom sector refers to the Main telecom providers providing both voice and data services amongst others. These telecommunication networks in Ghana being referred to are MTN, Vodafone, Tigo and Airtel. The Study would focus on the current biggest Telecommunication network in Ghana; MTN and one Value Added Service Provider (VAS) who is also into software development and digital Advertising.

B. Unit of Analysis

Unit of analysis is organization i.e. the Private sector in Ghana.

C. Data Gathering

A perception survey was conducted to measure variables using structured questionnaire. The questionnaire was sent to the selected private sector in Ghana. Measurement used was the Likert Scale. In addition, interviews were also conducted to solicit views from selected respondents, especially top management in the organizations. Other relevant data was gathered from records at Data Protection Agency. Secondary data was also obtained from relevant research and seminar papers, annual reports, statistical abstract, magazines, newspapers and journals.

(McAfee & Brynjolfsson, 2012, pp. 15-50) "You can't manage what you don't measure"

There is such truth in the above quote attributed to both W. Edwards Deming and Peter Drucker, helping us to appreciate even further the importance of Big Data. That is to say, Big Data now offers the opportunity for Organizational Leaders and Decision Makers to "measure, and thus can explore great opportunities for their businesses, directly translating that knowledge into improved decision making and performance.

Research has revealed that despite the benefits that have been touted from the adoption of Big Data in Organizations, it remained an untapped resource in many business sectors(Gartner, 2012, pp. 1-4). Although new technologies have seen an increase in the supply of data, many organizations in different industries still struggle to reap the benefits of big data(Crawford, 2013, pp. 1-4). The generation of huge data from different sources such as tablets, smart phones, sensors and the Internet has led to an overwhelming growth of unstructured data difficult to process with traditional technologies(Bollier, 2010, pp. 14-24). Awash with this tremendous amount of data, many organizations have struggled to turn this data into information that guides decisions more effectively. On that note, big data is considered more a challenge than an opportunity for most business sectors as they fail to tap into its promised potential value. According to Gartner(Crawford, 2013, pp. 1-4), it is very important for organizations to manage big data effectively to get the benefits which are not always obvious.

Although all the literary work provided in this study does not present an exhaustive view it does tell that there is a great benefit in big data as well as reveals that these benefits are not a one size fits all sort of thing. It shows that the benefits vary across the various sectors and the challenges faced are unique to the sector. There is, therefore, the need for a framework to assist organizations in making strategic decisions on big data adoption.

The Big Data Impact Grid

Factory Category

- High operational impact
- Low strategic impact
- Improves performance
- Decreases cost

Strategic Category

- Lack of data results in loss of business
- Correlation between data and growth
- High operational impact
- High strategic impact
- Promises major transformations
- Promises major cost reductions
- Closes gap with competitors

Support Category

- Lack of data does not cause loss
- No correlation between data and growth
- Low operational impact
- Low strategic impact
- Interruptions does not cause loss
- Most maintenance work

Turnaround Category

- Low operational impact
- High strategic impact
- Promises major transformations
- Promises major cost reductions
- Closes gap with competitors
- 50% of capital expenditure

LOW TO HIGH NEED FOR RELIABLE BIG DATA
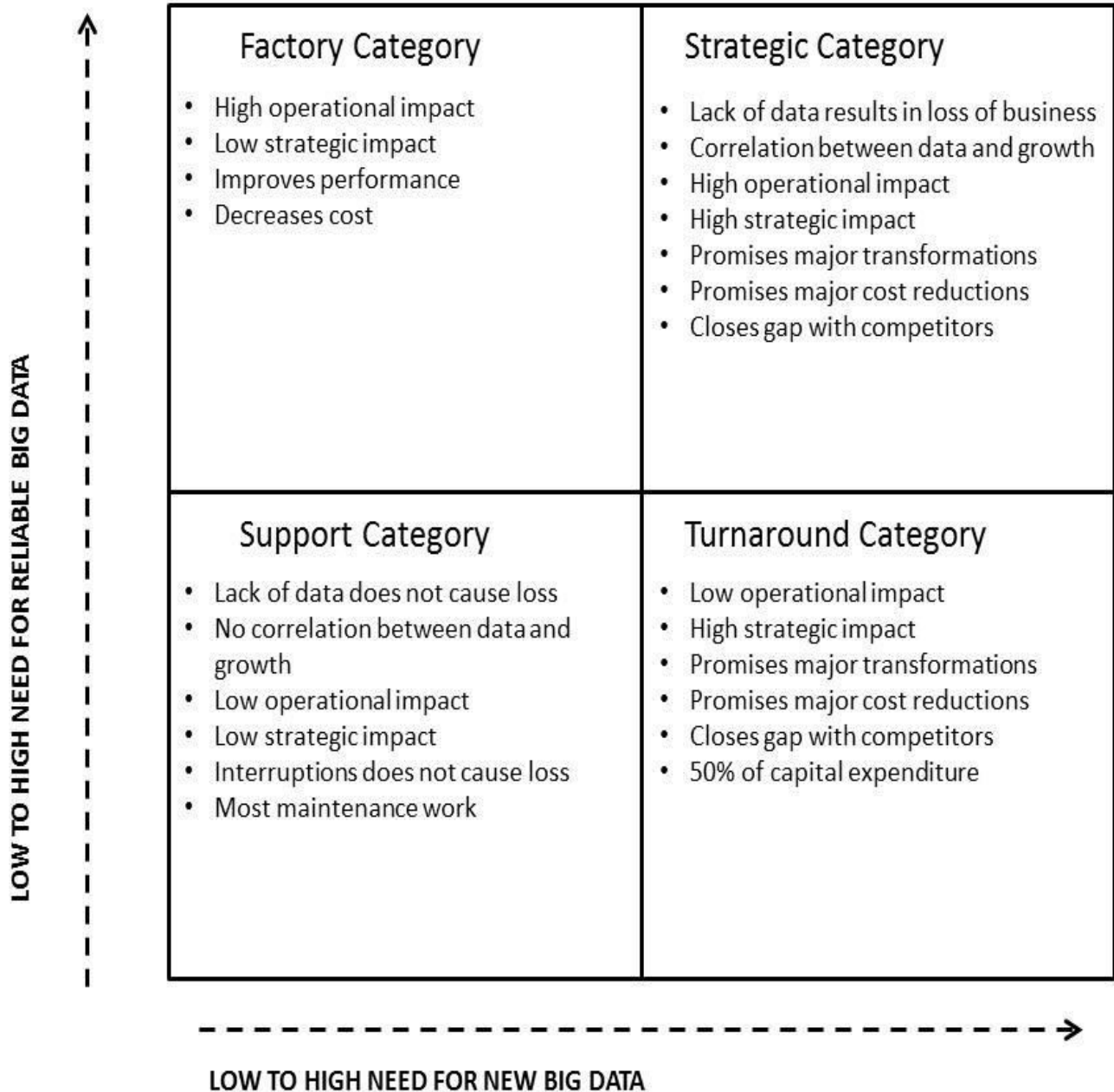
LOW TO HIGH NEED FOR NEW BIG DATA

Figure 1: Big Data Strategic Impact Grid - (www.edureka.co, 2016)

This framework would assist organizations to find the strategy reason why investments should be made by their companies in the area of big data. This is usually one of the more difficult barriers to cross as the initial investment to be made is always considered more than the benefits to be derived. This being the case, the proposed conceptual framework will aid organizations that need to invest in big data projects. The next sections discuss how the strategic grid framework can be used to analyze the potential benefits of big data across business sectors.

VII.   INTERVIEW QUESTIONS

RESEARCH QUESTION 1	Dimensions to be investigated
How do organizations align their strategies to their environment in ensuring the application of relevant information?	Examining how Organisations undertake strategic application of information from their external environment, by adopting Big Data strategy recommendations.
Proposed Interview Questions	**Questions' Focus**
1. Opening question **Kindly share your view on the key challenges faced by organisations in general and yours specifically in the collection of information relevant to your company.** 2. Follow-up questions **a). As every organisation has their own unique interest however similar they are, and their peculiar way of relating to the environment, can you kindly share the external considerations you have when analysing external information collected.** **b). How do these external sources of information open extra opportunities or enhance the existing opportunities available to your organisation and help with it achieving its objectives. Additionally, how do these external variables if not addressed properly threaten the organisation from meeting its objectives?** 3. _Optional questions_ _(depending on the flow of the discussion)_ _a). From the list you have shared which of them would you rank high in consideration of your strategic decisions and why?_ _b). which area would you like to have some changes done and what may those changes be_	Objective is to get the overall outlook of the Leadership on what his expectations are from various stakeholders where this is concerned and the challenges faced from both internal and external forces. To examine the understanding of organisations on the demands that their various sources of information places on them and assess how this understanding affects decision making. To understand the views of the management of the organisations on how various external information grant the organisation with advantage as well as threaten its ability to meet its objectives. To assess how these variables are examined with respect to their importance and their overall influence on the organisation.
RESEARCH QUESTION 2	**Dimensions to be investigated**

How do both external and internal stakeholders of the organization strategically align themselves to the evolution of Big Data?	To access who the organisations identify as their key stakeholders and how they influence decisions in the development of strategies for the adoption Big Data processes by employing stakeholder mapping analysis using an interpretive frame work.
Proposed Interview Questions	**Questions' Focus**
a) **Among your external stakeholders, who do you consider as having the most power to influence the organisations decision where big data is concerned? Can you rank if they are multiple?** b) **To identify who these organisations identify as their external stake holders where the adoption of Big Data processes are concerned and the criteria used in the selection of these stake holders**	To identify who these organisations identify as their external stake holders where the adoption of Big Data processes are concerned and the criteria used in the selection of these stake holders.
Proposed Interview Questions	**Questions' Focus**
a) **What do you think would be the measures used by your stakeholders in determining what the organisations performance is and its need for Big Data tools**	To confirm the power possessed by these stakeholders over the organisations and assess the expectations of the organisation of their stake holders and whatever suitable means they feel these expectations can be met.
RESEARCH QUESTION 3	**Dimensions to be investigated**
How does leadership determine unique strengths and weaknesses with regards to information management system and its role in meeting the organization's objectives?	To assess how the organisations, evaluate their internal strengths and weaknesses and how these impacts in the strategy making process.
Proposed Interview Questions	**Questions' Focus**
a) **Could you describe what has been the organisations strength and weaknesses in the information gathering and storing process thus far?** b) **What are your opinion of the present human resources the organisation has in terms of their strength and weaknesses, competences and capabilities where Big Data process are concerned.**	To find out the impressions of the leadership on: The various variables considered as being of importance to the organisations and how the strengths and weaknesses of the employees and the organisation are measured. To reveal the power of objective investigation outlining the Impact of beliefs, perceptions, power and judgment among organisation members in an attempt to confirm what shapes the organisations strategic decisions

Follow-up questions a) **If the existing organisational culture of this organisation is to be further enhanced, what measures need to be undertaken and how should they be undertaken, to help in the adoption of Big Data processes?** Follow-up questions a) **What is your preferred approach to inspire and motivate your staff to buy the idea of using Big Data**	**Examining Organisational Culture** To see the vision of leadership on the culture of his organisation and to solicit views on the desired culture that already exist and undesirable ones that need to be changed. To see the role of the organisation leader in creating or developing his own culture in the organisation. Try to observe all the three levels of culture: • The Artefact's – structure; process; behaviour (physical, hard to decipher); • Espoused Values (Mission, vision, objectives, strategies, client charter, slogans, circulars); • Basic and taken-for-granted assumptions among the members of the organisation. **Examining Organisational Leadership** To elicit and observe top management's roles in terms of: • diagnosing organisation problems, areas of Improvements where technology is concerned; • getting and keeping political support;
RESEARCH QUESTION 4	**Dimensions to be investigated**
How do regulatory provisions complement the growth of Big Data and its strategies among organizations?	To unveil the dynamics of Big Data strategy development in organizations, by unpacking various ways of, and perspective on developing organisational strategies by the top management. To capture top management's way of strategizing and how the process is undertaken based on their knowledge, experience and constraints.
Proposed Interview Questions	**Questions' Focus**
Opening question **Considering the overall objective of having a Big Data process what would you say is the value or otherwise that Big Data adoption would have for the country.** Follow-up questions a) **From the view point of a regulator what do you consider as the risks associated with big data adoption** b) **How do you ensure compliance with the regulations to ensure safe environment?**	**Strategy formation – Deliberates vs Emergent** To solicit leaderships personal views and perceptions on Big Data processes and the degree of practicality Their organisation

VIII.   DISCUSSION OF FINDINGS AND RESEARCH IMPLICATION

A. Interpreting the Findings on the External Influence on Organizations.

Finding No 1:Interdependence of Organizations to Their Environment.

The research uncovered that the Organizations were very dependent on the structures of the environment where information management process is concerned. It was not enough for these organizations to have the will to practice the latest trends of Big Data where the basic structure is not provided within the environment. One of these was how accessible information was for their use and a structured framework for accessing this information. It discovered that organizations were very reliant on information generated in house from very a very limited base. In terms of correlation among various agencies, it was virtually non-existent as information were collected and stored in silos and could virtually not be used complementarily. The research also revealed that some of the constraints that the organizations preferred to have an example not having access to mine information from the various social media platform were actually non-existent restraints as there are tools available to help in this regard but there was no knowledge of same by these organizations. Thus it was very important for organizations to have a research desk that regularly updated on emerging tools and technologies that have been made available to address some seemingly insurmountable problems as technology is very dynamic and a problem today could have a solution within 24hours.

Finding No. 2:Leadership and Its Impact on Transformational Trends.

The study revealed that the ability of organizations to practice Big Data like most other things in any organization is very reliant on the personality, biases and tendencies of leadership. This finding was even more so in the case of government organizations. Due to the nature of their organizational structure, they were very dependent on the inclinations of their sector ministers and invariably the vision of the sitting president. As such the drive of the organization to push for the particular practice was hinged on what directions that the president had determined important and not on the managing leadership of the organization. An example would be the present drive of NITA to create a Big Data processes that would allow the government mine accurate information from a well-defined data set. This move is being fuelled by the current presidents need to have access to a national database of information that would inform policy formulation and implementation, I dare to say that this drive would die down if a new govern comes in before implementation is fully completed. If the new govern shows no interest in this and comes pursuing another agenda. Thus, managing leadership were restricted on where they want to go and how fast they could get there.

Finding No. 3: Identification of Stake Holders and Their Level of Influence.

The research identified that organizations were very much aware of whom their stakeholders were and had a firm a grasp of the level of influence they had in any decision-making process. The research revealed that organizations were basically constrained and restricted by the expectations of their stake holders and their impressions of how efficient the organizations were and would be if they should stick to their current practices where information management is concerned and if they should advance into Big Data. These stakeholders included shareholders and directors where the private organizations were concerned and in the case of government organizations there was the government, and investors. Unique to both private and government organization is the client that they or consumer base they each served. Whilst directors, shareholders and government could be described as internal stake holders, clients and investors were external stake holders whom theses organization must be seen to be pleasing in order to remain relevant or risk losing their foothold. The participants acknowledged that these external stakeholders are very savvy now especially with the rate of growth in technology creating a minimum awareness amongst them of how much organizations can give and how far they can go in terms of providing efficient services and relevant solutions. Example NTDG confirmed that clients now were very averse to a generalized sort of marketing, and expected service providers to use their purchasing history and responses to creating marketing campaigns that were not just a one size fit all.

Finding No. 4: Human Resource As A Strength or Weakness.

The findings revealed that most organizations chose from two main type of resource engagement. One is to get the best-trained staff from the market or poaching even if necessary to resource the organization. The second was to recruit fresh graduates who are very smart but not necessarily skilled in their job roles and to train these resources to become an asset for the organization. The research discovered that most of the organizations did not necessarily believe there needed to be a complete overhaul of their current human resource base. As they had some of the best in the market and as such just needed to provide the requisite training to make them relevant in the big data space. This notwithstanding, the research revealed that somewhere not necessarily sure of the skills set needed in order to implement Big Data strategies but felt that once the organization decided to follow through with adopting and using the process they were more than willing to ensure that the right resources were made available.

Finding No. 5: Leadership, Culture and Organizational Structure.

The research work revealed that the ability of an organization to stay committed to having and implementing a Big Data strategy was very dependent on the type of leadership it has, the culture in place in the organization and the organizational structure allowing for innovation and rapid review of strategic decisions. It showed that it wasn't possible for an organization to be abreast with emerging trends and advance its processes when leadership was laid back and content with the status quo. It also revealed that where there is no culture of continuous improvement and constant training, the staff did not improve in their techniques much more learn new skills as well as even experiment with them. It was important for leaderships to take deliberate steps to create the right kind of culture that would help advance the organizations objectives and allow for effecting the necessary changes in the organizational processes to advance the growth of the organization and improve its delivery.

Additionally, the research revealed that change in processes were slow in coming where the organizational structure was more external than internal. Meaning, unlike the public organizations, it was more rapid to implement changes in the private organization

Finding No. 6: Regulatory Understanding of Space.

The research showed that although the Ghanaian environment was still in the initiation phase where Big Data processes were concerned, there has been an attempt by parliament to create a regulatory body that is; the Data Protection Agency to provide a framework within which information collection, storing use and disposal is to be made. Discourse with the regulator revealed a clear understanding of what trends were out there was information management was concerned the benefits and the risks associated with same. Through international collaboration, the regulator had a firm grasp of some of the challenges being faced in other advanced environments and was poised to do continuous stakeholder engagement to create a lifestyle of prudent data practices amongst data controllers as well data participants.

IX. CONCLUSION

The study has sought to reveal how organizations access their internal strength and weaknesses to the overall discussions and how these weaknesses or strengths would impact their ability to align their activities and make the necessary investment to engage in Big Data practices.

A number of points could be cited in summarizing the above discussion.

The organizational head recognized the importance of having the requisite skillet and were all poised to have the best of staff which included spending money to get the best of the market or picking inexperienced but very smart employees and training them to meet the demands of their work. A number of LEADERSHIPs relied on experienced and competent personnel to ensure their internal strength. This was done by adopting a 'hiring and firing' approach to recruiting personnel from the labor market.

The respondents also recognized that the type of leaders they were would influence the organizations speed in implement efficiently trends that are of benefit to their companies and also informed how consistent and supportive they would be in the implementation of decided strategies.

The acknowledgement of leadership was directly linked to the kind of culture that the company needed to get rid of and those that it needed to institute to help create an ingrained awareness of the value of information, its prudent collection and storage and the efficient mining of this information.

The research also revealed that the speed of implementation of strategies and the ability to speedily revise strategies to reflect environmental demands was also very strained in government organizations due to the nature of their organizational structure than it was in private organization.

The research demonstrated that unlike many instances in this country where regulators are accused of not being well informed of the space they regulate; it cannot be said to be the same here. The regulator is firmly aware of the demands that her position puts on her and the tasks ahead. She was not oblivious to the unique circumstances of her environment specifically on the awareness of the benefits as well as the risks that Big Data presents and seeks to continue active stakeholder engagement to ensure the objectives for which the law was designed to meet is achieved.

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