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ABSTRACT

The paper critically examines the elementary drivers of a technologically driven financial market, with a special focus on fragile financial systems. In furtherance, evaluates the expected impact of emerging disruptive technology of the fourth industrial revolution. As a result, proceed to make a subjective proposition of policy framework and pedagogical guidelines required in its successful management under a sovereign national economy. With the phenomenon under study did result in a theoretical proposition of a labour competency and assessment index model, to evaluate the 'labour capacity' of any technologically driven economic market.

Keywords**:** Disruptive Technology, Banking and Finance, Labour Capacity, Policy, Pedagogy

JEL Code**:** O17, O25, O31, O32, O33, O35, O38

A. BACKGROUND OF STUDY

The term 'Disruptive Technology' according to Christensen (1997), is a phenomenon by which, an innovation does transformation to an existing market or sector by introducing simplicity, convenience, accessibility, and affordability, where complication and high cost are the status quo. The paper thereby submits three major reasons that result in the promotion of disruptive technology of any given economic market, which are;

i. When the business model introduced, enable low-end customers, or new segments of customers to patronize.
ii. When the quality demand of the value network presents prosperity to the network of suppliers, customers, and distributors.
iii. When the disruptive technology has the ability to grant affordable and accessibility of product to a wider audience.

As Vassallo (2020) did argue, disruptive technology is undeniable the top list drivers of the unprecedented changes in the business performance today. With the modern financial market having a new emerging operating model of "Automations", which is a unification of multiple technologies, including advanced analytics, clouds application, Block Chains, Machine learning and others, and are the leading drivers of financial institutions in shifting from traditional processing to strategic partnering. Consequently, championing financial institutions to the future by desisting from providing reactive answers to unforeseen problems, but rather holding the ability to deliver predictive insights to drive economic growth. Currently, the leading driving forces of disruptive technologies in the financial market are as follows;

- Block chain and Distributive Ledgers in Banking System
- Machine learning and Financial Market

- Banking and Finance Process Automation
- Cloud Technology and Financial System

[i] Block Chain and Distributed Ledgers in Banking System:

This type of disruptive technology, promotes a growing list of records called blocks, which are linked together using cryptography, time stamp and transaction data. This makes it a resistant to modification of their data, once recoded. And typically managed by a peer-to-peer network as a publicly distributed ledger, which is considered secured by design. The effort of this evolved technology is to replace the traditional ledger account format, with a digital ledger, consisting of varied transactional records of blocks across many computers, so that any involved block cannot be altered retroactively without the alteration of all subsequent blocks. Thereby, allows participants to verify and audit transactions in a dependent order, which are relatively inexpensive. This type of technology has become an answer in solving a long standing problem of double spending as argued by (Catalini and Gans, 2016: Armstrong, 2016).

[ii] Machine Learning and Financial Market

This type of disruptive technology deals with the application of computer algorithms that does improve automatically based on experience in the use of data. It builds a model based on sample data, in other to make predictions or decisions without explicitly programmed to do so, as submitted by (John, R. et al,1996). In its application across business problems, machine learning is also referred to as predictive analytics. The use of Machine learning helps to detect anomalous items such as bank fraud. The rule based Machine learning helps to discover regularities between products in large-scale transactional data for decision making. For example, the use of records with 'Point-of-Sale' systems in supermarkets to guide accurate decision making.

[iii] Banking and Finance Process Automation

Alkhaldi (2021), did argue, human error in the financial sector results in averagely 25,000 hours of avoidable work per a firm, and costs $878,000 per year. Therefore, the emergence of the robotic application is to augment human efforts by automating repetitive manual processes, and allowing the employees to focus on more critical tasks as a means in gaining a competitive advantage by a firm. On this very basis, the adoption and implementation of intelligent automation, relying on artificial intelligence technology, enable the robotic process and automation to handle complex processes by understanding human language, recognize emotions and adapt to real-time data. This helps firms to scale-up operations seamlessly when needed, saves time, cuts down expenses, minimizes IT department interference in main business operations, increases human employee efficiency, and reduces human error. The Robotic Process Automation is currently useful in the area of transactional report generation, Accounts payable, Mortgage processing, Customer Management, and Fraud detection in Banking and Financial systems, etc.

[iv] Cloud Technology and Financial System

Cloud Technology defined by Partha Pratim (2018), is the on-demand availability of computer system resources and computing power, without direct active management by the user. The technology relies on sharing of resources to achieve coherence and economies of scale. The use of certain features of Cloud technology, like Clouds software services, Mobile back-end services, Server-less Computing, does helps to facilitate quick online financial services with minimized infrastructure cost. The downside is that a firm may have limited customization options, when relying on public clouds to deliver cheap services under economics of scale.

[v] The Relevance of the Study

This very study is essential on the reason that the advancement of any economy by disruptive technology could be successful and sustainable under the condition of quality skilled labour force, serving as a fulcrum in discharging such services. The paper, thus argue, in the consideration of human resources development for the labour market, do never emerge in a vacuum, but is guided by quality pedagogical instruction from the Center of higher learning. Thus, the essence and foundation of this study, is to theoretically outlay policy architecture, and pedagogical framework to address the demand of the labour design, for the disruptive technological transformation in any given financial market, with a special focus to fragile economic settings.

B. LITERATURE REVIEW

Bruckner, et al. (2017) put forward that, with their findings, the estimates of the share of jobs at risk of being automated vary widely, and can reach staggering numbers of over 80%. And further argued that Artificial Intelligence (AI) and other new technologies will continue to benefit higher skilled workers, with a high degree of flexibility, creativity and big problem-solving, as well as interpersonal skills.

The study further observed that the low and medium skilled workers, both in manual and cognitive jobs, are expected to face further pressures from capable machine learning and AI software's. Which must be emphasized, in any economic market, the technology replaces certain tasks rather than complete occupations, and sometimes creates new jobs that demand a new set of skills from workers.

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§ The use of the terminology 'fragility' or 'fragile economy' is employed as a definition concept in economics proposed in the work of (Senzu, 2022).

Brucker and his team, advanced that both job destruction and job creation are determined not only by technological feasibility, but also of the economies, legal, regulatory or socio-political factors (Brucker et al, 2017).

What need to equally be acknowledged is, technological challenges also contribute to a shift away from the traditional work arrangements to 'contingent work'. Which basically, increases work flexibility, and gainful employment opportunities. And results in non-standard work arrangements, which causes workers to bear with new forms of employment and income risks. The author hereby puts forward that what is described as the fourth industrial revolution, is a quantification of different 'technologies' and 'capabilities', which becomes a transformative channel for almost any industry, and every country. And thereby, postulate that such technological innovation, especially within the financial market do enhance productivity of workers, and create new forms of products and markets, which is in accordance with the theoretical submission of Shiozawa (2020), as he argued that technological change of an economic market in a form of dynamic efficiency offers a better production technique for increase outcome. As a result generate new jobs with entirely new professions to emerge in the longer run. This kind of expected shifts does benefit high-skilled workers, with a high degree of flexibility, creativity, strong problem-solving and inter-personal skills.

The author posits that the influence of technology on economies, is not pre-ordained and could be shaped by policies at the local, national and even at the global level. Hence, the role of government policies and institutions is eminently crucial. (Geeds, 2005) predicate that technology, institutions and society tend to evolve together. And argued, technology becomes transformative when they evolve into General Purpose Technologies (GPTs), which enable productive gains across many sectors of the economy.

(Bresnahan and Trajtenberg, 1995) pose, past waves of industrialization have been associated with pervasive GPTs, which resulted in growing returns-to-scale. Thereby, breakthrough in many areas of technology is spurred by the growing ability of Artificial Intelligence to autonomously solve complex problems, as submitted by (Davis, 2017). The current possibility has emerged due to increasing computational power at decreasing costs, rapidly growing datasets via its development mechanism, and advances in deep machine learning algorithms. Evidence of the past revolution indicates that the combination of the new technologies and the conditions that allow their widespread use, play the cardinal role in the transformation of labour market, and social structures (UN DESA, 2016).

The World Economic Forum has characterized Artificial Intelligence (AI) as the cornerstone of the Fourth Industrial Revolution. With (Schwab, 2016) asserting that the growing ability of software-based systems to mimic aspects of human intelligence is a historic development in the automation process. So whereas the first industrial revolution; the steam engine was 'applied to tasks' that require muscle power, the 'AI' of the fourth industrial revolution has been 'applied to tasks' that require brain power. In the complementary argument from the works of Bruckner et al, (2017), they established that 'AI' has been used commercially since the mid-1990's to assist in a variety of decision-making tasks, such as fraud detection. However, progress in 'AI' as at (2010), is driven by the confluence of the following factors;

- Growing availability of large datasets from commerce, social media, science and other sources
- The development of better Machine learning, algorithms and techniques
- The Increase in computational power

(Aron, 2015) present that ‘AI’ algorithms have outscored humans in identifying objects and faces in two popular tests, by acknowledging the fact that, technology places a major role in the replace of human labour for certain tasks. Secondly, an extreme scenario, widespread automation enabled by advanced technologies could cause unemployment, and social upheaval. However, the net effect on the labour market conditions does vary depending on the type of technology, the speed of its diffusion, country-specific-conditions, policies and institutions. (Mokyr et al, 2015) submit a historical evidence of the 18th Century industrial revolution, and established that the greater use of computers and robots, enabled by technological progress, facilitated the creation of new products and services. And as a result, uplifted productivity and GDP growth, and created new occupations on a large scale. However, empirical evidences suggest, the actual impact of technology change in jobs does depend on the economic response to change in labour and capital cost, and as well as industrial characteristics, trade policies and Institutional conditions.

Reports across countries and regions of the world as at (2021) suggest that the service sector as in general, exhibited the most dynamism, encompassing a diverse range of jobs. While highly skilled-intensive services jobs such as ICT, computer systems design, finance and other business services did have an increasing trend, however, their share in the overall employments remained low, particularly in developing countries. The paper thus argue, the greater use of computers in the digital revolution has further shifted job requirements towards more cognitive attributes, de-emphasizing the physical skills. As observed, it is very difficult to separate the effects of technology from that of other structural shifts, such as changes in Institutional systems and social norms, the globalization of production, markets, labour, education and tax policies. While evidences indicates, technological progress has contributed to job destruction over the two centuries,

other alternative empirical evidences attest that new technologies has helped to create new jobs, many of which are in new sectors and industries. Which, evolve around skill-sets demand by the labour market.

Bessen (2016) adduce that, new technologies substitute workers only in specific tasks, but do not necessarily eliminate entire occupations. He further argued, only (270) occupations listed in the 1950's USA census have been eliminated on (2010) data-report, due to automation. In furtherance to that argument (Acemoglu and Autor, 2011: Cortes, Jaimovich and Siu, 2016) empirically classified tasks under technological changes along two dimensions as 'manual' versus 'cognitive', then 'routine' versus 'non-routine'. Thereby (Autor, Levy and Murnane, 2003) described 'routine tasks' as the tasks that are based on well-understood procedures, and can be described by clear rules and algorithms. But 'Non-routine tasks' by contrast, require flexibility, creativity, complex problem-solving or human interaction. Technological advancements in the past decades, which was in the area of computer processing speed have primarily led to the automation of routine tasks. And has led to a decline in occupations that mainly involve routine activities both manual and cognitive.

Stewart et al. (2015) posit that in recent decades, there is an increase in demand for workers that perform 'non-routine' and 'cognitive tasks' particularly in knowledge-intensive industries, with a special emphasis on management consulting, business analysts and information technology managers. The above kind of jobs, have been among the fastest-growing occupations in England and Wales in early 1990's.

Since 1980's employment has shifted away from middle-wage jobs, towards both high-wage jobs and low-wage jobs. This "hallowing out" of the middle wage distribution was extensively documented for the United States by (Autor, Katz and Kearney, 2006:

Acemoglu and Autor, 2011). With the same report documented for the European countries by (Goos, Manning and Salomons, 2014).

In the developing countries, the concern is shifted to the impact of technological progress on the informal sector, which dominates in terms of employment in such economies, particularly in the rural areas, household- enterprises, small scale producers and service providers, where informal employment is most prevalent. This concern of the new waves of technological change, has been raised in relation to the impact of automation in production, which may lead to the displacement of workers in formal occupations, thus, increasing the incidence of informality and precarious work arrangements. In a succinct response to such concerns and anxiety (Garcia-Murillo and Valez-Ospina, 2017), submit that information and communication technologies can make an important contribution to expand the scale of production among house hold enterprises, and small scale firms, leading to the creation of new businesses. La Porta and Shleifer (2014) advanced the argument on the extensive use of ICT, and how it can contribute to the expansion of the formal sector, and consequent decline of the informal sector in both relative and absolute terms. In addition, was put forward by (Senzu, 2021) on the techniques required in the adoption and adaptation of technology for fragile economic settings, as a means to promote financial inclusion, to indirectly shrink-out the informal sector enterprise-financial transactions, thereby creating a channel of informal household businesses, formalizing their enterprise operations.

C. METHODOLOGY OF THEORETICAL DESIGN

This section of the paper discusses the methods that set out the framework, which resulted into the theoretical design of the concept behind the policy framing, including the pedagogical guide for a fragile financial market, as well as required labour competence,

and assessment metrics for a technological changing financial system of a fragile economy. Steiner (1988), put forward that theory that meets certain standards is knowledge. And knowledge however, is recorded of 'knowing' as the body of expressed true beliefs. Therefore, theory can be fact as well as true. (Sekeran, 1984) posits, the hallmarks of highly esteemed social science research are the development of, and the reliance upon, sound theory, which is necessary to ensure rigour, and believability. Theory building as a formal scientific process is relatively rare, even in the more matured social science study (Bourgeois, 1979). The formal notion of grounded theory building in the social science field is a little over four decades old. The landmark work has been published by Glaser and Strauss (1967). (Abend, 2008: Swanson, 2013) pose that theories are formulated to explain, predict and understand phenomena, and in many case challenge and extend existing knowledge within the limits of critical bounding assumptions. Therefore, the theoretical framework is the structure that can hold or support a theory of research study; it introduces and describes the theory that explains why the research problem under study exists. Jacard and Jacob (2010) assert that theory should be seen as a conceptual basis for understanding, analysing, and designing ways to investigate relationships within social systems.

Alan and Randy (2005) argument on methodology as an underpinning of a theoretical design, deduces, it should meet the two criteria;

- Most appropriate to achieve objective of the research
- It should be possible to replicate

(Brown, 2006) complimentary pose that methodology is a philosophical framework, upon which the research is conducted, or the foundation upon which the research is based. Hence, the paper draw it fundamental method for the theoretical construct from inductive

reasoning, as an observation of phenomenon underplay. With the interpretation of such natural phenomenon adhering to the principles that governs hermeneutical traditions as argued by (Denzin and Lincoln, 2005) that interpretivist approach, is rooted in dialectical and hermeneutics, which is based on the belief that knowledge claims by individuals about social reality are socially and mentally constructed. However, the author's effort and strive in a model design proposition as a component of the theory, was to attain a 'surrogate' framework as a methodical explanatory concept of the phenomenon; relying on the definition of 'surrogate' by Maki (2018), which he argued that such a model is a simplification structure, which attempts to match some complex reality, and can be judged by the degree of resemblance it achieves to the real world.

THEORY OF POLICY FRAMEWORK AND PEDAGOGICAL GUIDE FOR FRAGILE FINANCIAL MARKET

The purpose of this sub-topic is to propose two thematic theoretical concepts for disruptive technology emerging within a developing financial market, which are

i. Disruptive Technology and related Policy Framework for fragile financial market.
ii. Disruptive Technology and related Pedagogical framework for the fragile financial market.

[i.] Disruptive Technology and Policy Framework for fragile financial market

Although technology is adduced as a major force of disruption, yet the careful management is the main engine of productivity growth, however, its impact on the labour market, and to some extent income distribution, ultimately depends on the Institutions and Policies that are in place at the national level, as well as the global arena.

(Mazzucato, 2013) posits, Government plays a crucial role in fostering innovation-led growth as a catalyst, not only as a facilitator. Government being a facilitator requires creating an environment to ensure technology development adaptation, as well as the diffusion of new technologies appropriate to their own country context. Therefore, to institute an effective policy framework and measures, as a catalyst, the following guidelines are required;

- The State should initiate policy support for National and Private Institutions of Research and Innovations.
- The State should make provision of relevant infrastructures to direct the technological eruption.
- The State should initiate policy support to business incubators that enables start-up firms to bring new technologies to the market.
- The State should initiate policy support to facilitate networks of firms and non-state actors towards a unified productive system.
- The State should institute a policy for effective subsidies or tax incentives for consumers as preferential regulatory measures to promote adoption and diffusion of new technologies.
- The State should adopt the skill of sector-specific policy design as technological upgrading, as well as policy targeting.
- The State should promote a policy of antitrust, and lack of competition among firms.
- The State playing a crucial role in educational policy, should address the adaptation of education curricula that reflect the skills demand of the near future on a timely basis.

- The State should engage in proactive policy initiatives to address the consequences of new technologies, in other to reduce vulnerabilities and expand the social protection system.

[ii] Disruptive Technology and Pedagogical framework for fragile financial market

Educational system and training centers must prepare workers to be flexible and, to develop new skills in response to rapid changes brought by new technologies. Which should be grounded in a policy to hire and retain quality educators, proper funding to educational institutions, and high standards of student achievement assessment, and measurement mechanism. Furthermore, adopting standard methods to distinguish students who have the capacity and skill for lifelong learning from the others, to guide in instituting educational support policy targeting. Below are the outlined measures and frameworks for a National pedagogical design;

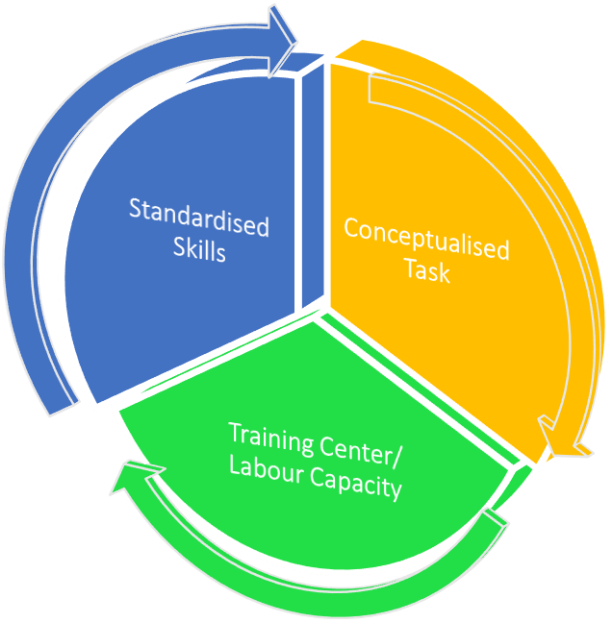
- The State should be committed and proactive in the policy design of public expenditures on active labour market programmes in a form of training and job search.
- The State should engage in educational incentives and policy initiatives to strengthen the right of workers in a non-standard work arrangement through legal and tax reforms.
- The State should initiate an educational system and policy mechanism that ensures that new emerging technology of the global level is proactively employed within the context of the local economy towards sustainable development, to thwart away it potential disadvantages.

D. THEORY OF TECHNOLOGICAL CHANGE AND LABOUR COMPETENCY & ASSESSMENT INDEX MODEL

This section of the paper examines what constitutes labour competency, and the mechanism of assessment, as a model index to address realistic challenges that emerge out of labour market defect, within a dynamic efficient technological environment. The theory is to resolve the comprehensive assessment gab that the human development index [HDI] fails to address within a disruptive technological environment.

Leonard (1999) argued that, the widely accepted concept of 'labour competency' defines the effective ability to perform fully identified labour activities successfully. Therefore, the theoretical essence of this section of the paper is to establish a model to define the elements that constitute competency in the labour market for assessment and indexing within a technological progressive environment. Below is the proposed structure of the model;

Fig. 'E1'
Labour Competency and Assessment Index Structure



E.T. Senzu, (2022) Labour Market, Industry and Economic system

DEFINITION OF MODEL INDICATORS AND METHODS OF COMPUTATION

- **Conceptualized Task**: This model indicator examines the activities and requirements of workers, together with the skills, knowledge, aptitudes and responsibilities that are required of the workers to accomplish the task. On that purpose, a well conceptualized tasks towards a standardized skills requirement are rated as (1.0) and further termed by this paper as [high-job-responsibility] as a presumption estimate, while a weaker task definition with poor industrial clarity and expectation of labour requirement is rated below (0.5) defined by the paper as [low-job-responsibility] and presented as proportional estimate. Therefore, an assessment of a conceptualized task is placed in a probability range of [0 to 1], with it structural model defined below as (*Eq.1).*

Therefore, below is a prescribed scale structure, in a probable market estimation and presumption of 'conceptualized task' model;

- Standardized Task (ST) = (0.8-1.0)
- Average Standardized Task (AST) = (0.5-0.7)
- Unstandardized Task (UT) = (0 – 0.4)

CT ……..*Eq.1*

- **Knowledge Development Index 'Computation' [KI]**: This indicator examines workers with a higher degree of flexibility, creativity, big problem solving and inter-personal skills. This index factor, do depends on the qualification level of the candidates, as in the time period of schooling, as established in the Educational Index (EI) formula developed by UNESCO.

$$(KI) = \frac{(\frac{EYSI}{18})+(\frac{MYSI}{15})}{2} \quad \text{…….Eq.2}$$

MYSI – Mean Years of School Index

EYSI - Expected Year of School Index

UNESCO Institute of Statistics (2010)

In the computation of (KI) equation model, the paper thus proposes that the assumed 'Mean Years of Schooling' [MYSI] should be pegged at (25) years. While the 'Expected Years of Schooling' [EYSI] should be pegged at (23) years within fragile economic settings, however, in the real structure modelling, the statistician could express disparity based on actual factors at play within the country of study.

- **Labour Capacity [LC]**: There are two methods proposed by the author in conducting the 'labour capacity' assessment, as a component of the theoretical model. *Method one*, do rely on the examination of the University performance data, in which the candidate graduated from, through the use of the 'QS' world ranking scale, as a raw percentage score allocation for the training center. Such method becomes relevant, only when the candidate is fresh to the labour market, with no experience. *Method two*, in this case rely on a data obtain from the historic market performance of candidate, from the institutions served in a given period of time, not less than three (3) years.

Detail structural application of the various computational methods are defined below;

[**Method-one**]

The measurement of 'Labour Capacity' of a candidate with method one depends solely on the [**Quantitative Ranking**] of the Employee graduated College, under a global score, in

the percentage converted to a probability score from (0-1.0). That means if a college scores 40% on the Global ranking, the graduated potential employee is credited with the 40% as (0.4) labour capacity performance, as a probable estimate of skillset performance prior to entering the job market. It must be noted, there are some colleges, which are statistically unranked due to performance at the global level, and therefore, when the percentage rate of ranking falls below 20%, such Colleges could be computed with an average hypothetical rate of (0.1) to replace a *Labour Capacity Performance Index* of the potential employee prior to entering the job market, upholding the assumption of being an alumnus of that College.

However, when the candidate serves the labour market for a minimum time period of three (3) years, the candidate's labour market performance data, becomes historically attainable, and eligible to be used for the computational analysis of the model, as an alternative approach of assessment, which constitute method two.

[Method – two]

With the method two, the four major variables to be relied upon in the assessment of labour capacity are defined under a probability range as follows;

- Flexibility [FL] = (0-1.0)
- Creativity [CR] = (0 -1.0)
- Problem Solving [PS] = (0 -1.0)
- Interpersonal Skills [IS] = (0 – 1.0)

The data of the four (4) variables above should be easy to attain from a candidate previous working establishment, as a micro-data ascertaining. Until there is deliberate national policy and Institutional formation to obtain '*National Labour performance'* as a data-bank from working citizens, to serve as a measure for national level productivity and efficiency analysis, within a technological changing environment. Beyond the above expectation,

data source reliable for candidate *labour performance and capacity* could only be obtain at micro-level with Institutions.

Therefore, the context definition of the variables serving as a data source for *Equation (3)* of the model is outlined below;

LC……. Labour Capacity Measurement

FL……..*Flexibility performance of employee* at the Job market

CR…….*Creativity performance of employee* at the Job market

PS……..*Problem Solving performance of employee* at the Job market

IS……..*Interpersonal Skill of employee* at the Job market

Ω ……..The minimum years served at the Job market by the employee in the period of assessment.

All these units of appraisal assessment above are source of data, to be used as a computational model for the '*Employee Capacity Measurement*' representing *Equation (3).*

$$LC = (FL + CR + PS + IS)\left(\frac{1}{\Omega}\right) \text{……..Eq. 3}$$

The paper thereby arrives to the final computation model of the *Labour Competency and Assessment Index* (Ψ) by relying on three different component of the model equations as outlined below;

[CT]……*Conceptualized Task Index* of Employee

[KI]……..*Knowledge Development Index* of Employee

[LC]……. *Labour Capacity Index* of Employee

The grand model equation labeled as *Equation (4)* uphold an assumption that, in the entire lifetime of an employee labour history of performance and competency, it should aim towards a probability scale of (1.0) from (0) of no working experience.

Hence, the computation model of the *Labour Competency and Assessment index* of a disruptive technological economy in a fragile settings is presented as *Equation (4)* below;

$$\gg \boldsymbol{\Psi} = \left(\frac{\mathbf{1}}{\boldsymbol{CT + KI + LC}} \right) (\boldsymbol{\Omega}) \ldots\ldots\ldots\ldots\ldots \textit{Eq. 4.0}$$

Though the model and its computational analysis is believed to be effective, and useful in analysing '*Labour Competence and Assessment Index'* (LA) of any sovereign economy. The paper's foremost priority is to address the concern of the technological waves of the financial market of the developing economies, with the grand model's utmost intent is to evaluate the 'labour competency' drive in the emerging disruptive technological environment. The above proposed *Equation (4)* could also be termed by this paper as (Employee Competency and Assessment Index)

E. CONCLUSION AND RECOMMENDATION

For a developing economy to productively operate successfully, and sustainably in economic performance amidst disruptive technology, requires that the government set out the infrastructure and operational mechanisms that could easily and proactively conceptualize any emerging technological waves at the global level to the national advantage. Such an effort requires a competent set-up of implementation institutions, quality policy designs, and quality high learning institutions to guide the labour market to develop an appropriate skill-sets.

Finally, they should be a desiring effort of government to prioritize its funding in Research and Innovation as a complimentary incubator for the labour market, beyond the mainstream academic process of students' development.

As the disruptive technology emerges in an economy for greater benefit, it must be anticipated that it is associated with some level of disadvantages to the labour market, which the paper further recommends, inquiry be made into the phenomenon of social protection and welfare distribution of non-standard workers of firms in developing economies, experiencing disruptive technological advancement.

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