
Augmented Intelligence and Corporate Adaptability of Tertiary Institutions in Rivers State

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Abstract: *This study investigated the relationship between augmented intelligence and corporate adaptability of tertiary institutions in Rivers State. The study was anchored on the activity theory. The study was conducted at the micro level with individual staff of the tertiary institutions serving as unit of analysis. A cross-sectional survey research design was adopted while a structured questionnaire was used to collect primary data. The final analysis of the study was based on data collected from 197 respondents. The Spearman's rank order correlation statistic was used to test the hypotheses formulated for the study. It was found that a significant relationship exist between augmented intelligence and corporate adaptability as all the dimensions of augmented intelligence (human intelligence and artificial intelligence) covered in the study posted positive and statistically significant connection with corporate adaptability. The study concludes that augmented intelligence, manifested as human intelligence and artificial intelligence, significantly enhances corporate adaptability of tertiary institutions in Rivers State; and recommends that tertiary institutions in Rivers State that desire improved corporate adaptability should adopt augmented intelligence by automating tasks that are better performed by machines and using human skills in tasks that require human intelligence; and also provide trainings and empowerment programmes that gives employees the skills needed to adapt to changing work environment.*

Keywords: *Artificial intelligence, augmented intelligence, corporate adaptability, human intelligence*

INTRODUCTION

Long-term prosperity and sustainability is increasingly considered a strategic feat in business in lieu of the pervasiveness of business failure in recent times (Ateke & Nwulu, 2018). Increased globalization, convoluted business processes, advances in technology, and rapid information flows have revolutionized the business-scape (Harcourt & Ateke, 2018) and has made "intelligence" the most essential factor to business sustenance. This change could either be positive or negative depending on how organizations adapt to it (Lee, Vargo & Seville, 2013). Organizations must be adaptive to change in today's world of work, if they must remain resilient. Resilience can be nurtured and it is expedient that every employee in any organization is groomed to see positivity in every difficulty; work out a mechanism to recuperate after a setback in such a manner like an issue never occurred. Organizations are to develop resilience in employees through the provision of enabling factors of which technology is considered for building employee capacity. Employee resilience is knowledge based and this is actualized

through learning and understanding the external and internal trends in the world of business.

Technology has overtime changed organizations, people, process and practices. Organizations have upgraded operations to create a balance between machine intelligence and unique abilities of workforce. The advancement of technology and its applications are important components in the organization; employees must focus strongly on technological development for global relevance. Organizations are becoming more dynamic with technological advancement which affects its process and policies as well as its employees. The impact of the future of work has become a motivational factor that improves the evolvement of employees' experience; and the maintenance of positive adjustment under challenging condition; which fosters the strength and survival of the organizations (Ungar, 2011; Vogus & Sutcliffe. 2007) anchored on corporate adaptability is paramount. Such adaptability predisposes employees to adopt and adapt to changes, challenges and uncertainty that is introduced through technological innovation.

Developments in technology induce organizations to hook up with new realities of economic and social experiences that transcends into expansion, productivity and profit. Innovation is a driving force for any organization desiring growth. Adaptability facilitates the synchronization of human intelligence with innovation both as a process and an outcome. Smits and Jimenez and San-Valle (2011) believe that innovation is a conceptualized process or outcome. Most definitions of innovation emphasize the adoption of new ideas that are accepted by employees and diffused into the organization as policies. The world is moving towards artificial intelligence as systems become more digitalized and complex. Artificial intelligence plays an assistive role to human intelligence, highlighting the fact that cognitive technology is programmed to enhance human intelligence and not replace it, hence, the concept of augmented intelligence. Technology augments and empowers human capacities disrupting analogue human activities. Artificial intelligence offers employees information and connectivity, unimagined opportunities as well as unprecedented threats if not fully comprehended and managed. Artificial intelligence will amplify human effectiveness but also has the capacity to threaten human autonomy hence the need for perfect augmentation. Augmented intelligence creates greater surveillance, more interactions and high economic equalities.

Augmented intelligence technologies do not seek to replace human intelligence, but instead seeks to assist humans with their work. Artificial intelligence targets to create systems that can run without humans whereas augmented intelligence creates system that make humans better. Managers in organizations are to determine what tasks needs total automation, what tasks needs augmentation, and what tasks to leave to employees. According to Munday (2019), 72% percent of employees are worried about the future, it is believed that artificial intelligence will perform human tasks and subsequently replace the human worker beginning with low income workers e.g. picking robots are replacing field workers, driverless cars will replace taxi drivers and so on. It is important that organizations get more optimistic and evaluate how artificial intelligence will drastically affect job roles. The truth is the employees' fears are real; artificial intelligence is actually designed to relegate human intelligence but augmented intelligence promotes human intelligence and aids employees in working faster and smarter. The purpose of this study therefore is to determine the extent to which augmented intelligence influence corporate adaptability of tertiary institutions in Rivers State.

LITERATURE REVIEW

Theoretical Foundation

This study is underpinned by the activity theory. Activity theory begins with the notion of activity. An activity is seen as a system of human “doing” whereby a subject works on an object in order to obtain a desired outcome. In order to do this, the subject employs tools which may be external. The activity theory was developed by Havighurst (1961) and expanded by Vygotsky (1978) and Leontiev (1978). The activity theory originated from the socio-cultural tradition of the Russia Psychology which focuses on individual activity in maintaining social interactions. It is understood to be purposeful, transformative and develops interactions between actors: Social strata, hierarchical structure of activity and division of activities as actors in the system. Activity theory helps explain how social artifacts and social organization mediate social action. Proponents of the activity theory sought to explain human activities as systemic and socially situated phenomena that go beyond the paradigms of reflexology (interpretation of behavior in terms of reflex actions). According to Bedny and Karwowski (2006), activity theory is designed to enhance human and computer interactions in carrying out definite tasks: Application to human performance and work design giving room for learning. Thus, activity theory is fundamental to information systems management and for developing data models (Nardi, 1996).

Concept of Augmented Intelligence

The idea of intelligent organization can be seen from different perspectives including organizational learning and knowledge management. Smart organizations have a huge intellectual capacity base that is embedded into learning as a culture. Yolles (1999) saw learning culture in line with a system of belief, attitudes, values, behavioral norms and meanings and the maintenance of learning structures that are responsive to learners, motivates the knowledge creation processes and provides opportunities for the application of new knowledge. The learning organization is capable of responding to variation that is adaptive and thus responding to the perception of a changing environment, or being proactive and responding to a perception of need for organizational improvement. We operate an intelligent organization where knowledgeable workers are pivotal to innovation and development for growth. The technological advancement and information systems birthed artificial intelligence in organizations as a new breed of knowledge; this breed had no plans of retaining humans at the workplace in the future. The needs of connecting artificial intelligence’s full potential started with the explorations of organization’s opportunities and make them artificial intelligent-fueled organization. Augmented intelligence however, seeks to leverage the advantages of artificial intelligences and human intelligence in order to create better, smarter organizations that create greater surveillance, more interactions and high economic equalities. In essence, augmented intelligence creates systems that make humans work better by providing machine assistance that enhance human performance. The implementation of augmented intelligence in an organization requires managers to determine tasks that need total automation; tasks that need human performance and tasks that need augmentation. This study thus views human and artificial intelligences as dimensions of augmented intelligence.

Human Intelligence: Whyte (2016) conceive intelligence as the general mental ability for reasoning, problem solving and learning. Intelligence thus integrates cognitive functions such as perception, attention, memory, language or planning; and relies on measures that are

standardized via testing with those results in social outcomes such as educational achievement, job performance, health and longevity. The intelligence described here is human. Everyone is created with some level of intelligence which serves as the basic intelligence for all; which can be nurtured and groomed into enhanced intelligence. The connection between intelligence and human body according to Churchland (2012) and Searle (2015) are inextricably connected: Intelligence is an emergent property of having a body. Although, intelligence today is also system-based and not only of human organs; we must recognize that we need more input on our thinking processes, which are embodied in our senses and requires bodies to work. Cognition, problem solving and learning are critical aspects of human intelligence. People reason about everything from learning to problem solving. Modest and extremely complex social interactions can be learned during one's lifespan: There are general individual differences in thinking abilities, problem solving and learning. The future of humanity is in co-evolution with technology and technology plays an important role in augmenting human activities of working and learning. Sensory augmentations that can allow people to perceive more, focus better and act more effectively are all strategies for augmenting, not just perception, but also intelligence. The senses are not always associated with intelligence, because the tendency for people when discussing intelligence is to think more or less in terms of the brain in the vat of early science fiction and philosophy.

Artificial Intelligence: Artificial Intelligence is the zenith of human intelligence displayed: It is the ultimate augmentation of human thinking converted into a technological platform. Artificial intelligence finds its definition from the progress in human innovation. Artificial intelligence is seen in many industries/section in the world of business; transforming the way humans use technology to communicate and transact (financially, socially and otherwise), and to retrieve information. Artificial intelligence is a mechanism for creative disruption (Carroll, 2020). Artificial intelligence which is also referred to as machine intelligence is intelligence demonstrated by machines compared to the natural intelligence depicted by humans. Artificial intelligence is a term used to describe machines or computer related technology that mimics cognitive functions associated with the human mind for learning, retaining and problem solving (Carroll, 2020). Artificial intelligence is the ability of a computer system or machine technology to think, learn and retain, artificial intelligence is geared towards making machines smart (Carroll, 2020). Artificial intelligence is an old concept that finds metamorphically reinventions of itself.

Concept of Corporate Adaptability

Adaptability is the ability to change something or oneself to fit occurring changes (Andrese & Gronau, 2005). Ahiauzu and Jaja (2015) posit that most firms easily cope with normal conditions and moderate deviations from the norm, but find it challenging to cope with exposure to extreme events that lie outside their coping range. Corporate adaptability thus describes "context specific organizational capabilities that facilitate continuous evolution to keep up with the needs of the operating environment" (Meyer & Allen, 1991) in Ateke and Nwulu (2018). It is the degree to which an organization has the ability to alter behavior, structures and systems in order to survive in the wake of environmental change (Denison, 2007). Adaptability can further be seen as the ability of a system to adapt itself efficiently and fast to changing circumstances and unexpected disturbances in the environment. It describes an organization's ability to constantly and

continuously evolve to match or exceed the needs of its operating “environment before those needs become critical (Hamel & Valikangas, 2003). For House (2010), adaptability connotes “making suitable to requirements or conditions; adjusting or modifying fittingly”. Ateke and Nwulu (2018) aver that the availability of human resources with requisite skills and knowledge is a critical contributor to adaptive capacity. Adaptability therefore is concerned with the capacity and the ability to adjust a business to suit new situations. It is not just being really good and doing very well at some particular thing, is the ability of companies to be really good at learning how to do new things as the need arises in their operating environment. The companies that thrive are very quick to read and act on the observation of signs of change. They have simulated and worked on rapid experimentation, frequently and economically with their products and services. They have also re-evaluated their business models, processes and strategies to ensure ability to cope with change. Based on the forgoing, this study hypothesizes as follows:

Ho₁: Human intelligence has no significant influence on corporate adaptability of tertiary institutions in Rivers State.

Ho₂: Artificial intelligence has no significant influence on corporate adaptability of tertiary institutions in Rivers State.

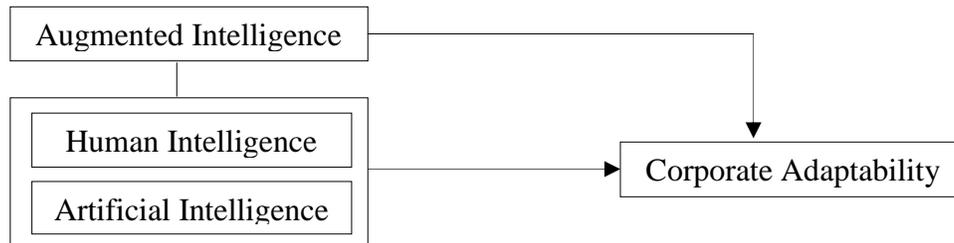


Fig. 1: Conceptual frame work of augmented intelligence and corporate adaptability.

METHODOLOGY

This study examined the relationship between augmented intelligence and corporate adaptability. The study adopts a survey research design. The population of the study comprised three tertiary institutions in Rivers State. The study however, was premised on data collected from 197 respondents from these institutions. A structured questionnaire served as the instrument of the study; while the hypotheses were tested using the Spearman’s rank order correlation coefficient with the aid of the statistical package for social sciences (SPSS).

RESULTS AND DISCUSSIONS

Statistical Analysis for Augmented Intelligence and Corporate Adaptability

Table 1: Correlation Matrix of Augmented Intelligence and Corporate Adaptability

| | | Human | Artificial | Adaptability | |
|-----------------------|------------|-------------------------|------------|--------------|--------|
| | | n | l | y | |
| Spearman's rho | Human | Correlation Coefficient | 1.000 | .442** | .491** |
| | | Sig. (2-tailed) | . | .000 | .000 |
| | | N | 197 | 197 | 197 |
| | Artificial | Correlation Coefficient | .442** | 1.000 | .620** |
| | | Sig. (2-tailed) | .000 | . | .000 |
| | | N | 197 | 197 | 197 |

Source: SPSS output of data analysis on augmented intelligence and corporate adaptability (2020)

The result of the test of relationship reveals that human intelligence is significantly associated with corporate adaptability with a rho coefficient of .491** and a probability value of 0.000. The values represent a moderate positive and statistically significant relationship between the variables. Also, the test of relationship reveals that artificial intelligence and corporate adaptability are correlated. This is in view of the rho coefficient of .620 probability value of 0.000 produced by the test. These values suggest that a strong positive and statistically significant connection exists between artificial intelligence and corporate adaptability. Based on these results, the study rejects the null hypotheses; as the evidence of the analysis indicates that human and artificial intelligences significantly relates to corporate adaptability.

The findings of this study support the findings of Andrese and Gronau (2005) that organizational intelligence has positive effects on and organizational resilience. Corporate adaptability as used in this study is an aspect of organizational resilience. Also, the current finding aligns with the finding of Munday (2019) that 72% percent of employees are worried about the future, believing that artificial intelligence will perform human tasks and subsequently replace the human worker beginning with low income workers. The findings further corroborate the position that the positive adjustment under challenging conditions fosters strength and survival of organizations (Vogus & Sutcliffe, 2007).

CONCLUSION AND RECOMMEDATIONS

The objective of this study was to determine the extent to which augmented intelligence (human and artificial intelligence) relates to corporate adaptability of tertiary institutions in Rivers State. The results show that augmented intelligence relates positively to corporate adaptability; as both dimensions of augmented intelligence posts statistically significant relationship with corporate adaptability. The thus concludes that corporate adaptability of tertiary institutions in Rivers State largely depends on augmented intelligence or that augmented intelligence predicts corporate adaptability of tertiary institutions in Rivers State. The study therefore recommends that tertiary institutions in Rivers State that seek corporate adaptability should adopt augmented intelligence by providing trainings and empowerment programmes that gives employees the skills needed to adapt to changing work environment including changes that arise as a result of natural causes such COVID pandemic. This is important because institutions that thrive are those that are very

quick to read and act on signs of change. The study also recommends that while artificial intelligence is good and critical for survival of institutions, caution must be asserted while depending on it because artificial intelligence cannot replace human intelligence. It should instead be used to complement human.

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