Artificial Intelligence as a paradoxical Digital Disruptor in the Accounting Profession: An Empirical Study amongst Accountants

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Abstract-- The nature of Industrial Revolution 4.0 reveals the secret regarding the waves of change that are appearing at unprecedented breath and scale due to the increasing potency of digital innovation. This is the crystallization of disruption addressed as the waves of digital disruption, driven by rapidly developed and continuously innovated digital technologies, such as, Artificial Intelligence. Thus, Artificial Intelligence as a Digital Disruptor interrupts the status quo, just like a megatrend in the ecosystem, thereby impacting businesses, companies, industries and professions. One of the major professions in sight is the Accounting Profession – which is observed to be impacted at a 'paradox'. This is the 'double impacting potential' of Artificial Intelligence as Digital Disruptor – 'creating opportunities' but 'igniting threats', simultaneously. This is when it can complement or replace the profession completely – leaving the longevity of profession questionable. Thus, it is at this point where the research dwells into investigating how Artificial Intelligence creates opportunities and ignites threats in the profession, through twelve variables. Then the research turns around and looks at the tech embracing ability of the Accountants through six determinants, to investigate the level of positive and negative influence of Artificial Intelligence – thereby revealing the continuity status of the profession. In pursuance of carrying out this study, the researcher uses mixed methods to collect, present, analyze, and interpret data, in order to provide a complete understanding of the phenomenon studied by the research.

Key words-- Artificial Intelligence, Digital Disruptor, Opportunity, Threats.

I. INTRODUCTION

The heart and soul of this study revolves around revealing a new side of digital wisdom from the perspective of how Artificial Intelligence (AI) as a digital technology manifest ripples of disruption in the Accounting Profession (AP). The disruption features a paradoxical nature of creating opportunities but igniting threats, simultaneously– there by placing the roles of the profession at a position of either being complemented or replaced. This leaves the Accountants in dilemma and the continuity of the profession, questionable. Thus, it is at this point where the research dwells into investigating how AI creates opportunities and ignites threats in the profession and subsequently looks at the tech-embracing ability of the Accountants, to measure the level of positive and negative influence of AI on AP – thereby revealing the continuity status of the profession.

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It is imperative to understand that the research carries out a study on one area only, but there are two paradigms in that area, which is the 'Relationship Paradigm' and 'Level of Influence Paradigm'. The second paradigm is an extension of the first paradigm and both paradigm have to be studied and experimented one after another in order to provide a complete understanding of the phenomenon preached by the topic of this research study. The paradigms are related and cannot exist without each other.

First, paradoxical personality. In nature, AI is a digital technology, but through increasing potency of digital innovation, it has appeared to be a disruptive technology. This phenomenon turns AI's dual personality of being advantageous and disadvantageous to disruptive personality of being opportunity creator and threat igniter. If noticed, both personalities are occurring at double results of good and bad, just like uncertainty in the environment that occurs at a paradox. Thus, the disruptive personality of AI takes the role of paradoxical personality, in the sense of creating opportunities and igniting threats, simultaneously. It is happening neutrally, because it is a description of what is happening in the environment. This raises concerns as such technological revolutionary could bring advancements in business and economic environment through its opportunity creating attributes, but could drastically threaten the entire industry, through ts threat igniting attributes, interm so funder mining the ability to stay in business. Thus, it is imperative to address this concern in the advent of IR4.0, pertaining the capacity of AI is to create opportunities and ignite threats towards the roles of the AP.

Second, intensity and level of influence. Upon raising awareness regarding the concerns of AI's paradoxical personality, the education al issue is to investigate which personality side(opportunity creating or threat igniting side) has or potentially can have greater influence on the role of AP. It is vital to uplift balance between opportunities and threats, to allow trade-offs occur. However, if weight age falls too much on one side, it could be potential risk that would need urgent attention.

Third, changing or replacing AP and the continuity status of AP. Globally, accountants are fearing the venture of AI in to the AP's ecosystem, due to the potential of AI to replace Accounting roles and the AP as a whole. According to BBC, 35% of current jobs in the UK are at high risk of computerization and 53% of all occupations are estimated to be replaced by digital technology within the coming twenty years. According to Oxford University, 45% of jobs will be automated by 2030 and approximately 20%-40% of professional occupations are at risk of automation by smart technologies in the coming years.
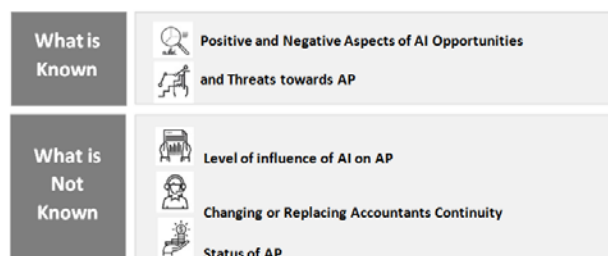

**Exhibit 1.0:** Problem Statement

Thus, with this setting of the AP today, every accountant is in deep dilemma pertaining their job security,

and where the AP is concerned, pertaining its continuity status. Therefore, it is imperative to as certain if AI is going to impact AP as a complement or are placer, as this will eventually reveal if continuity of AP is established or there will be a rebirth of the profession.

Based on the capacity of previous researches and authors, they have dictated the possible opportunities and threats posed by AI, with anticipated intensity the profession to be threaten in terms of their ability to stay in business. However, no author has clearly projected the upcoming reality of future, in terms of, if AI were to change accounting roles or completely replace accountants, and none have extended their study towards determining the continuity or longevity status of the AP. This is the theoretical gap in the study, as 'changing' or 'replacing' AP and 'continuity of AP to persist or be halted' is 'what we do not know'- making research still have ambiguity and paucity, as it has not been empirically tested.

II. RESEARCH OBJECTIVE

1) To examine the relationship between AI as Opportunity Creator on AP.
2) To examine the relationship between AI as Threat Igniter on AP.
3) To examine the significant level of influence of AI as Opportunity Creator and Threat Igniter on AP.
4) To investigate if AI is changing role or replacing AP.
5) To ascertain the continuity status of the AP.
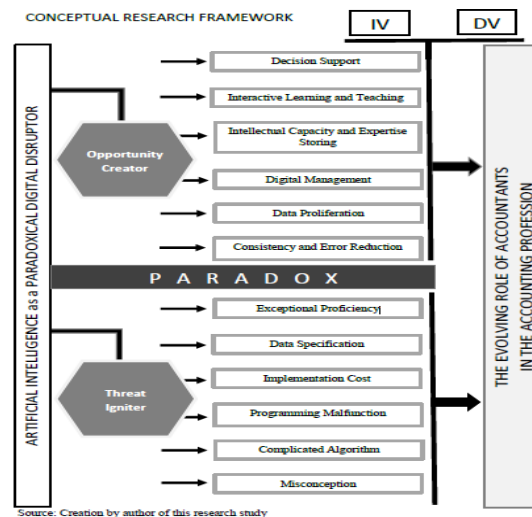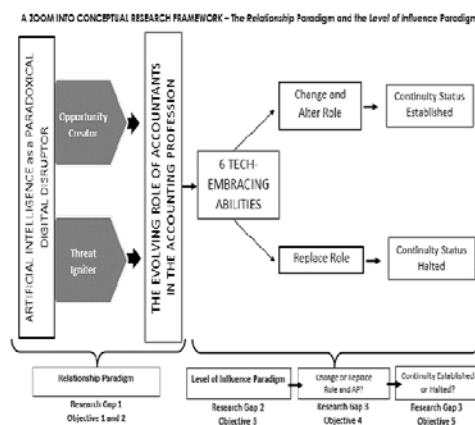

III. RESEARCH METHODOLOGY

Based on the se gaps in the research, it is imperative to develop a complete understanding by collecting both quantitative and qualitative data, because would provide a partial view. Thus, the study embark son mixed methods that will address the paradoxical relationship between AI and AP and the significant level of influence of AI on AP.A convergent parallel mixed methods design will be used, and it is a type of design in which quantitative and qualitative at a are collected in parallel, analyzed separately, and then merged. In this study, questionnaire data will be used to test the theory of relationship that predicts that "AI as a paradoxical digital disruptor" will positively and

negatively influence the "evolving role of accountants in the AP". Also, the significant level of influence of AI on AP shall be tested. Concurrently, qualitative data from interview session will be used to explore the "relationship between AI and AP" and the" significant level of influence of AI on AP" based on the "tech-embracing ability of accountants" – there by to reveal the continuity status of AP. The reason for collecting both quantitative and qualitative data is to converge, validate, corroborate and communicate the two form so fdat a to bring great erin sight into the problem than would be obtained by either type of data separately.

The quantitative strand is presented and analyzed based on the data collected from questionnaire survey which featured responses from 120 respondents who are accountants. The probability sampling using Roa soft required only 68 responses, but a total of 120 were received and taken for analysis to provide better findings. The questionnaire carried a total of 42 questions which were split into 3 important sections, namely, 'the demographic profile', 'relationship paradigm' and 'level of influence paradigm'. The data collected from the questionnaire responses is presented and analyzed by carrying out multiple tests specific to quantitative approach using SPSS software. The quantitative data collected is analyzed through 6 important tests using SPSS (Statistical Package of Social Sciences) software.

The qualitative strand is presented and analyzed based on the transcript information collected during the one-on-one semi-structured interview sessions that featured 9 Chartered Accountants. Since this research follows a fixed mixed method design which implies the quantitative and qualitative methods to be preplanned, the researcher selected 9 people from the 68-120 respondents who were to take part in the questionnaire survey. However, the 9 people were selected based on convenient sampling as only those who met certain demographic requirements in terms of age, years of working experience and academic qualification, were selected. This is because the researcher was ardent to maintain quality in the data collected from the interviewees.

The contextual coding analysis performed through extracting the most important pointers, grouping them and labelling them with preliminary codes and then regrouping them into broader codes known as themes, so that they reflect increasingly broader perspectives. In short, it is the process of filtering the complex data collected from the original interview responses, so as to merge with quantitative data results, to perform further data analysis and interpretation.

A ZOOM INTO CONCEPTUAL RESEARCH FRAMEWORK – The Relationship Paradigm and the Level of Influence Paradigm
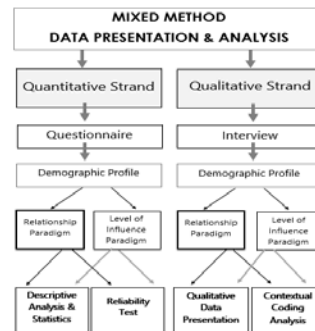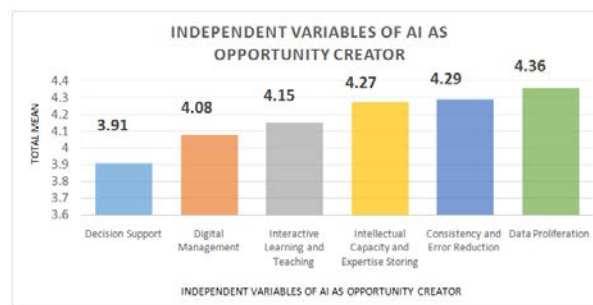
IV. FINDINGS

Exhibit 4.9: Independent Variables of AI as Opportunity Creator

Source: Primary Data

The Table 4.9 and exhibit 4.9 illustrate the total mean for each of the 6 IVs that represent AI as opportunity creator towards the evolving role of accountants in the AP. It can be deduced that AI is observed to create opportunity towards AP through all the 6 IVs, but the most through data proliferation with mean of 4.36 and the least through decision support with mean of 3.91. However, the disparity between the highest and the lowest mean is only 0.45, showing how all the variables are fit in creating opportunities.
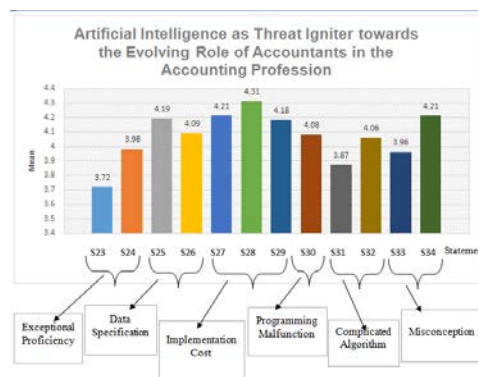

Exhibit 4.10: Independent Variable 2 – Artificial Intelligence as Threat Igniter

Source: Primary Data

The Table 4.10 and Exhibit 4.10 illustrate frequency and percentage, and mean from the response of the respondents pertaining the extent of their agreement towards the second independent variable (IV2) that is "AI as

threat igniter". This IV has 6 mini IVs or proxies that are used to truly describe and resemble the nature of "threat igniter". Each of the 6 mini IVs have their statements. Thus, the extent of the respondent's agreement towards the IV2 is through these 6 mini IVs. A total of 12 statements (S23 to S34) were prepared to resemble the 6 mini IVs to investigate if AI adversely influences the evolving role of accountants in the AP via igniting threats.

NO		HYPOTHESES	RESULTS
H1	H₀	There is **no significant relationship** between AI as *Opportunity Creator* and AP.	Rejected
	H₁	There is **significant relationship** between AI as *Opportunity Creator* and AP. ✓	Accepted
H2	H₀	There is **no significant relationship** between AI as *Threat Igniter* and AP.	Rejected
	H₁	There is **significant relationship** between AI as *Threat Igniter* and AP. ✓	Accepted
H3	H₀	There is **no significant level of influence** of AI as *Opportunity Creator* on AP based on the *Tech-Embracing Abilities* of Accountants.	Rejected
	H₁	There is **significant level of influence** of AI as *Opportunity Creator* on AP based on the *Tech-Embracing Abilities* of Accountants. ✓	Accepted

The Analysis of Variance (ANOVA) determine how the TEAs can influence the DV to reveal the level of influence of AI on DV. This is done by splitting the total variability of DV into systematic and random factors in which the systematic factors have influence on DV and random factors omit to have any influence (Pallant, 2013).

According to Pallant (2013), the Regression Sum of Squares resemble the amount of variance in the DV whereas the Residual Sum of Squares represent just like the residue of a solution which usually is not considered after adoption of regression model. The addition of Regression and Residual Sum of Squares leads to the Total Sum of Squares that represents the total sum of variance in the DV. However, the model should be addressed by the difference between the Total Sum of Squares and the Residual Sum of Squares amounting to the Regression Sum of Squares (63.659-49.781=13.878).

The df is an abbreviation for 'degree of freedom'. It is a terminology used to address the number of TEA variables. It is calculated by subtracting 1 from the number of variables (df = n-1). The Exhibit 5.11 illustrates that the Regression df is 6 (df: 7-1=6) which means the degree of freedom is generated by 7 variables that are the 6 TEAs and 1 DV. The Residual df is according to the sample size received from the responses that is a total of 120 responses, where from the 120 sample size, the 7 variables are deducted from sample size to obtain 113 (120-7=113). The 113 is the residue. The Total df is the sum of Regression and Residual df amounting 119, that is 1 less than sample size 120 because of the subtracted 1 from the number of variables (df = n-1).

Based on this analysis of the df, it can be deduced that there is a positive relationship between sample size and df value, where, as sample size increases, the df value also increases.

The F is an alphabet that represents the name 'Fisher' (Ronald Fisher) who is the inventor of the ANOVA in 1918, which makes ANOVA to be, in truism, Fisher's Analysis of Variance. The F value is a ratio (F-Ratio) which communicates if the regression model chosen is a good fit for the data analyzed. The Table 5.11 illustrates the F-

ratio to be 5.250 which is derived from dividing the value of Regression of Mean Square with the value of Residual of Mean Square (2.313/0.441=5.250). This shows that there is variance which exist, and the data is not free from having no real variance, which shows that it is far away from having the null hypothesis to be accepted.

The Sig. value represents 'significance' level of ANOVA. The Sig. value must be less than or equal to 0.05 ((Sig-value ≤ 0.05) in order for the relationship between IVs and DV to be addressed as significant and for the null hypothesis to be rejected. The Table 5.11 supports this by illustrating the Sig. value to be 0.000 which is lower than 0.05. This means the positive relationship between TEAs and DV is significant – which implies that the DV is positively influence by TEAs, which shows that the accountants are going to embrace AI. Since they shall embrace AI, it shows that the DV shall be impacted by AI more positively than negatively. So, this confirms how AI will have a more significant level of opportunity creating influence on the evolving role of accountants than threat igniting influence. Hence, strongly rejecting the null hypothesis. Based on these results and articulation, it clearly indicates that the accountants and the AP as a whole shall be complement rather than being replaced by AI, which eventually reveals the continuity status of AP to be established at positive and significant sustainability, rather than being halted.

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V. CONCLUSION& RECOMENDATION

The AP is an abode of professionals that is expected to demonstrate an enthusiastic response towards the evolving smart and digital technology; continued globalization of reporting and disclosure standards; and the new forms of regulations that come with AI. This is because AP has always been a profession that aims to radically improve the quality of business and investment decisions. In order to realize this potential, the profession needs to focus on fundamental business problems it plans to solve and ponder upon how technologies like AI can augment their approaches. The following paragraphs dictate a six-step recommendation for the accountants and the AP as a whole in channeling their prerogative towards achieving digital success, which is mainly obtaining a balance between disruption and business.

First, digital strategy mapping – involves identifying, formulating and implementing strategic plan that guides every decision-making to include introspection on how technology could improve the decision-making. This is imperative as it does not only test but enhance the digital maturity of the profession – thereby improving digital capability development. Second, pilot project creation – involves in assigning projects for prototype to help accountants and the AP learn what works best in solving business problems. Third, harnessing right capabilities – features the lessons learned from prototype process in prioritizing the tech-capabilities needed for organization, people, process and technology. Fourth, becoming a data virtuoso – highlights that AP is a data intensive profession, hence is expected to have the ability to identify and gather the right data, deploy it for the right purpose and effectively analyze it. This can be done by focusing on predictive analytics and forecasting, prescriptive analytics, business driven decision-making and automated feedback to the organization. Fifth, digital enterprise development – emphasize on the endurance to transform towards the right digital culture that retain talent, demonstrate clear leadership, commitment and vision of finding balance between disruption and business. Sixth, ecosystem planning – highlights that since disruption is an ecosystem phenomenon, instead of focusing on

horizontal and vertical integration within organization, the AP should look into understanding client needs and use digital technologies to create and deliver value to client in an integrated, innovative way.

Since it is the advent of technology evolution, the roles of accountants are also expected to evolve due to the significant collaboration between AP and technology. Thus, the manner in which the roles shall evolve could be identified and addressed more extensively to provide a more complete understanding on how technology is to impact the roles directly.

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