CONSUMERS' BIOSPHERIC VALUES AND PURCHASING INTENTIONS OF ORGANIC PRODUCTS

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ABSTRACT
Generally, firm-focused business strategy and sustainability issues may not be successful without the conscious effort to create responsible consumers who would embrace the idea of sustainable consumption. This is mainly because the consumer is believed to be at the end of all production processes. The motivation of this paper was to contribute to bridging the gap between firm-oriented strategies and measures against consumer-based measures that are meant to lead to a holistic fight against sustainable development or environmental sustainability. The study sought to understand how desirable goals guide consumers' lives (Schwartz, 1992) toward the environment. Thus, the biospheric values of consumers affect their purchasing intentions for organic products. A questionnaire was designed, and a quantitative method was employed for the study. This survey used valid data from 408 student participants in Ghana, administered through social media, specifically WhatsApp platforms. The study used the structural equation modelling analytical tool using the computer software Mplus version 8.2. The key finding was that the Ghanaian student consumer had strong biospheric values which contributed to the indirect influence of perceived inconvenience towards buying intentions of organic products. This finding has several implications for marketing practitioners, prospective investors or strategic marketers, policymakers and academic researchers. It contributes to the seemingly limited literature on green consumption which is seen as a gap between developed and developing countries.

KEY WORDS: Biospheric values, pro-environmental, green consumerism, sustainable marketing, organic products.

1.0 INTRODUCTION
The adverse effects of unsustainable consumption are numerous and well documented. Global warming, land degradation, water pollution, desertification and the decline of biodiversity are but a few of the environmental challenges believed to have been caused by adverse human behaviour (IPCC, 2007). As indicated by UNEP (2014), the impact of climate change and its associated risks is expected to increase significantly over the next ten years, with an estimated projected cost of approximately $300 billion by 2050 (UNEP, 2015). Human behaviour is an important contributor to these challenges and their solution (Gardner & Stern, 2002; Nickerson, 2003). The promotion and adoption of measures such as a low-energy consuming lifestyle (Pothitou et al., 2016; UNEP, 2015), the use of organic and biodegradable products, recycling, and other pro-environmental retail and service initiatives represent deliberate strategic attempts towards environmental sustainability.

Promotional measures aimed at tackling the environmental challenges believed to have been contributed by human behaviour include green consumerism (Schuitema & de Groot, 2015), the patronage of organic food products (Fitzpatrick, 2002), pro-environmental purchase behaviour (Nguyen et al., 2016), decoding behavioural responses of green hotel guests (Olya, Bagheri & Tumer, 2019), and so forth. It is generally assumed that the majority of consumers are in favour of purchasing organic products. Nevertheless, this assumption does not appear to align with consumer behaviour (Schuitema and de Groot, 2015). Nevertheless, other scholars maintain that there has been a gradual rise in the demand for organic food products (Meredith & Willer, 2016).
In their endeavour to make a contribution to the reduction of environmental challenges, Schuitema and de Groot (2015) put forth the argument that there is a trade-off between the influence of product

attributes and purchasing decisions. The fundamental premise of their study was that consumers appear to prioritize egoistic product attributes over green product attributes. While Schuitema and de Groot (2015) concentrated on the distinction between egoistic and green product attributes, this study concentrated on the role of biospheric values on organic products as a pro-environmental purchasing behaviour to promote a sustainable environment.

In their study, Olya et al. (2019) employed a distinctive approach by integrating three variables from the theory of planned behaviour (TPB) into their analysis: attitude towards behaviour, subjective norms, and perceived behavioural controls. This was done in order to examine the behavioural responses of hotel guests towards environmental sustainability. The behavioural responses, which were the dependent variable in the model, were found to be a continued intention to use and an intention to recommend. It is notable that this study is the inaugural instance of the application of the theory of planned behaviour to the decoding of behavioural responses among green hotel guests. However, evidence from the literature indicates that consumers typically make decisions regarding organic food based on a range of factors, including quality, price, taste, brand equity, health, and other considerations (Hughner et al., 2007; Perera et al., 2022).

A significant number of markets have introduced environmental programmes with the objective of influencing customer purchasing behaviour in favour of green products (Wiedmann, 2020). However, emerging economies have placed a higher priority on economic growth than on environmental protection (Wiedmann, 2020). To illustrate this point, the researchers used Ghana as an example (Greendex Survey, 2020). Approximately 42% of consumers in Ghana are concerned about the environment. There is a persuasive rationale for transforming customers' lifestyles in order to achieve SDG 12 within the context of Ghana. This is due to the fact that the considerable ecological concerns currently facing Ghana have the potential to impact the entire biosphere (United Nations, Ghana, 2024). The media in Ghana and elsewhere has persistently drawn attention to the deleterious impact of individual consumption and corporate production activities on the environment (Yan, 2021). A considerable number of firms across the globe have initiated substantial investments in research and development activities with the objective of advancing green production processes (Wang et al., 2019). Notwithstanding the efforts of organisations, many individuals do not purchase environmentally friendly foods (Wongnaa et al., 2024). It has been demonstrated by researchers that customers in Ghana are concerned about environmental issues (Knoema, 2021). Nevertheless, these concerns have not been reflected in the purchase of green products (Jaiswal & Kant, 2018). This outcome represents a significant concern for firms that have invested heavily in green products. In order to address this sustainability issue, it is imperative that marketing practitioners devote greater attention to understanding the psychological processes that customers engage in prior to making a purchase decision (Wiedmann, 2020).

In order to address the challenge of a sustainable environment, Nguyen et al. (2016) presented a distinctive model which examined the impact of consumers' biospheric values on their purchasing behaviour with regard to energy-efficient household appliances. The researchers found, among other things, that individuals with strong biospheric values tend to perceive the inconveniences associated with purchasing eco-friendly products as being outweighed by the benefits. This finding validated the assertions of Steg et al. (2014). In their study, Nguyen et al. (2016) identified several limitations and suggested avenues for future research. One such future research direction is the necessity to utilise products other than energy-efficient household appliances, such as organic or biodegradable products, in order to test a similar conceptual model (p. 106). Furthermore, it represents an effort to bridge the research gap between developed and developing countries with regard to green consumerism (Joshi & Rahman, 2015; Yadav & Pathak, 2016).

The issue of translating education on the sustainable environment into sustainable behaviours is a significant challenge (Tsarenko, 2013). Consequently, other studies posit that comprehension of environmentally friendly behaviours is a "prerequisite for environmental protection" (Olander & Thogersen, 1995, p. 345). Moreover, there is a dearth of research examining the factors that influence consumer perceptions and purchasing decisions regarding organic products, particularly in Ghana (Kuni et al., 2020; Boateng et al., 2022). Despite the studies conducted by Radulescu et al. (2021) and Nandi et al. (2016), further research is required to gain a comprehensive understanding of the factors influencing consumer perceptions and purchasing decisions regarding organic products. It is therefore evident that a study into pro-environmental consumer behaviour is of vital importance. This study responds to the research gap identified by Nguyen et al. (2016) by examining pro-environmental purchase behaviour, with a particular focus on consumers' biospheric values and their purchasing intentions regarding organic products.

In order to make a contribution to the field of sustainable environmental studies, to address the identified gap in the existing research and to build on the theory of planned behaviour (TPB) (Ajzen, 1991), this study seeks to investigate the effects of biospheric values on the purchasing intentions of organic products. In light of the aforementioned, the present study aims to address the following research questions: (1) What is the impact of consumers' biospheric values on their attitude towards environmental protection and the perceived inconvenience of organic products? (2) What is the effect of consumers' attitudes towards environmental protection on their purchasing intentions for organic products? (3) What is the relationship between consumers' perceived inconvenience and their intention to purchase organic products? (4) To what extent do attitudes towards environmental protection and perceived inconvenience act as mediators in the positive relationship between consumers' biospheric values and their purchasing intentions for organic products?

2.0 LITERATURE REVIEW

Although, Theory of Reason Action (Fishbein and Ajzen, 1975), Theory of Planned Behavior (Ajzen, 1985) and Brand Relationship Theory (Gummesson, 2015) have been used to support green products and buying intension, this study employs the Theory of Planned Behavior (Ajzen,1985). The theory of planned behavior (TPB) is a psychological framework that aims to predict and understand human behavior. The theoretical underpinning of most studies on pro-environmental has been the theory of planned behaviour (TPB) (Ajzen, 1991); this study is no exception. Such studies leaning on TPB have proved effective in predicting sustainable behaviours such as biodegradable packaging and buying green products (Stavros, Michael, Robert, & Markos, 1999; Tilikidou and Delistavrou, 2014).

2.1 Theory of Planned Behaviour

The theory of planned behaviour (TPB), as proposed by Ajzen (1985), represents an extension of the theory of reasoned action (TRA). The TPB has been instrumental in predicting social behaviours. The Theory of Planned Behavior (TPB) posits that individuals act in a rational manner, guided by their attitudes, subjective norms, and perceived behavioral control (Ajzen, 1985). These factors are not necessarily actively or intentionally considered during the decision-making process; rather, they form the underlying context for the intent (Ajzen, 1985). Ajzen (1985) posits that the theory of planned behaviour is a cognitive model that elucidates and predicts human action in accordance with their intentions, values and perceptions of their behaviour. The theory posits that behaviour is directly influenced by the intention to perform that behaviour, which in turn is affected by three factors: attitudes, subjective norms and perceived behavioural control. The role of personal values in determining environmental behaviour represents a key concern within the evolving field of green consumer literature (Soyez, 2012; Van der Werff, Steg, & Keizer, 2013). It may be assumed that eco-friendly purchasing behaviour typically involves a choice between individual and collective gains, as

well as a focus on the short or long term. In such cases, consumers will typically decide based on the values they endorse (Steg, Bolderdijk, Keizer, & Perlaviciute, 2014).

2.2 Pro-environmental Purchase Behaviour
A review of the literature reveals that a number of consumer behaviour scholars have expressed interest in the field of pro-environmental behaviour studies (Chen, 2015; Griskevicius, Cant, & Vugt, 2012; Parsa, Lord, Putrevu, & Kreeger, 2015). Pro-environmental purchase behaviour is largely defined as the purchase of environmentally friendly products (Mainieri et al., 1997). Stern (2000) classified these behaviours into two categories, based on their environmental impact during the production and consumption stages. This author defines green consumerism as a purchasing practice that considers the environmental impact of future product demand. This includes, for example, the purchase of organic food and recycled products. It is argued that the purchase of major household items and services, such as refrigerators and vehicles, has a greater environmental impact during consumption (Stern, 2000). The concept of biospheric values has emerged as a significant area of concern within the field of pro-environmental behaviour research (De Groot, Steg, Keizer, Farsang, & Watt, 2012; Nilsson, Hansla, Heiling, Bergstad, & Martinsson, 2016). Hirsch, Kett and Trefil (2002, p. 526) define the biosphere as 'the thin outer shell of the Earth and the inner layers of its atmosphere; the place where all living systems are found'. In the context of the present study, biospheric values are defined as the fundamental beliefs that reflect a concern with the biosphere and emphasise the quality of nature and the environment, irrespective of the benefits it offers to humanity (Stern, Dietz, & Kalof, 1993; Steg & De Groot, 2012). Individuals who espouse biospheric values typically ascribe intrinsic value to the ecosystem, which in turn gives rise to a moral obligation to act as pro-environmental consumers (Stern & Dietz, 1994).

2.3 Biospheric Values and attitudes towards environmental protection
The extant literature indicates that consumers who adhere strongly to biospheric values are more interested in environmental issues and are concerned with how organic products protect the ecosystem (De Groot & Steg, 2008; Stern, 2000). It can be reasonably assumed that individuals who espouse strong biospheric values will develop a positive attitude towards environmental protection (Essien et al., 2020). This is due to the fact that their values are aligned with the objectives of environmental sustainability and preservation. Such positive attitudes are derived from the conviction that the protection of the environment is an intrinsic value and a vital necessity for the well-being of all living organisms. The role of customers' biospheric values in shaping positive attitudes towards environmental protection is of crucial importance (Bouman et al., 2020). In accordance with the theory of planned behaviour, these attitudes, which are shaped by biospheric values, contribute to the formation of stronger intentions to engage in environmentally friendly behaviours. A positive attitude towards a given behaviour (in this case, environmental protection) serves to enhance the intention to perform that behaviour. It can therefore be posited that individuals who espouse biospheric values are more likely to intend to engage in environmentally protective behaviours. When individuals with biospheric values hold positive attitudes towards environmental protection, the probability of engaging in pro-environmental behaviours is increased (Caniëls et al., 2021). Furthermore, a study conducted by Soyez (2012) demonstrated that German consumers' eco-centric orientation has a direct impact on their attitude towards organic food. It is also important to note that eco-centric value orientation is conceptually similar to biospheric values. This represents the belief that the ecosystem should be protected solely because it has an intrinsic value (Thompson & Barton, 1994). In light of the findings of the relevant literature reviewed, it is proposed in this study that there is a positive influence of biospheric values on pro-environmental purchase behaviour. In light of the aforementioned evidence, the following hypothesis is proposed:

H1: Consumers' biospheric values have a direct influence on their attitude towards environmental protection.

2.4 Biospheric Values and Perceived Inconvenience

It has been shown that the majority of consumers with strong biosphere values value the quality of the environment. Incorporating biospheric values that emphasise the importance of the environment has the potential to positively influence the perceived inconvenience associated with engaging in pro-environmental behaviours (Nguyen et al., 2016). Individuals with robust biosphere values are more likely to reframe behaviours that may be perceived as inconvenient. For such individuals, the perceived inconvenience of engaging in environmental protection may be overshadowed by the importance and satisfaction derived from contributing to environmental sustainability (Sudin et al., 2023). Those who hold these values may be inclined to view short-term inconvenience as insignificant compared to the long-term benefits for the environment. This perspective serves to mitigate the perceived inconvenience by focusing attention on the broader implications of their actions. Within the framework of the Theory of Planned Behaviour, there are several positive effects that biosphere values have on perceived inconvenience. These values facilitate a reframing of inconvenience, increase motivation, promote positive attitudes and are consistent with long-term environmental goals.

The presence of biosphere values can increase intrinsic motivation to engage in pro-environmental behaviours (Steg et al., 2014). This increased motivation may reduce the perception of inconvenience because the behaviours are closely aligned with their values and personal goals. When actions are motivated by deeply held values, the effort involved is often seen as worthwhile, reducing the psychological burden of inconvenience. They tend to engage in pro-environmental purchasing behaviour regardless of perceived barriers (Steg & De Groot, 2012). Among others, Nguyen et al. (2016) found that strong biosphere values tend to neutralise the perceived inconvenience associated with purchasing pro-environmental products, confirming the claims of Steg et al. (2014). For example, if consumers generally perceive organic products to be more expensive than conventional products, their high biosphere values would not negatively affect their intention to purchase such environmentally friendly products. Van der Werff et al. (2013) found that consumers with high biospheric values often chose sustainable products, even though such products were more expensive than conventional products. Therefore, the second hypothesis for the study is stated as follows:

H2: Consumers' biospheric values have a direct influence on their perceived inconvenience of organic products.

2.5 Attitude Toward Environmental Protection and Buying Intentions of Organic Products

The Theory of Planned Behaviour provides a comprehensive framework for explaining the relationship between attitudes towards environmental protection and intentions to purchase organic products. Positive attitudes towards environmental sustainability, when reinforced by supportive subjective norms and high perceived behavioural control, lead to strong intentions to purchase organic products. These intentions, in turn, increase the likelihood of actual behaviour, thereby contributing to the achievement of environmental goals and reinforcing the cycle of positive attitudes and behaviour. Subjective norms play a key role in the formation of intentions. When individuals perceive that significant others (family, friends, peers) support and endorse the purchase of organic products, they are more likely to develop intentions to purchase these products. Social influence can serve to reinforce positive attitudes towards the purchase of organic products, making it a socially desirable behaviour. As the predominant variable predicting green purchasing behaviour, research has focused on two types of environmental attitudes: general and specific attitudes. Studies show that specific attitudes are more likely to be manifested in pro-environmental behaviour (Hines et al., 1987; Tanner and Kast, 2003). Tanner and Kast (2003) concluded in their study that specific environmental attitudes related to environmental protection are the strongest predictor of organic food purchases. Hence the third hypothesis:

H3*: Consumers' attitude towards environmental protection has a direct influence on their purchasing intention of organic products.*

2.6 Perceived Inconvenience and Buying Intention of Organic Products

The perceived inconvenience of purchasing an environmentally friendly product (EFP) can be defined as a consumer's valuation of, or aversion to, 'personal effort' (Follows and Jobber, 2000, p. 727) in purchasing an environmentally friendly product. Gupta and Ogden (2009) argue that consumers perceive organic shopping as time-consuming, economically disadvantageous and stressful. This is because, in their view, consumers have to spend extra money, time and cognitive resources to engage in green consumption. These factors tend to reflect perceived inconveniences or barriers to engaging in environmentally responsible behaviour. In a related development, Gleim, Smith, Andrews, and Cronin (2013) identify consumers' perceptions of lack of availability, higher price, narrow product range, and lower quality of EFPs as reasons for less green consumption.A large number of consumers encounter difficulties in the selection of organic products or environmentally friendly products (D'Souza et al., 2006). This is due to a rampant proliferation of ambiguous green labels that confuse consumers and undermine the credibility of such products (De Pelsmacker et al., 2005).

On the other hand, a section of the available literature argues that biospheric values tend neutralising the negative effect of perceived inconvenience on the purchasing intentions of eco-friendly products (Steg et al., 2014; Perlaviciute and Steg, 2015; Nguyen et al., 2016). It is also asserted that customers are ready to spend more money on eco-friendly products that are not detrimental to the environment and are seen as products from firms interested in sustainable development (Chen & Chang, 2012). Hence, the fourth hypothesis for the study is postulated as:

H4*: Consumers' perceived inconvenience has a direct influence on their buying intentions for organic products*

2.7 The Mediating Roles of Attitudes Towards Environmental Protection (ATTi) on the Relationship Between Biopheric Value and Purchase Intention of Organic Products

Biosphere values significantly and positively influence ATTi, supporting the idea that strong concern for the environment leads to favourable attitudes towards environmental protection (Bouman et al., 2020). These attitudes are shaped by personal values and significantly influence behaviour. When customers have positive attitudes towards environmental protection, they are more likely to support and engage in environmentally friendly activities. This means that biosphere values indirectly influence purchase intention through their impact on ATTi. In other words, strong biosphere values lead to positive attitudes towards environmental protection, which in turn increase purchase intention for organic products (Tanner and Kast, 2003). Therefore, biosphere values would indirectly influence purchase intention through ATTi (Bouman et al., 2020). This would indicate that the influence of biosphere values on purchase intention is partly channeled through their effect on environmental attitudes. Thus, it was deduced that environmental attitudes mediate the effect of consumers' biosphere values on their intention to purchase organic products. Hence the hypothesis:

H5: Attitudes towards environmental protection positively mediate the effect of consumers' biospheric values on purchasing intentions of organic products

2.8 The Mediating Roles of Perceived Inconvenience (PINC) on the Relationship between Biopheric Value and Purchase Intention of Organic Products.

Biospheric values, which reflect a person's concern for environmental well-being, generally encourage environmentally friendly behaviors like buying organic products (Nguyen et al., 2016). However, these values may not always directly lead to purchasing intentions due to various perceived barriers. Perceived inconvenience encompasses the difficulties consumers associate with buying organic products, such as higher prices, limited availability, and additional time and effort required (Wijekoon & Sabri, 2021). These perceived barriers can negatively impact consumers' purchase intentions. Even

individuals with strong biospheric values might find it challenging to follow through on their intention to buy organic products if they perceive the process as too inconvenient. The study hypothesises that perceived inconvenience mediates the relationship between biosphere values and purchase intention. While strong biosphere values positively influence purchase intention, this effect can be attenuated by high perceived inconvenience. Therefore, reducing perceived barriers by improving the convenience and accessibility of organic products may increase the likelihood that consumers with strong biospheric values will purchase these products.. This insight is crucial for marketers and policymakers aiming to promote sustainable consumption.

H6: Perceived inconvenience positively mediates the effect of consumers' biospheric values on purchasing intentions of organic products.

The foregone literature review and associated hypotheses are depicted in the conceptual model in figure 1. In the researchers' opinion, the proposed conceptual model and the associated hypotheses were testable to determine the statistical significance of the relationships among the various latent variables in the model. (see figure 1.).

3.0 METHODOLOGY
3.1 Research Context of the Study
There has been a notable increase in environmental awareness in Ghana, largely due to the combined efforts of governmental and non-governmental organisations to promote environmental education and conservation practices (Giesler & Veresiu, 2014). The importance of environmental protection for its own sake, or biospheric values, is becoming increasingly prevalent among Ghanaian consumers, particularly in urban areas. These values are shaped by a multitude of factors, including cultural beliefs, educational background, and exposure to global environmental movements. As consumers become more aware of the environmental and health benefits of organic products, their biospheric values are likely to inform their purchasing decisions (Longdon, 2017: Giesler & Veresiu, 2014). Notwithstanding the mounting interest in organic products, a number of obstacles impede their extensive adoption in Ghana. These include limited availability, higher prices in comparison to conventional products, and a general lack of consumer awareness regarding the characteristics of organic products (Giesler & Veresiu, 2014).. Furthermore, the perceived inconvenience associated with accessing and purchasing organic products may act as a deterrent even for consumers who are environmentally conscious (Sudin et al., 2023). However, these challenges also present opportunities for stakeholders to develop strategies that address these barriers(Yadav & Pathak, 2016; Joshi & Rahman, 2015). Improved availability and affordability of organic products, coupled with enhanced consumer education, could serve to significantly boost the organic market in Ghana.

3.2 Research Design
The researchers adopted the positivist epistemological stance using deductive reasoning (Grix, 2002). This is because the study involves a proposed conceptual model, the definition of constructs, the prediction of relationships between variables through hypotheses formulation and testing the hypotheses (Grix, 2002). Therefore, a quantitative research design was adopted for this study using a research survey.

3.3 Development of Questionnaire
The first section of the two-part questionnaire for the study consisted of demographic questions such as gender, age, education and employment status. The other section consisted of general questions about the latent variables within the study's conceptual model. The constructs in the conceptual model were measured using existing validated scales, with slight modifications to specific items to suit the topic under consideration. For example, the construct of biosphere values was defined using four items. Some studies categorically assess biospheric values with three dimensions or scales - respect for the earth, unity with nature, and protection of the environment (Stern et al., 1998; Dietz et al., 2005). Many

scholars have identified a fourth dimension of biosphere values as pollution prevention (De Groot & Steg, 2007; De Groot et al., 2012; Ruepert et al., 2016). Therefore, it was considered more appropriate to adopt the four dimensions of biospheric values in relation to the Ghanaian context, where small-scale mining activities degrade and pollute the biosphere. Biospheric values, therefore, represent the main independent variable within the conceptual model for the study.

Next to this construct are the two mediating constructs, namely attitudes towards environmental protection, perceived inconvenience of buying organic products, between biosphere values and behavioural intentions to buy organic products. These constructs were also measured by adapting existing validated scales. For example, attitudes towards environmental protection were operationalised by adapting three items from the existing literature by McCarty and Shrum (1994) and Tanner and Kast (2003). To explore participants' perceptions of barriers such as price, availability and easy recognition of organic products, three items to measure perceived inconvenience from Barbarossa and De Pelsmacker (2016) and Tanner and Kast (2003) were modified for the study. The main dependent variable, intention to purchase organic products, was operationalised with three items using existing studies (Whitmarsh and O'Neill, 2010; Wang, 2014). (see Table I).

The scale measuring all the four constructs in the conceptual model for the study were measured by the employment of a 7-point Likert-type scale. The scales were anchored at 1 for "strongly disagree" to 7 for "strongly agree" It was given to experts to provide their expert comments. After their suggestions had been considered, the questionnaire was piloted using potential respondents. The pre-testing enabled the researcher to ensure that the questions were devoid of ambiguities and that the questions measured the subjects of interest effectively (Zikmund, 2000).

3.4 Population and Sample
The study population comprised students and consumers in Ghana. The target population was comprised of students at the University of Professional Studies Accra for the duration of the academic semester. The students were selected through the use of convenience sampling. The survey link was disseminated via the students' WhatsApp group platforms, where they were invited to complete the questionnaire. The invitation to participate in the survey was conveyed via a brief text message, which provided information about the study's objective and encouraged voluntary engagement.
The survey link was posted for a period of approximately two months, from mid-April to mid-June 2019. By the conclusion of the data collection period, a total of 523 responses had been recorded. Following the cleaning of the data, the sample size deemed suitable for analysis was 408 questionnaires. A sample size of 408 was deemed appropriate for the study. This is because, according to Shukla (2008), the sample size is typically recommended for marketing research with a 95% confidence level and a population of over one million, which equates to 384 respondents.

3.5 Statistical Technique
The data were analysed using the structural equation model (SEM), which is a statistical technique for simultaneously testing and appraising causal relationships among multiple independent and dependent constructs (Gufen et al. 2000). As Hair et al. (2010, p. 641) observed, the structural equation model (SEM) is the most appropriate statistical technique when the research involves multiple constructs, each represented by several measured variables, and when it is desired to estimate all the relationships or equations simultaneously. Given that the conceptual model of this study involved multiple latent variables or constructs, it was deemed appropriate to employ SEM as the statistical technique for analysis. The data were analysed using the Mplus computer program, version 8.2.

4.0 DATA ANALYSIS AND RESULTS
4.1 Demographic characteristics

The results indicated that of the 408 respondents, 219 (53.7%) were female and 189 (46.3%) were male. The respondents were predominantly young, with the modal age category being 20-29 years old. It may be reasonably deduced that the survey participants were, on average, highly educated. A total of 102 participants (25% of the 408-person sample) indicated that they were employed, despite the fact that the sample was drawn from a student population. This is, however, not unexpected, given that the entire student body is comprised of three main streams: morning, evening, and weekend sessions. It may therefore be surmised that the majority of respondents were from the weekend session, given that this was designed to target the working class.

4.2 Measurement procedures
The latent variables in the conceptual model were loaded in a multifactorial confirmatory model (CFA). The CFA of these latent variables was estimated using the robust maximum-likelihood method (MLR) implemented in Mplus 8.2 software package (See table 1)

To assess the goodness-of-fit (GOF) of the CFA model, the following indicators were considered: the chi-square test statistic, the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA). Estimated values above the generally accepted threshold of 0.90 for CFI and TLI and RMSEA coefficient of less than 0.08 are considered a good fit for the proposed model (Hair, Black, Babin, & Anderson, 2014). The results from this study suggested that the CFA model recorded a good fit concerning the data collected. This is because the results from the CFA analysis indicated that the GOF estimates were as follows: maximum likelihood chi-square test statistic (df = 94) = 481; CFI = 0.931; TLI = 0.912; n = 408 S.

Cronbach's alpha (α), composite reliability (CR), and factor determinacy (FD) were estimated to establish the reliability of each discrete scale(see table 2). The latent variables' alpha and composite reliability figures ranged from 0.82 to 0.94. These range of values recorded through the analysis of the study results exceed the recommended 0.70 threshold value as given by Bagozzi & Yi, (1988). The factor determinacy estimates for all latent variables were above 0.88 (Muthen & Muthen, 2012)(see table 2). All of the loading estimates were statistically significant and recorded values above 0.52. The t-values for each item ranged between 25.962 and 150.262. ($p < 0.001$) (see table 1).

Further, the average variance extracted (AVE) for each latent variable or construct was estimated to assess discriminant validity. The average variance extracted from the latent variables was between 0.606 and 0.797. This suggests that all AVE values exceeded the generally accepted coefficient of 0.50 (Fornell & Larcker, 1981). The correlational matrix for the CFA analysis is depicted in Table 2.

4.3 Hypotheses Testing
The next analysis stage was to test the conceptual model and the formulated hypotheses. In line with the study's objectives, the researcher sought to determine the relationships among the various constructs in the proposed model. Specifically, the study sought to test the relationship between consumers' biospheric values and their buying intentions of organic products and to establish whether the influence of the independent variable was statistically significant on the dependent variable. Path analysis with structural equation modelling (SEM) was employed in Mplus 8.2 to test for the relationships among the variables. The first hypothesis (H1) anticipated a direct influence of consumers' biospheric values on attitudes toward environmental protection. The estimations confirmed a positive relationship which led to the confirmation of H1. It did not only confirm a direct relationship but also showed a statistically significant influence. This is because the result gave a beta value of 0.675, a t-value of 9.949, and $p < 0.001$. H2 predicted a positive influence of consumers' biospheric values on perceived inconvenience towards organic products. This prediction was confirmed and

statistically significant ($\beta = 0.482$; t = 7.441; p < 0.001). Hence, the first two hypotheses were supported and accepted (Table 3).

Hypothesis three (H3) anticipated a direct influence of attitude towards environmental protection on consumers' purchasing intentions of organic products. The outcome of the path analysis to test the hypothesis confirmed the influence to be direct and statistically significant ($\beta = 0.372$; t = 5.095; p < 0.001). H4 predicted a direct influence of perceived inconvenience on consumers' purchasing intentions of organic products and it was confirmed ($\beta = 0.585$; t = 8.204; p < 0.001) (see table 3). This particular outcome in interesting since some literature discusses a negative or indirect relationship between perceived inconvenience and purchasing intentions of environmentally friendly products (Nguyen et al., 2016; Barbarossa & Pelsmacker, 2016). On the other hand, the result tends to support a section of the literature that hold the view that most consumers having strong biospheric values generally patronise pro-environmental products irrespective of perceived inconvenience (Steg and De Groot, 2012; Van der Werff et al., 2013). (The outcomes of the path analysis are summarised in Appendix A).

Hypotheses five (H5) and six (H6) were tested to examine the effects of the mediating variables on the predictor variable and the outcome variable. For instance, H5 anticipated that attitudes towards environmental protection positively mediate the effect of consumers' biospheric values on purchasing intentions of organic products. This prediction was confirmed as the path analysis of the specific indirect effect of H5 yielded positive and statistically significant results ($\beta = 0.251$; t = 4.498; p < 0.001). H6 was also anticipated that perceived inconvenience positively mediates the effect of consumers' biospheric values on purchasing intentions of organic products. The path analysis outcome again confirmed the predicted relationship, and the results were statistically significant ($\beta = 0.282$; t = 5.672; p < 0.001) (see table 3).

5.0 DISCUSSION OF FINDINGS AND IMPLICATIONS
The principal objective of this study was to enhance the comprehension of the factors that influence the intention to consume eco-friendly products. To this end, the study examined the impact of biospheric values on the intention to purchase organic products. It is imperative that all stakeholders, both in developed and developing regions of the global community, prioritize the promotion of responsible consumerism and the accelerated adoption of eco-friendly product consumption behaviors in response to the ever-changing climate and the urgent need to mitigate global warming and ecological degradation. The objective of this study was to gain a deeper understanding of the relationship between students' biospheric values and their attitudes towards environmental protection, as well as their perceived inconvenience. These factors were then examined for their influence on the purchasing intentions of organic products. Furthermore, the indirect effects of the predictor variable on the outcome variable through the mediating variables were examined. Furthermore, given the dearth of knowledge regarding ecologically friendly product purchasing behaviour in developing countries (Yadav & Pathak, 2016; Joshi & Rahman, 2015), this study, conducted in Ghana – a developing country – represents an attempt to address the identified literature gap. It is hoped that this research will prove beneficial to consumers, researchers, investors, marketers, policymakers and other stakeholders in Ghana and other emerging markets within sub-Saharan Africa, as well as to international agencies.

One of the key findings of the study reveals that students' biospheric values have a direct impact on their attitudes toward environmental protection, which subsequently leads to a positive intention to purchase organic products. This finding is not different from that of Soyez (2012) and De Groot and Steg (2008). This suggests that those engaged in environmental and sustainability advocacy, as well as those promoting green products, may need to reposition themselves and specifically target

consumers with strong biospheric values. Thus, they can accelerate these consumers' intentions to purchase organic products and effectively promote them, ensuring that these intentions translate into actual purchasing behaviours. Furthermore, efforts should be made to cultivate biospheric values among the younger generation by increasing awareness and knowledge about the advantages of pro-environmental purchasing behaviour. It is hoped that human activities towards the environment and society will be conducted in a responsible manner, with the aim of reducing global warming or minimising ecological degradation.

The other noteworthy finding from this study is that strong biospheric values can affect consumers' perceived inconvenience, which is typically associated with eco-friendly products. This, in turn, directly influences consumers' intentions to purchase organic products. In other words, the established negative correlation between perceived inconvenience and purchasing intentions, as documented in a portion of the existing literature (Barbarossa and De Pelsmacker, 2014), was not substantiated by the findings and analysis of this study. Conversely, the findings regarding the influence of perceived inconvenience and purchasing intentions of organic products were positive in this study. This finding corroborates the arguments put forth by Steg et al. (2014), among others, that consumers with strong biospheric values are typically more amenable to accepting perceived inconvenience due to elevated prices, limited availability, and recognition challenges associated with purchasing organic products. This suggests that individual conumers who hold strong biospheric values, and thus have a deep appreciation for environmental protection and sustainability, are more likely to demonstrate tolerance towards the challenges associated with purchasing organic products. These challenges include higher costs, limited availability, and difficulties in identifying organic products. In essence, their dedication to environmental principles drives them to surmount these inconveniences, prioritising ecological advantages over personal convenience.

The general prioritisation of eco-friendly products over convenience does not imply that green marketers should maintain that perception on the grounds that consumers' strong biospheric values can neutralise the negative effect of perceived inconvenience. Those engaged in pro-environmental marketing must endeavour to reduce or eliminate consumers' perceived inconvenience, thereby encouraging the adoption of eco-friendly products by individuals with relatively weak biospheric values. In this regard, it is incumbent upon producers, distributors, and retailers of organic products to ensure that such products are available, affordable, accessible, and more attractive, with conspicuous signage at the point of purchase.

By filling an identified gap, the design of the simple but unique conceptual model and the testing of the hypotheses with a recommended product category from literature (Nguyen et al. 2016) is an attempt to contribute to scientific theory. Additionally, the study has recorded that, unlike some consumers elsewhere who have relatively low levels of awareness and knowledge of sustainable consumption (De Koning et al. 2015), the Ghanaian consumer's situation is quite different. The findings suggest that the Ghanaian student consumers are very much aware of the environment and not just the awareness, but their preparedness to act positively towards the sustainability of the environment, hence their strong biospheric values that were capable of negating the indirect effects of perceived inconvenience.

The findings of this study serve as a clarion call to policymakers in Ghana's emerging markets. What is the current state of development of the organic product market in Ghana and the sub-region? If consumers are not dissuaded by the perceived inconvenience associated with the consumption of organic products, such as their relatively high prices, non-availability, and recognition difficulties, to mention but a few, then strategic marketers should be prepared to facilitate the growth of the organic market in the country on a sustainable basis. Furthermore, policymakers stand to gain from this resource material, as they should recognise that issues such as global warming, climate change and environmental degradation are fundamentally moral rather than political concerns (Gore, 2006). The

fight against ecological degradation is about developing a shared commitment to nurturing individual consumer values, including innovation, creativity, flexibility and an entrepreneurial spirit (Fourcade & Healy, 2007). It would be prudent to consider the repeal of more stringent environmental legislation, which could be perceived as social protectionism. It is of the utmost importance to promote a shared commitment to individual neoliberal values, including innovation, creativity, flexibility and entrepreneurial spirit. It would be beneficial for policymakers to promote a distinctive problem-solving agent, the organic consumer, with the aim of fostering a novel spirit of partnership and multilateral collaboration.

6.0 Conclusion and Recommendations
In conclusion, it can be stated that there is a promising awareness of environmental sustainability among student consumers in Ghana. It would be prudent for marketers, strategic investors, policymakers and researchers to take advantage of the findings of this study, as they provide a clear indication of the necessity for the proper development of the emerging organic product market or green marketing in Ghana.

It is nevertheless recommended that firms should not compromise their efforts to achieve environmental sustainability. It would be advisable for firms to endeavour to expand the organic product knowledge of both existing and potential customers. This may be accomplished by fostering a positive awareness of the advantages associated with the consumption of organic products. It may be beneficial for companies to offer attractive deals for a limited time, such as discounts or promotions, in order to reward loyal customers for purchasing organic products.

Subsequent studies of this nature may benefit from the inclusion of multiple samples drawn from disparate geographic regions, thus enhancing the study's potential for generalisation. The present study was constrained by its focus on students and a single geographic area. Moreover, future research could examine additional variables to encompass moderating variables, such as gender, educational level and employment category, in order to ascertain consumer acceptance of organic products. The undertaking of further studies of this nature would serve to reinforce the efforts of nations to attain environmental, economic, and socio-cultural sustainability, while simultaneously providing a boost to the field of green marketing.

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FIGURES AND TABLES
Figure 1

Figure 1: *A conceptual model showing the effect of biospheric values on consumers' intentions to buy organic products*
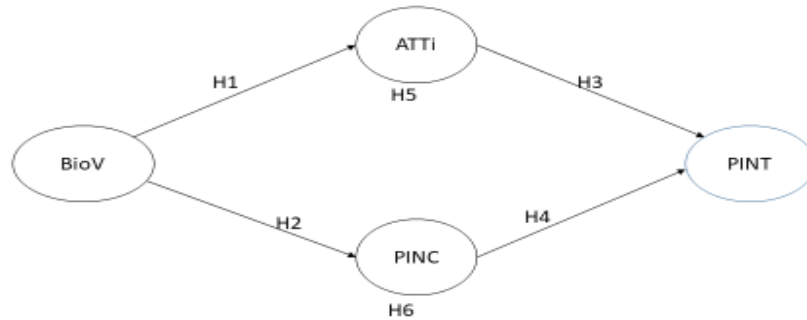
Where: BioV=biospheric values; **Atti**=attitude towards environmental protection; **PINC**=perceived inconvenience; **PINT**=Purchasing intentions of organic products

Table 1: CFA measurements

Measurement	FL	R^2	t-values	Mean	SD	Skew	Kur
Biospheric values – BIO							
I am concerned about prevention of pollution	0.79	0.624	39.609	6.316	2.246	-2.502	5.379
I respect the earth	0.89	0.793	76.323	6.463	1.646	-3.001	8.845
I cherish nature	0.92	0.844	98.110	6.529	1.499	-3.012	8.991
I value the protection of the environment	0.96	0.926	150.262	6.441	1.747	-3.682	6.554
Attitude to environmental protection – ATT							
Organic products are important to reduce environmental pollution	0.81	0.656	39.831	6.096	1.601	6.554	-1.900
Organic products are important to conserve natural resources	0.92	0.840	65.339	6.037	1.830	-1.671	2.522
prefer organic to conventional products	0.85	0.723	46.650	5.978	2.301	-1.808	2.828
Perceived inconvenience – INC							
I can afford to pay more to buy organic products	0.73	0.532	25.962	5.191	3.111	-0.975	0.039
While shopping, I can easily distinguish between organic and conventional products	0.73	0.536	26.297				
I am confident about the credibility of organic products	0.87	0.752	42.707	5.360	3.304	-0.939	-0.335
Intention purchase – IP							
I plan to switch to the purchase of organic products	0.83	0.695	46.380	5.662	2.400	-1.039	0.345
I intend to buy organic products henceforth	0.90	0.802	66.310	5.610	2.179	-1.066	0.550
I will make efforts to buy organic products on my next shopping	0.86	0.735	53.340	5.544	2.189	-0.713	-0.422

Table 2: Reliability and Discriminant Validity indices; Correlation matrix of the effects of the multifactorial CFA models.

Factor	Alpha	FD	CR	AVE	BioV	Atti	Pinc	Bint

|							
BioV	0.94	0.980	0.940	0.797	**(0.893)**		
Atti	0.89	0.962	0.895	0.740	0.682	**(0.860)**	
Pinc	0.82	0.926	0.822	0.607	0.479	0.674	**(0.779)**
Bint	0.90	0.952	0.897	0.744	0.458	0.703	0.778	**(0.863)**

Note: FD = Factor determinacy; Chi-square (df = 59) = 258; CF I= 0.923; TLI = 0.910; n = 408.

Table 3: Structural Equation Modeling (SEM); Beta values, t-values, and p-values.

STRUCTURAL PATH	Beta	t-values	p-values	Acceptance/Rejection
H1: BioV→Atti	0.675	9.949	0.000	Accepted
H2: BioV→Pinc	0.482	7.441	0.000	Accepted
H3: Atti →Pint	0.372	5.095	0.000	Accepted
H4: Pinc → Bint	0.585	8.204	0.000.	Accepted
H5: BioV→Atti. →Pint	0.251	4.498	0.000	Accepted
H6: BioV →Pinc →Pint	0.282	5.672	0.000	Accepted

Note: Chi-square (df = 94) = 4 81; CF I= 0.903; TLI = 0.876; n = 408.

Appendix A: The Structural Path of the Conceptual Model
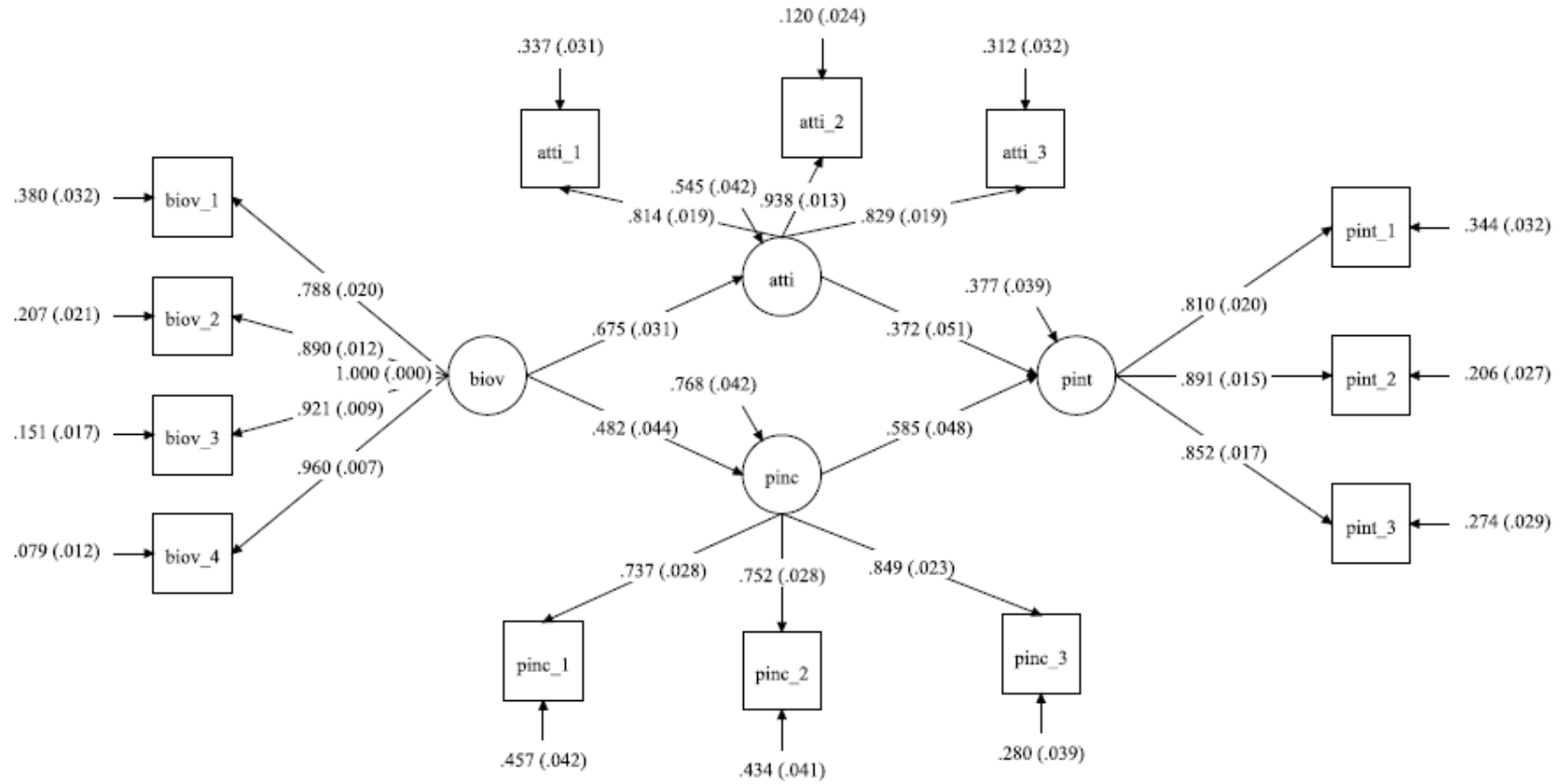
Source: Empirical Research Result from this study, 2019.

ANALYSIS OF POVERTY DYNAMICS; EVIDENCE FROM MONETARY POVERTY IN GHANA

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ABSTRACT

There has been an increasing call for researchers and countries to move beyond the static measurement of poverty to its dynamic nature. Static poverty measurements have been criticised for their limited explanatory power and their inability to reveal the processes that are pivotal to the persistence of poverty. Using a panel of 4,366 households the paper measured changes in household consumption expenditures during a five-year period and the associated correlates. The study revealed that at every point in time, about two-thirds of Ghanaian household poverty was transient while a quarter was chronic. Within the period 17 percent non-poor households slipped into poverty while a half of the poor households escaped poverty. Appling a multinomial logit the results showed that household demographics had more influence on chronic than on transient poverty and the determinants of these poverty types were not exactly the same which called for varying antipoverty interventions. such as direct cash transfers that tackles transient poverty and policies that eradicate chronic monetary poor land reforms, targeted microfinance, targeted school feeding programme.

KEYWORDS: Poverty, dynamics, Ghana, static, monetary, welfare, household

1.0 INTRODUCTION

The canker of poverty, no matter the form it is viewed on the welfare of individuals is far from being eradicated from the continent of Africa(Anakudo & Ezenekwe, 2022; Omomowo, 2018). Poverty studies have been done conducted in terms of one's financial ability to acquire some basic necessities of life or in terms of capabilities(Kim, 2019; Konkel, 2016; Kumar, 2018; Lemanski, 2016). In studying the phenomenon in other parts of the world, especially in Sub-Saharan Africa many authors have resorted to static analysis of the problem due to the non-availability of panel data(Alkire & Housseini, 2014; Obayelu & Edewor, 2022; Olofin et al., 2015). However, there is an increasing call to move beyond the static measurement of poverty to its dynamic nature(Fujii, 2014, 2017; Wang et al., 2023)Click or tap here to enter text.. Static poverty measurements have been criticised for their limited explanatory power and their inability to reveal the processes that are pivotal to the persistence of poverty. Furthermore, it is criticised as having a shortcoming of not able to deal with the problem of poverty the poor groups are categorized as either poor or non-poor at every time without offering any insight into the nature of movement from one category to another within time(Cantó et al., 2006; Jeandidier & Kop, 2019). Since policy effectiveness will rely on such information, analysis of poverty dynamics is preferred over static analysis when data permits it (Barrett et al., 2016; Biewen, 2014; Magombeyi & Odhiambo, 2017). Literature from Ghana on poverty has mainly focused on cross-sectional analysis due to the lack of panel data (Adjasi & Osei, 2007; Coulombe & Wodon, 2007; Fuseini et al., 2019; Orkoh et al., 2020). Some studies such as Appiah-kubi et al., (2007), Agyire-Tettey et al., (2019) and GSS, (2013, 2020) however, went beyond the single indicator static poverty analysis to examine poverty in its multidimensional form using these cross-sectional data. These studies also fall short of providing a deep insight into the dynamic nature of the problem being studied over time.

Lawson et al. (2012) studied the poverty dynamics among 304 women living in the coastal zone of Ghana. The data used was limited to the section of household living along the coastal zone of the country and lacked the national dimension. Again, using a panel data of 464 households from eight

villages in the Eastern and Upper East administrative regions of Ghana, Dzanku (2015) examined the transitory (i.e., dynamic) nature of rural livelihood and how this relates with poverty. Although the study used a panel it was, first of all, not a nationally representative and, also provided no information secondly, said nothing at all about monetary poverty and its dynamics. Lumping up both one-time poor and persistent poor and applying one policy to it leads to inefficiencies in policy impact and underestimation of the number of poor in a country (Wang et al., 2023). This study is concerned with using the monetary measure to estimate the dynamics of poverty in Ghana using a two-wave panel, spanning 2009/2010 to 2013/2014. Specifically, the study investigates the trends and determinants of monetary poverty dynamics in Ghana. The study shows how poverty in Ghana has evolved with time for the household for the periods 2009 and 2014 using panel data. This study is significant in the sense that by employing the panel data to study the phenomenon of monetary poverty in a dynamic analysis, the study bridges the gap of the lack of dynamic analysis of poverty in Ghana. In addition, as a small middle-income economy, this study is intended to deepen the understanding of the dynamics of poverty in such economies.

2.0 LITERATURE REVIEW

A review of empirical works on dynamics of poverty by Baulch and Hoddinott (2000) and Yaqub (2000) provides a starting point in understanding the nature of the poverty over time using household longitudinal data. Baulch and Hoddinott (2000) identified three types of households when comparing thirteen different panel data in ten countries as follows: households that are always poor; are sometimes poor; or are never poor. One significant observation made was the fact that the percentage of households that fall in the sometimes poor category are much greater than those in the always poor category. Also using 19 datasets scattered among four continents- Africa, Asia, Latin America and Post-socialist country, Yaqub (2000b) suggested that the reason for the large size of the households falling into sometimes poor category may be explained by the short nature of the panel which may either two or three waves. Neilson, Contreras, Cooper and Hermann (2008), Narayan, Kotikula and Zaman (2010), Woolard and Klasen (2004), Jalan and Ravallion (1998), McCulloch and Calandrino (2003) provide various factors categorised under demographic, human capital, physical capital, geographical location, economic related and health variables that determine the dynamic nature of poverty. Both Fiess and Verner (2004) and Neilson et al.(2008) found that the probabilities of falling into poverty increases as one ages but very low for young ages. Jalan and Ravallion (1998) in a study in rural China also found that life-cycle hypothesis underpins their result. In the study they estimated that transient poverty falls for household members with ages up to about 45 years of age but rises afterwards. In Nepal, Dev Bhatta and Sharma (2011) found that with respect to household size the odds of being chronically or transiently poor increase with increase in the size of the household whereas Haddad and Ahmed (2003) in Egypt, and Jalan and Ravallion (2000) in China found that whereas chronic poverty is associated with increasing household size the same cannot be said of transient poverty. Eigbiremolen (2018) estimated that between 2010 and 2013 larger households living in Nigeria experienced a fall in their consumption giving credence to why these households were more likely to be chronically poor within that period. McCulloch and Calandrino (2003) also found in their study in rural Sichuan in China, that household size is strongly associated with being chronically poor.

Bigsten and Shimeles (2004) analyzed the dynamics of poverty using spells and component approach for ERHS 1994-1997 and found that households size in the rural areas were transiently poor, household size, while it reduces the probability of leaving poverty also reduces the probality of entering poverty. Contrarily, Adepoju (2012) found that majority of the rural residents of rural South Western Nigeria suffered from chronic poverty and househod size increased the probability of the household staying chronically poor while household size decreased the odds of exiting transient poverty.Glewwe, Gragnolati, Zaman and Glewwe (2002) found that between the periods of 1993 to 1997 the female headed households experienced a greater reduction in the poverty rates than that of their male

counterparts in Vietnam. Muller (1997) in a study using Rwanda data found however, that female headed households (and perhaps elderly heads) were associated with higher chronic poverty index.

The utility model of poverty has been applied to the study of poverty dynamics and its correlates. For instance such studies identify households headed by married couples to have the potential of reducing poverty compared with heads that are single. Rodgers (1991) provided two reasons underlying this. Firstly, married couples can better take advantage of economies of scale than single heads especially in the purchase of housing and other goods. Secondly, there is a better economic support for the other partner in case one is laid off. Literature on relationship between employment and poverty dynamics shows that there exists a direct relationship between the percentage of agriculture labour in a state and the propensity for the state to remain in poverty for years (Adelman et al., 2018). Education has also been found in the literature of dynamics of poverty to contribute to the reduction of both transient and chronic poverty. Gonçalves and Machado (2015) in a study in Brazil found that a adults with secondary and college education or those with a higher proportion of average or highly-qualified skilled workers lessen the probability of the household being always, usually, churning or occasionally poor as compared with the probability of it being non-poor. In a study in Ghana by Lawson, Gordon and Schluchter (2012) the authors explored the perception of women in some coastal areas of Ghana and the linkages between poverty and the environment. The current study is made possible to the availability of a two-wave panel data which have been collected by Economic Growth Centre (EGC) at Yale University and the Institute of Statistical, Social, and Economic Research (ISSER) at the University of Ghana

3.0 METHODOLOGY
The study investigated the phenomenon using a quantitative method that enables generalization about the entire poverty state of Ghana (Creswell, 2014). Two waves of the Ghana Socioeconomic Panel Survey data by the Economic Growth Centre (EGC) at Yale University and the Institute of Statistical, Social, and Economic Research (ISSER) at the University of Ghana, Legon were used. The first wave was conducted in 2009/2010 while wave two was completed in 2013/2014. A two-stage stratified sample design was used for the survey. Stratification was based on the 10 old regions of Ghana. The first stage involved selecting geographical precincts, or clusters, from an updated master sampling frame constructed from the 2000 Ghana Population and Housing Census. A total of 334 clusters (census enumeration areas, or EAs) were selected from the master sampling frame. The clusters were randomly selected from the list of EAs in each region. The selection was based on a simple random technique. A complete household listing was conducted in 2009 in all the selected clusters to provide a sampling frame for the second stage selection of households. In the second wave, the selection of the clusters was based on the 2009 sampling frame. The second stage of selection involved a listing of all the households in the selected enumeration areas (clusters) and a simple random sampling of 15 of the listed households from each selected cluster. For wave two due to movements in and out of the household the study ended up with a panel consisting of a sample of 4366 households that contained 16,356 members.

In measuring poverty, the study applied the class of decomposable poverty measures by Foster, Greer and Thorbecke (FGT). This method shows the property of consistency and additive decomposability Foster et al. (1984). This is shown in equation 1;

$$P_\alpha = \frac{1}{n} \sum_{i=1}^{q} \left(\frac{z - y_i}{z} \right)^\alpha \tag{1}$$

Where z is the poverty line, y_i is the household's consumption expenditure per adult equivalent; i is the household; q is the number of poor people in the population of size n, and α is the poverty aversion parameter that takes values of zero when measuring incidence (P_0), one when measuring poverty gap

or depth (P_1) or two when it is measuring the severity of poverty (P_2). Two nutritionally based poverty lines were used and calculated by the Ghana Statistical Service (GSS). The first is the food poor or the extreme poverty line which was based on per adult equivalent expenditure per year of GH¢ 792.05. Any individual whose total expenditure fell below the amount was referred to as severely poor. The second line which the study called normal poor is GH¢1,314 per adult equivalent expenditure per year. The "spells" approach in which a household that is poor in only one period is considered transient poor, while a household that is poor in both periods is classified as chronically poor was adopted following Alisjahbana and Yusuf (2003), Brück and Workneh Kebede (2013), and Dartanto & Nurkholis, 2013)

3.1 Estimating the Determinants of Poverty Dynamics

The study applied the multinomial logit regression model in identifying the correlates of poverty dynamics. This model has been used by a variety of authors including Gaiha et al. (2011), Adepoju (2012) as well as (Bhatta & Sharma, 2006). The probability(P_{ij}) that a household i belongs to a particular poverty status j was modelled as a function of the explanatory variables X_i as seen in equation 2.

$$P_{ij} = Prob(Poverty = j) = \frac{e^{X_i^1 \beta_j}}{1+\sum_{k=1}^{2} e^{X_i^1 \beta_k}} \; for \; j = 0, 1, 2 \tag{2}$$

Where β_j is a vector of coefficients, and X_i is the vector of the independent variables. P_{ij} is the probability of a household (i) in the panel having the status of (j) which can take 0 as Poor and 1 as non-poor in a static regression and a dynamic model takes on values of 0 as non-poor, 1 as transient poor and 2 as chronic poor. The base category was chosen in each category of regression. The independent variables (X_i) included in the study consisted of demographic, human capital variables, employment regional and rural-urban location variables. Household Head saving, renting status, ownership of tools, dwelling type and the household head receiving transfer are all variables included in the model as control variables.

4.0 RESULTS AND DISCUSSIONS

4.1 Descriptive Statistics

Table I provides the summary statistics for the ratio variables of the independent variables while Table II provides the descriptive statistics for the categorical variables. In all, the sample used for the analysis in the two surveys was 4,366 households in a balanced panel.

Table I. Descriptive statistics of ratio variables

Year	Variable	Mean	SD	Min	Max	N
2009	Age of Head	47.74	14.91	15.00	109.00	4,366.00
	Household Size	4.96	2.64	1.00	20.00	4,366.00
2013	Age of Head	50.53	15.00	12.00	114.00	4,366.00
	Household Size	4.00	2.51	1.00	17.00	4,366.00

Source: Author's computations from ISSER-YALE socio-economic data (2009 and 2013)

In 2009 average household size was about 5 with a maximum of 20 members and a minimum of 1 member. In 2013 however, the average household size had reduced marginally to about 4 members per household with the maximum also reducing to 17. The distribution of household size was also higher in rural areas for both waves, averaging almost 6 in 2009 and 5 in 2013 than for urban households. Female heads had higher ages than their male counterparts. Table 4.2 shows a greater percentage (31%) of the household heads did not have any form of qualification in 2009/2010 similar to what pertained in 2013/2014 when they also formed 31 per cent. However, in both periods Junior High certificate

holders formed the greater percentage of the sampled household head with some form of educational attainment, being 27 per cent in 2009 and 38 per cent in 2013. The majority of the sample, forming about 19 per cent were from the Ashanti region in both 2009/2010 and 2013/2014 followed by the Greater Accra region which forms about 16 per cent of the sample. The majority of the sample forming about 55 per cent was from the rural sector in 2009 while the urban sample was about 45 per cent. In 2013 rural sample was formed 51 per cent while the urban was 49 per cent.

Table II: Descriptive Statistics of Demographic and Socio-economic Variables

Variable	2009/2010		2013/2014	
	Percentage	Observation	Percentage	Observation
Gender of heads				
Female	29.3	1277	35.4	1546
Male	70.7	3089	64.6	2820
Household Size				
Below 2	7.7	335	14	611
Between_2_and_3	22.6	988	28.4	1238
Between_4_and_6	45.7	1994	41.8	1827
Above_6	24	1050	15.8	691
Head Education				
None	30.5	1252	30.5	1333
Preschool	9.1	372	1.4	63
Primary	21.7	893	13.8	601
JHS	26.5	1088	37.8	1649
SHS	7	289	6.1	267
Tertiary	5.2	213	10.4	453
Region(Admin)				
Western	9.2	401	9.2	401
Central	9.2	401	9.2	401
Greater Accra	16	699	16	699
Volta	7.6	330	7.6	330
Eastern	9.6	418	9.6	418
Ashanti	18.9	825	18.7	816
Brong Ahafo	10	435	10	435
Northern	11.6	506	11.8	514
Upper East	4.8	211	4.8	211
Upper West	3.2	140	3.2	140
Location				
Rural	54.8	2391	50.7	2213
Urban	45.2	1975	49.3	2153

Source: Author's computations from ISSER-YALE socio-economic data (2009 and 2013)

4.2 Monetary poverty profile

Table III shows that 29.5 per cent of the population in 2009 was poor. In 2013/2014 the rate dropped to 21.5 per cent. About 11.9 per cent of households had mean expenditure below the poverty line in 2009/2010 and dropped further to 8.7 per cent in 2013/2014. The severe poverty measure was 7.8 per cent in 2009/2010 but in 2013/2014 dropped to 5.6 per cent. These figures conformed to the falling trend of the national poverty incidence reported by the Ghana Statistical Service using the Ghana Living Standard Survey (GLSS) data. In 2005/2006 the GLSS reported a national absolute poverty

incidence of 31.9 per cent with a poverty gap of 11.0 per cent. These figures dropped to 24.2 per cent and 7.8 per cent in 2012/2013 in the GLSS.

Table III. Poverty status for 2009 and 2013

	2009/10		2013/14	
	Percentage of HH	**Percentage change**	**Percentage of household**	**Percentage change**
Upper Poverty Line (=GH¢1314/year=$1.83/day)				
Headcount	29.5	-	21.5	-27.1
Poverty gap	11.9	-	8.7	-26.9
Squared Poverty Gap	7.8	-	5.6	-27.3
Lower Poverty Line (=Gh¢792.05/year=$1.10/day)				
Headcount	11.7	-	8.5	-27.4
Poverty gap	6.3	-	4.7	-25.4
Squared Poverty Gap	5.4	-	3.7	-31.5

Source: Author's computations from ISSER-YALE socio-economic data (2009 and 2013)

The extreme poverty rate showed a downward trend from 11.7 in 2009/2010 to 8.5 per cent in 2013/2014.

4.3 Trends in poverty transitions

Table IV shows that more than half of the poor households (68%) in 2009/2010 escaped poverty in 2013/2014 while at the same time, about 17 per cent of the non-poor households from 2009/2010 slipped into poverty in 2013/2014. Compared with the total poor of 2013/2014, those who slipped into poverty formed about 57 per cent. Between 2009/2010 and 2013/2014 about 33 per cent of the population was transiently poor while 9.3 per cent of the population was chronically poor (see Table V). Overall, the mobility rate of households based on consumption expenditure and the poverty line was low. In fact, between the two periods, about 68 per cent of the household did not move at all. This gives a mobility rate of about 32 per cent.

Table IV. Poverty transition matrix for 2009/2010 and 2013/2014

		2013/2014		
		Poor	**Not Poor**	**Total Row**
2009/2010	**Poor**	407(31.6)	883(68.4)	1,290(29.5)
	Not Poor	534(17.4)	2, 542(82.6)	3,076(70.5)
	Total Column	941(21.5)	3,425(78.5)	4,366(100)

Note: *Percentages are in the brackets*
Source: *Author's computations from ISSER-YALE socio-economic data (2009 and 2013)*

From Table IV and Table V, it can be inferred that taking the poor population at every point in time more than half (78%) of the poor population were transiently poor while more than 22 per cent of the poor at any point were always having their welfare below the poverty line thereby constituting the chronic poor.

Table V. Poverty decomposition by spell approach

POVERTY STATUS	NUMBER OF HOUSEHOLDS	PERCENTAGE
Always Poor (Chronic)	407	9.3
Sometimes Poor (Transient)	1,417	32.5
Non-Poor	2,542	58.2

TOTAL	**4366**	**100**

Source: Author's computations from ISSER-YALE socio-economic data (2009 and 2013)

When decomposed between the rural and urban locations in Ghana, it can be seen that, of the 9.3 per cent national chronic poverty rate, the share of the contribution by the rural dwellers was the highest being 87 per cent compared with the urban centre which contributed 13 per cent. Similarly, the rural transient poverty rate is higher (68 %) in terms of contribution to the 32.5% national figure compared with the contribution from the urban which was 32 per cent. This means the rural transient drove up the national transient poverty rate (See Table VI).

Table VI. Poverty Decomposition by spell approach by location

POVERTY STATUS	RURAL	URBAN	TOTAL
Always Poor (Chronic)	353(86.7)	54(13.3)	407(9.3)
Sometimes Poor (Transient)	959(67.67)	458(32.33)	1,417(32.5)
Non- Poor	1080(42.5)	1462(57.5)	2,542(58.2)
TOTAL	**2391(54.8)**	**1974(45.2)**	**4366(100)**

Source: Author's calculations

Table VII compares the computed national poverty dynamics with some results from the rest of Africa. Relatively Ghana has the lowest chronic poor as well as the percentage change from chronic to transient poverty which is 28 per cent as compared with the average of 68 per cent recorded in the selected studies shown in the table. This comparison is not without difficulty of doing such comparisons due to measurement disparities, sample differences, method differentiation, differences in the poverty lines used across the countries and also the different durations used in the spell analysis.

Table VII. A comparison of Ghana's results with study from Africa

Source	Study Location	# of Panel	Date of Study	Poverty Type			Percentage
				Chronic	Transient	None	Chronic To Transient
Carter and May (1999)	South Africa	2	1993-98	22.7	31.5	45.8	72.1
Dercon and Krishnan, (1998)	Ethiopia	2	1994-98	24.8	30.1	45.1	82.4
Grootaert and Kanbur (1995)	Cote d'lvoire	2	1985-86	14.5	20.2	65.3	71.8
(Grootaert & Kanbur, 1995)	Cote d'lvoire	2	1986-87	13.0	22.9	64.1	56.8
Grootaert and Kanbur (1995)	Cote d'lvoire	2	1987-88	25.0	22.0	53.0	113.6
Hoddinott, Owens and Kinsey (1998)	Zimbabwe	4	1992/93-1995/96	10.6	59.6	29.8	17.8
Haddad and Ahmed (2003)	Egypt	2	1997-99	19.0	20.4	60.8	93.1
Arthur (Current Study)	Ghana	2	2009/10-2013/14	9.3	32.5	58.2	28.6

Source: Adapted from (Baulch & Hoddinott, 2000) *and* (Haddad & Ahmed, 2003)

4.5 Determinants of Monetary Poverty Dynamics

The multinomial logit regression analysis used for the study begins with discussions on the model's predictive power poor. Following Haddad and Ahmed (2003), Neilson et al. (2008) as well as Kedir and McKay (2002) the values of the variables in the initial period, 2009/2010, were used in the regression. This was done to minimize the effects of measurement errors on the model. The dependent variable- poor, takes the values of 0 for *Non-Poor*, 1 for *Transient Poor* (poor in any of the periods) and 2 for *Chronic Poor* (Poor in both periods) in the regression. In Table VIII the study shows the model's ability to predict the various categories of poverty into their right groups. Overall, the model predicts more than half (about 64 %) of household heads into their right poverty groups. This model was predicted better than models used by Kedir and McKay (2002) and also Alisjahbana and Yusuf (2003).

Table VIII. Predicted poverty status based on the multinomial logit model

	PREDICTED			
	Non-Poor	Transient Poor	Chronic Poor	
ACTUAL				**Total**
Non-Poor	2,258	274	14	2,546
Transient Poor	899	497	37	1,433
Chronic Poor	129	216	42	387
Total	3,286	987	93	4,366

Source: Author's computations from ISSER-YALE socio-economic data (2009 and 2013)

4.6 Marginal Effects

Table IX shows that household demographics have more influence on chronic poverty than on transient poverty as observed by Jalan and Ravallion (2000). Again, the determinants of chronic poverty and transient poverty are not the same. Finally, the determinants of poverty were more significant for chronic poverty than for transient poverty. The coefficient of gender with a male as the reference category is significant at 5 per cent for both chronic and non-poor categories with a negative sign for chronic poverty. This means that being a female head of a household reduces the probability of being chronically poor by about 2 per cent. This is in contrast with the human capital theory and other studies elsewhere such as Muller (1997) and McKernan and Ratcliffe (2013). The results also contrast with the feminization of poverty concept just as other studies contrast with the theory (Klasen et al., 2010; Rajaram, 2009).

Table IX. Marginal effects multinomial logit estimate: Determinants of poverty dynamics

VARIABLES	Transient Poor		Chronic Poor		Non-Poor	
	ME	SE	ME	SE	ME	SE
Female-headed household						
Female	-0.0303	(0.0236)	-0.0176**	(0.00756)	0.0479**	(0.0244)
Age of Head	0.00363***	(0.000608)	0.000964***	(0.000174)	-0.00460***	(0.000638)
Household Size(<2=0)						
Between 2 and 3	-0.0198	(0.0252)	0.0205*	(0.0123)	-0.000749	(0.0268)
Between 4 and 6	0.0594**	(0.0274)	0.0517***	(0.0149)	-0.111***	(0.0289)
Above 6	0.139***	(0.0372)	0.128***	(0.0334)	-0.267***	(0.0367)
Marital Status of Head(Never= 0)						
Married	-0.0582	(0.0391)	-0.0435**	(0.0184)	0.102**	(0.0405)
Consensual	-0.0167	(0.0437)	-0.0230**	(0.00911)	0.0398	(0.0443)
Separated	0.00241	(0.0631)	-0.0260**	(0.0102)	0.0236	(0.0638)
Divorced	-0.0601	(0.0408)	-0.0316***	(0.00759)	0.0916**	(0.0415)
Widowed	-0.0244	(0.0447)	-0.0198*	(0.0105)	0.0441	(0.0457)
Ethnic (Non-Akan=0)						
Akan	0.0105	(0.0228)	-0.0258***	(0.00723)	0.0153	(0.0236)
Head Education(None=0)						
Preschool	-0.0806***	(0.0302)	-0.00454	(0.00757)	0.0852***	(0.0319)
Primary	-0.0508**	(0.0221)	-0.00458	(0.00566)	0.0554**	(0.0232)
JHS	-0.0692***	(0.0212)	-0.0163***	(0.00611)	0.0855***	(0.0221)
SHS	-0.127***	(0.0320)	-0.0288***	(0.00729)	0.156***	(0.0328)
Tertiary	-0.0902**	(0.0385)	-0.00287	(0.0162)	0.0931**	(0.0408)
Employment(Unemployed=0)						
Employee	-0.0505	(0.0328)	-0.00304	(0.00798)	0.0535	(0.0347)
Self-employed/family	-0.0363	(0.0327)	-0.00600	(0.00794)	0.0423	(0.0345)
Other contributing family	-0.00992	(0.0476)	0.0183	(0.0194)	-0.00833	(0.0510)
Region(Admin)(Western=0)						
Central	0.100**	(0.0455)	0.0617*	(0.0367)	-0.162***	(0.0456)
Greater Accra	0.0920*	(0.0480)	-0.0176	(0.0156)	-0.0744	(0.0484)
Volta	0.111**	(0.0481)	0.0270	(0.0247)	-0.138***	(0.0484)

VARIABLES	Transient Poor		Chronic Poor		Non-Poor	
	ME	SE	ME	SE	ME	SE
Eastern	0.139***	(0.0427)	0.0312	(0.0248)	-0.170***	(0.0423)
Ashanti	0.0558	(0.0376)	0.0455*	(0.0251)	-0.101***	(0.0390)
Brong Ahafo	0.125***	(0.0437)	0.0772**	(0.0364)	-0.202***	(0.0428)
Northern	0.109**	(0.0465)	0.0439	(0.0270)	-0.153***	(0.0471)
Upper East	0.125**	(0.0580)	0.111**	(0.0504)	-0.236***	(0.0564)
Upper West	0.197***	(0.0614)	0.0754*	(0.0414)	-0.272***	(0.0590)
Location (Rural=0)						
Urban	-0.106***	(0.0196)	-0.0307***	(0.00674)	0.137***	(0.0201)
Saving Status(No Saving)						
Home Saving	-0.0747***	(0.0187)	-0.00754	(0.00512)	0.0822***	(0.0196)
Institution	-0.0897***	(0.0273)	-0.0294***	(0.00608)	0.119***	(0.0280)
Multiple	-0.106***	(0.0249)	-0.0305***	(0.00633)	0.137***	(0.0256)
Renting Status(Dummy)						
Rents	-0.0718***	(0.0238)	-0.0133	(0.00850)	0.0851***	(0.0246)
In-Transfer(Dummy)						
Receives Transfer	-0.00804	(0.0192)	0.00683	(0.00603)	0.00121	(0.0201)
Asset(Dummy)						
Own Tool	0.0611	(0.117)	0.00497	(0.0289)	-0.0660	(0.124)
Dwelling(Bungalow=0)						
Semi-detached	-0.0367	(0.0558)	-0.0125	(0.0132)	0.0491	(0.0578)
Flat/Apartment	-0.116**	(0.0583)	-0.0194	(0.0162)	0.135**	(0.0600)
Room in a compound house	0.00397	(0.0343)	-0.00392	(0.0121)	-5.18e-05	(0.0356)
Room(s) (Other type)	0.0593	(0.0375)	0.0168	(0.0149)	-0.0760**	(0.0388)
Several buildings same comp	0.118**	(0.0491)	0.0403*	(0.0241)	-0.158***	(0.0504)
Several buildings in diff. com	0.161**	(0.0789)	0.0229	(0.0258)	-0.183**	(0.0808)
Observations	**4,002**		**4,002**		**4,002**	

Note: **ME.** *= Marginal Effect.* **S.E.** *=Standard Error.* *** *p<0.01,* ** *p<0.05,* * *p<0.1. Base category=Non-poor*

Indeed Klasen et al. (2010) in their study found that female-headed households are better off than their male counterpart. Finally from our results, the probability of being non-poor increases by about 5 per cent if a household is headed by a female rather than a male. An increase in the age of the head of the household is found in the literature to lead to increased poverty. Both Fiess and Verner (2004), Neilson et al. (2008) found that the probability of falling into poverty increases as age increases. The results from the regression showed a strong relationship between poverty levels and household age as found in Woolard and Klasen (2004), Baulch and McCulloch (2002) and Swanepoel (2005). All levels of heads' educational qualifications significantly and inversely affect transient poverty status. Similar studies that found this relationship include Alisjahbana and Yusuf (2003), Gonçalves and Machado (2015) and Haddad and Ahmed (2003). On the regional variables, the study showed that living in the Brong Ahafo region or the Upper East region increases households' probability of becoming chronically poor compared with staying in the Western region. Except for the heads in Greater Accra, all heads living in any of the regions reduce their chances of not being poor similar to Adjasi and Osei (2007). Staying in an urban location reduces the household's probability of becoming either transient or chronically poor. As a risk absorbing variable, savings is expected to provide a means to lift household from falling into poverty. All forms of savings increase the probability of being non-poor and, without any exception reduce the probability of becoming chronic poor and transient poor. At 1 percent level of significance, heads with no savings increase their probability of becoming transient poor compared with heads that saved at either home (reducing their probability by 7 %) or with an institution (reducing their probability by 9 %) or multiple saving which reduced the probability of being transient poor by almost 11 percent. Home savings increase household head's probability of becoming non-poor by at least 8 percent. In a panel study, (Teguh & Nurkholis, 2013) found the effect of savings similar to our result in Indonesia. In all three models they used in their estimations, the models confirmed that non-poor households experiencing either economic or health shocks with sufficient savings should maintain their poverty status unchanged.

5.0 SUMMARY AND CONCLUSION

This study was devoted to the analysis of poverty dynamics in Ghana using the monetary approach. The national trend analysis showed that monetary poverty in general in the country saw a decline. From 29.5 in wave one, the poverty rate dropped to 21.5 in wave two consistent with the national trend measured using the GLSS. Analysis of the trend and profile of poverty showed that, generally, poverty in Ghana is much endemic among male-headed households. Again, the notion of poverty in Ghana as being a rural phenomenon was confirmed. In terms of the regional distribution, it was revealed that the three regions in the North have been much affected by poverty in the country between the periods considered. However, the data revealed that the southern Ghana, Central and Volta regions have been very volatile regions and have been hit by some high numbers of poverty. The study revealed that more than half of the poor households (68%) in 2009/2010 escaped poverty in 2013/2014 while 17 per cent of non-poor households slipped into poverty in 2013/2014. Compared with the total poor of 2013/2014, those who slipped into poverty formed about 57 per cent. The chapter further examined the dynamic nature of the poverty profile in Ghana and found that there is, generally a low mobility rate of households between various poverty states. It was realised that within the poor population, at every point in time, more than half of the poor are transiently poor while more than 20 per cent of the poor at any point in time will have their welfare below the poverty line. What determines a household's dynamic poverty state is not the same for the transient and chronic poor. What became clear, however, was the strong determinants of household demographic characteristics in explaining chronic poverty and the non-identical nature of the determinants of chronic and transient poverty.

Governments, therefore, need to carefully design poverty alleviation policies with a two-prong approach – policies that directly target the transient monetary poor such as direct cash transfers such as LEAP and policies that directly tackle the chronic monetary poor such as cargo nets like land

reforms, targeted microfinance, targeted school feeding programme. This study makes a significant contribution to knowledge by employing panel data to study the phenomenon of poverty in a dynamic analysis in Ghana, something which is a novelty. There is however a shortcoming to this study because of the shortness of the panel in capturing the chronic and transient nature of poverty. Again, the study will be much enriched if qualitative interviews were added to give a better understanding of the issues that the quantitative data revealed

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EFFECT OF FINANCIAL RISK ON BANKS' PERFORMANCE IN GHANA

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ABSTRACT

This study empirically examines the effect of financial risk on performance of six (6) banks listed on the Ghana Stock Exchange (GSE) using data from 2016 to 2021. Using a quantitative research design, the study uses panel autoregressive distributed lag (ARDL) estimation technique to empirically analyse the relationship between financial risk and performance of banks. The findings of the study show that the long run estimates of all three explanatory variables (credit risk, market risk, and liquidity risk) have a negative but significant impact on banks' performance. Furthermore, the short run relationship showed that financial risk negatively affects banks' performance. Based on these findings, the study recommends that banks in Ghana maintain or improve on their current financial risk management strategies. Particularly, augmenting credit ratings criteria and creditworthiness screening of loan applicants to mitigate credit risk. Banks are also encouraged to reduce the proportion of their loanable funds to government securities since their low-risk status may be affected by price volatilities in the market. Finally, banks are encouraged to maintain good current ratios so that liquid funds will be available to meet short-term debt obligations as they come due (especially regarding customer withdrawals).

KEYWORDS: Credit risk, Liquidity risk, profitability, Market Risk, Panel ARDL

1. INTRODUCTION

Commercial banks assume various financial risks which are related to their operations as a going concern. These are risks due to the volatility of market conditions, credit quality, and liquidity position, just to mention a few. The results of the global financial crises in 2008 and the banking crisis in Ghana in 2017 have established a connection between financial risk and bank profitability. The performance and development of the financial sector is subject to many drawbacks such as financial risk and general economic conditions and global banking sector crisis (TSay, 2020). Financial risks include liquidity risk, market risk and credit risk (Acerbi, 2002). The global financial crisis (2007–2009) severely tested the ability of intermediaries to effectively manage and control the various types of risk. Hence, revealing the incoherence between the risks taken and perceived as well as profound weaknesses in risk governance both for developed and developing economies (Begg, 2009).

The Global Financial Crisis began somewhat inconspicuously in late summer 2007 with the failure of two Bear Stearns hedge funds, and then went from bad to worse over the following year despite countless attempts by governments to halt its progress (Foster & Magdoff, 2009). It is now widely acknowledged as the greatest economic crisis since the Great Depression during the 1930's. Many banks throughout the world suffered enormous losses and had to rely on government assistance to avoid insolvency. Basel III, which was created by bank regulators, aimed at getting banks to have sufficient reserves with which to withstand financial crises in the future. The regulation also focused on liquidity risk, market risk and credit risk (Simone, 2011).

In Ghana, a banking crisis in 2016-2018 led to the collapse of some financial institutions. This was largely due to poor risk management which led to slower growth in all the major components of banks'

total assets (Bank of Ghana, 2018). In August 2017, the Bank of Ghana closed down UT Bank and Capital Bank for a variety of reasons. High levels of non-performing loans and consequent increased exposure to credit risk played a key part in their collapse. With around 78% of their loan portfolios due to be impaired, exposure to high credit risk ultimately led to the revocation of their licenses (Bank of Ghana, 2017). The Bank of Ghana consolidated five banks (BEIGE Bank, Sovereign Bank, Construction Bank, Unibank, and Royal Bank) into a single bank called the Consolidated Bank in 2018. The inclusion of two of the five banks (Royal Bank and Sovereign Bank) was due to poor credit and liquidity risk management, according to the regulator.

Financial risk refers to any event or activity that may adversely affect the ability of an organization, commonly a bank or an insurance company, to achieve its financial objectives (Kozarevic et al., 2017). More specifically, it is the probability of a firm not being able to meet its financial obligations as they come due. In Figure 1 below, the non-performing loans from 2006 to 2019 is generally on the increase and has an upward trend. According to Chen and Pan (2012), credit risk is the degree of value fluctuations in debt instruments and derivatives due to changes in the underlying credit quality of borrowers and counterparties.

Pyle (1997) refers to market risk as variations in asset value brought on by changes in economic variables such as equities and commodity prices, currency rates, and interest rates. Market risk, also known as systemic risk, occurs as a consequence of political uncertainty, recessions, natural or man-made tragedies, and uncertainties in the economy and political environment. Liargovas et al. (2008) explained liquidity risk as degree to which debt obligations coming due in the next 12 months can be paid from cash or assets that will be turned into cash. It is usually measured by the current assets to current liabilities (current ratio). It demonstrates the firm's ability to convert an asset into cash rapidly and shows the firm's ability to manage working capital at normal levels. When external financing is unavailable or too expensive, a company can use liquid assets to fund its operations and investments.

Figure 1: Trend in Risk and Bank Performance in Ghana (2006-2019)
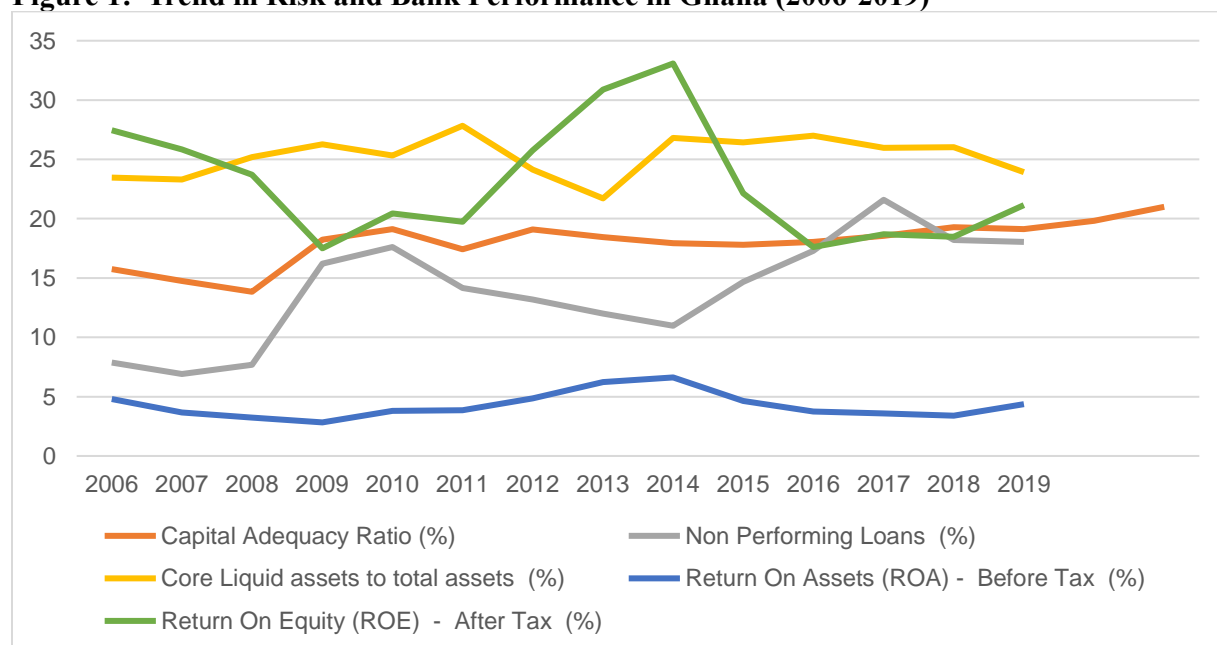
Empirical literature links risk to firms' performance (Munithi, 2016). The amount of risk taken by a firm has a direct relationship with its expected return. Agustina and Baroroh (2016) define performance as a gauge over a time on the health of a firm. Essentially, performance gauges how well a business

uses its assets to maximize returns on investments by its stakeholders (Mwangi et al. 2014). Ghana's financial sector largely relies on the banking system (Ofosu-Hene & Amoh, 2015). As such, it is important to investigate the extent to which different types of financial risks affect banks' financial performance so that measures are put in place to ensure the sustainability of banks.

The main objective of the study is to investigate the effect of financial risk on the performance of banks listed on the Ghana Stock Exchange. Financial risk is decomposed into, credit risk, liquidity risk and market risk. The research posits three (3) hypotheses stated in the null,

1. Credit risk does not affect banks' performance.
2. Liquidity risk does not affect banks' performance.
3. Market risk does not affect banks' performance.

The study, therefore, advances research on the link between financial risk and bank performance in Ghana. It also makes significant contributions to literature and policy. The study adds to scanty empirical research on the link between financial risk and bank profitability, especially by the use of panel data. Second, the study presents an initial attempt to examine the impact of financial risk on bank profitability in Ghana using an index of financial risk. Again, the paper adds to the few studies that have looked at the institutional quality, bank profitability and financial risk relationship. For policymakers, examining how financial risk affects banking sector profitability will help in policy formulation, especially on how to moderate the various components of financial development to increase banks' efficiency in Ghana.

2. LITERATURE REVIEW
The awareness created by stock market downturns in 2000 and 2001, the financial crisis from 2007 to 2009 and the 2016 to 2018 bank crisis in Ghana show that, the underlying risk of financial institutions and the industry is as equally important as the financial performance of firms (Orlitzky & Benjamin, 2001; Bank of Ghana, 2018). The crisis also shows that the difference between future bankruptcy and organizational health of firms in the financial sector is dependent on management's ability to manage risk. Given the importance of financial risk on the performance of banks, several studies have been conducted in different jurisdictions on the effect of financial risk on the performance of banks including its pros and cons.

2.1 Financial Risk and Banks Performance
On the global stage, other studies further establish the significant relationship between financial risk and bank performance. Using data from annual reports for a 7-year period (2008-2015) by the Albanian Association of Banks, Hallunovi and Berdo (2018) sought to determine whether a relationship existed between credit risk management and profitability in commercial banks in Albania. A multiple regression was used with the dependent variables being ROA and ROE, whereas non-performing loans (NPLs) and capital adequacy ratio (CAR) were the independent variables. The study found that there is a negative relationship between credit risk and profitability (ROA and ROE), hence there is a correlation with profitability.

In Kenya, Juma and Atheru (2018) investigate the effects of financial risks on performance of Commercial banks. Specifically, determining the effect of liquidity risk, credit risks, interest rate risks and foreign exchange risks on return on assets of commercial banks in the country. The study was anchored within enterprise risk management theory and adopted explanatory research design. Financial performance of commercial banks was assessed in terms of return on assets where secondary data of the 42 commercial banks was collected for six years from 2010 to 2015. The study found out that

liquidity risk and interest rate have a positive and significant effect on performance while credit risk and exchange risk have a negative and significant effect on performance of Commercial banks in Kenya. Similarly, in Kenya, (Muriithi, 2016) established a significant negative effect of credit, market, liquidity and operational risks on return on equity using generalized method of moments (GMM) to purge time–invariant unobserved firm specific effects and to mitigate potential endogeneity problems. The study also employed financial ratio analysis and panel data techniques of random effects, fixed effects estimation. The component of financial risk that had the most impact on financial performance was operational risk. Also in Kenya, Wanjohi, Wanjohi and Ndambiri (2017) assessed the current risk management practices of the commercial banks and linked them with the banks' financial performance. Return on Assets (ROA) was averaged for five years (2008-2012) to proxy the banks' financial performance while financial risk management practices data was obtained through a self-administered survey questionnaire. The study used multiple regression analysis. The study found out that majority of the Kenyan banks were practicing good financial risk management and as a result the financial risk management practices have a positive correlation to the financial performance of commercial banks in Kenya.

Outside of Ghana, other empirical studies have also established significant relationships between credit risk and banks' performance. Using panel random effect regression model, Tassew and Hailu (2019) examined the effect of risk management on financial performance of 17 Ethiopian Commercial Banks. Quantitative research approach was applied using secondary data for the sample period covering from 2013 to 2017. The independent variables for the study were credit risk, liquidity risk, operating risk and market risks while the dependent variable was Return on assets (ROA). The results indicated that credit risk, liquidity risk, operating risk and market risks have significant negative impact on financial performance of commercial banks in Ethiopia. With respect to credit risk, Gizaw, Kebede and Selvara (2015) examined empirically the impact of credit risk on profitability of commercial banks in Ethiopia and found a similar result. That is significant inverse relationship between credit risk and banks' performance. The study used secondary data of 8 commercial banks from their annual report over a 12-year period (2003-2014), submitted to the National Bank of Ethiopia and a panel data regression model.

Using a partial least squares structural equation modeling, (Sleimi, 2020) examined the effect of risk management practices, including understanding risk and risk management, risk analysis and assessment, risk identification, risk monitoring, and credit risk analysis, on performance of Jordanian commercial banks. The study utilized survey data obtained from risk managers and employees in risk management departments of commercial banks. The study found that the components of risk management practices had positive and significant impacts on the performance of banks. Using GMM methods, Saleh Abu (2020) also examined the effect of credit risk, liquidity risk and bank capital on bank profitability from 2010–2018 by examining empirical evidence from an emerging market. The study showed that credit risk, liquidity risk, and bank capital variables have a significant impact on bank profitability.

With a PVAR model and Simultaneous equation approach, Ahmad, Salam, Ahmad and Abbas (2019) also examined the relationship between Liquidity Risk and Credit Risk and its effect on the performance of 33 banks in Pakistan over the period of 11 years from 2008-2018. Based on the panel data collected, the study found that Credit Risk and Liquidity Risk are not interrelated with each other. However, independently, the two risks have an effect on the performance of banks and their relative interaction plays a major role in the instability of the banking sector. In Turkey, using the generalized autoregressive conditional heteroscedastic approach, Ekinci (2016) examined the effects of credit and market risk, i.e., interest rate and foreign exchange (FX) rate risk, on banks' performance for the period covering 18/01/2002-30/10/2015 using weekly data. The study showed that there was a positive and

significant relationship between Credit risk and FX rate, and banking sector profitability, while there was an insignificant positive relationship between interest rate and banking sector profitability. The study also showed that there was a positive and significant relationship between credit and market risk, and conditional bank stock return volatility. Similarly, Aluko et al. (2019) examined the impact of financial risks in form of credit, interest rate and liquidity risk on the profitability of systematically important banks in Nigeria over the period from 2010 to 2016. The authors found evidence that these variables have a positive relationship with the profitability of the systematically important banks in Nigeria.

Zhongming et al. (2019), using granger causality test, examine the impact of some financial risk indicators on the financial performance of fifteen selected commercial banks in Ghana. The dependent variable used to measure performance was Return on Assets (ROA) and the explanatory variables were Credit Risk (CR), Interest Rate Risk (IRR), Foreign Exchange Rate (FER), Liquidity Risk (LR), Capital Management Risk (CMR), Bank Deposit (BD) and Bank Size (BS). The study revealed that there exists a significant long run relationship between bank financial performance and the variables of financial risk in the banking sector. Ofosu-Hene and Amoh (2015) conducted a study on risk management and performance of seven banks in Ghana listed on the Ghana Stock Exchange (2007-2014). A panel regression data approach was used, and a risk index developed. Risk index, bank size, capital adequacy, liquidity risk, credit risk, inflation, and exchange rate risk were the explanatory variables while return on assets (ROA) and return on equity (ROE) were the dependent variables. The study used secondary data based on audited annual accounts of these banks as well as statutory reports submitted to the Bank of Ghana for the analysis, which covered the years 2007–2014. Other data used such as inflation and exchange rate were obtained from the databases of Ghana Statistical service and Bank of Ghana respectively. The study showed that credit risk, as assessed by nonperforming loans, and return on assets had a significant inverse relationship. Return on assets indicated a significantly inverse relationship with liquidity risk. The study reinforces the fact that risk management plays a key role in improving bank performance and ensuring prudent use of deposits.

Using a panel data analysis Odonkor, Osei, Abor and Adjasi (2011) examined the effect of risk on the performance of 18 banks in Ghana over the period of 1997-2008. The results showed that lower risk levels led to an increase in bank performance. The results also showed that when ownership interacted with risk, domestic banks that reduced risk were more likely to perform better than foreign banks with similar risk profiles. The study also found that when size interacted with risk, bigger banks which engaged in lower risk taking had lower performance. Relative to smaller banks, larger banks could increase activities aggressively and accommodate more risk leading to higher performance. Their findings generally advocate for prudence in bank risk management by risk managers and central bankers.

2.2 Gaps in Literature Review
2.2.1 Estimation Technique
To empirically examine the relationship between financial risk and firm performance, studies have employed granger causality (Zhongming et al., 2019), multiple regression (Hallunovi and Berdo, 2018; Wanjohi, Wanjohi and Ndambiri, 2017), panel regression (Odonkor, Osei, Abor and Adjasi, 2011; Ofosu-Hene and Amoh, 2015; Tassew and Hailu, 2019), generalised method of moments (Muriithi, 2016; Saleh Abu, 2020), panel vector autoregressive (PVAR) (Ahmad, Salam, Ahmad and Abbas, 2019). Empirical analysis of multiple firms over time requires a panel data set and estimation techniques that are suited for robust analysis of panel data. This study also follows previous studies by compiling a panel data set comprising six (6) banks listed on the Ghana Stock Exchange. This study differs with respect to estimation technique because unlike previous studies identified, a panel

autoregressive distributed lag (p-ARDL) model is employed. One advantage of using a Panel ARDL model is that it captures both long run and short run dynamics in the estimation. This research adds this insight to the existing body of work on the subject.

2.2.2 Empirical Result
Empirical studies have found a long run relationship between financial risk and bank performance (Zhongming et al., 2019). Most studies reviewed report a statistically significant relationship between financial risk and firm performance (Aluko et al., 2019; Ahmad, Salam, Ahmad and Abbas, 2019; Saleh Abu, 2020). The aforementioned studies also found an inverse relationship between financial risk and firm performance (or profitability). Majority of the existing literature stem from analysis of data of firms outside of Ghana. An insight into Ghana's situation is relevant owing to the high economic growth rate experienced by the country within the period of analysis.

2.2.3 Data
Furthermore, previous studies conducted in Ghana with respect to the nexus need updated information. For example, whereas Odonkor, Osei, Abor and Adjasi (2011) used data from 1997 to 2008 and Ofosu-Hene and Amoh (2015) used data from 2007 to 2014, our study uses data from 2016 to 2021. Although these studies used panel regressions, and granger causality in the case of Zhongming et al. (2019), our studies employ the panel ARDL estimation technique to provide both long run and short run insights into the nexus between financial risk and firm performance.

3. METHODOLOGY
3.1 Sources of Data
Secondary data obtained from the financial statements of the listed banks was used for the study. Specifically, data was obtained from the financial statements of six (6) banks listed on the Ghana Stock Exchange from 2016 to 2021. These banks are Fidelity Bank, ADB, GCB Bank, Standard Chartered Bank, ABSA Bank and Ecobank. The data was downloaded from the website of the Ghana Stock Exchange. These banks were selected due to the availability of data. Furthermore, their assets constitute more than 80% of all industry assets. In order to obtain reliable and robust estimates, the annual data from the listed banks was transformed into quarterly data.

3.2 Empirical Model
It is very difficult if not impossible to identify all types of risks that could possibly occur in the operations of today's financial institutions. This is even a bigger challenge when we consider the complexity due to interactions between various types of risks and the ever-changing environment in which the Banks operate. In the current study, three types of risks are considered namely: market risk, liquidity risk and credit risk. The functional equation for this study is stated implicitly as follows:

$$ROA = f(MR, CR, LR) \qquad\qquad (1)$$

Where ROA represents return on asset and measured by income divided by total assets expressed as a percentage
CR is credit risk and measured by non-performing loans to total loan
MK is market risk measured by the beta (β) of the banks
LR is liquidity risk. Here, current ratio is used as a proxy for liquidity risk.

In the study ROA is used as a proxy for profitability as against other measures such as return on equity (ROE) and net interest margin (NIM). This is because all three measures of risk considered for this study pertain to the assets of banks – loanable funds for credit risk and market risk, and customer

deposits for liquidity risk. Therefore, ROA - which is a performance measure based on bank assets is used as the dependent variable. Moreover, ROA is regarded as a measure of profitability that is not distorted by high equity multipliers (Yakubu & Bunyaminu, 2022; Rivard & Thomas, 1997).

In order to capture the effect of financial risk variables on bank performance, the study makes use of a panel Autoregressive Distributed Lag (ARDL) model. The empirical model is stated as follows:

$$\Delta ROA_{it} = \beta_0 + \beta_{1i} ROA_{,t-1} + \beta_{2i} MR_{i,t-1} + \beta_3 CR_{i,t-1} + \beta_4 \ln BS_{i,t-1} +$$

$$\sum_{j-1}^{N1} \lambda_{ij} \Delta ROA_{i,t-1} + \sum_{j-1}^{N2} \gamma_{ij} \Delta MR_{i,t-1} + \sum_{j-1}^{N3} \phi_{ij} \Delta CR_{i,t-1} + \sum_{j-1}^{N4} \rho_{ij} \Delta LR_{i,t-1} + \mu_I + \varepsilon_{it}$$

$$i = 1,2.............N$$

$$t = 1,2.............T$$

$$(2)$$

μ_i denotes the group specific effect. i represents the sampled units while t is the number of periods. We can include an error correction term in equation (2) and re-write it as follows:

$$\Delta ROA_{it} = \delta_i v_{i,t-1} + \sum_{j-1}^{N1} \lambda_{ij} \Delta ROA_{i,t-1} + \sum_{j-1}^{N2} \gamma_{ij} \Delta MR_{i,t-1} + \sum_{j-1}^{N3} \varphi_{ij} \Delta CR_{i,t-1} +$$

$$\sum_{j-1}^{N4} \rho_{ij} \Delta LR_{i,t-1} + \mu_i + \varepsilon_{it}$$

$$(3)$$

Where $v_{i,t-1} = ROA_{it-1} - \phi_{0i} - \phi_{1i} MR_{i,t-1} - \phi_{2i} CR_{i,t-1} - \phi_{3i} LR_{i,t-1}$ is the linear error correction term for each unit, δ_i represents the error correcting speed of adjustment term for each unit. In estimating our model, the study employed robust panel methods referred to as the Mean Group (MG) estimator and the Pooled Mean Group (PMG) estimator. The Hausman test is used in determining whether there is any systematic difference between the MG and the PMG.

3.3 Panel Unit Root and Cointegration Test

In order to determine the stationarity of the data series, we conducted panel unit root tests. The Im-Pesaran-Shin (IPS) and Levin-Lin-Chu (LLC) unit root tests were used in this study. The unit root test results in Table 1 indicate that ROA, MR and LR are all stationary at first difference while CR is stationary at level.

Table 1: Panel unit root Test Results

Variable	Im-Peseran-Shin (IPS)		Levin-Lin-Chu (LLC)	
	Level	1st Difference	Level	1st Difference
ROA	-0.08926	-2.70869***	-0.08926	-2.7086***
MR	0.8240	-1.9174**	-0.1498	-1.8566**
CR	-1.9119**	1.8002	-1.912**	1.800
LR	-0.33071	-1.8862***	-0.70792	-1.2598**

***, ** and * indicate statistical significance at 1%, 5% and 10% respectively.

The Kao cointegration test was conducted in order to ascertain cointegration or otherwise among the variables under consideration. The integration order of the variables is shown in Table 2. The results in Table 2 suggests a co-integrating relationship as per the Kao test, because the ADF statistic is significant at a 5% level of significance.

Table 2: Panel cointegration test: Kao test of cointegration result

ADF	t-statistic	Prob.

	-2.248561	0.0123
Residual variance	0.013753	
HAC variance	0.012864	

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

This section presents the results of the models described in Section 3. Specifically, this section discusses the results of the descriptive statistics and regression analyses of the study.

Table 3: Descriptive statistics

Variable	ROA	MR	CR	LR
Mean	0.030640	0.147194	17.36333	1.174610
Median	0.032286	0.232868	13.09031	1.076273
Maximum	0.067337	1.077562	42.32125	3.450312
Minimum	-0.042483	-0.910066	5.268750	0.017363
Std. deviation	0.018825	0.455142	11.95174	0.567407
Skewness	0.546736	-0.123443	0.763328	1.421328
Kurtosis	4.231234	2.101744	2.141198	7.231764
Jarque-Berra	16.26971***	5.206901*	18.40933***	155.9311***

Note: ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively

The mean values for all variables are positive with standard deviations less than the mean values. This suggests that the dispersion of the observations are closer to the mean value. Table 3 indicates that ROA and MR are skewed to the left while CR and LR are skewed to the right. The Jarque-Bera statistical test strongly rejects the null hypothesis of normality, indicating the non-normality of the unconditional distribution of all of the variables.

4.2 Discussion of Results

We proceeded to estimate Equation (2) using both the MG and PMG estimators and the findings were then subjected to the Hausman test. If the probability value of the Hausman test is greater than 5%, it implies that the PMG estimator is more efficient than the MG estimator in the given situation. On the other hand, a probability value of less than 5% means the adoption of the MG estimator. The Hausman test result in Table 4 is in favour of the PMG estimator as the efficient estimator for modeling the effect of financial risk on banks' performance. Thus, only the empirical estimates obtained from the PMG estimator are reported and discussed in this study.

Table 4: Panel ARDL regression results

(Dependent variable: ROA)				
Variable				
Long run estimates				
Variable	Coefficient	Std. Error	Z-stat	P-value
MR	-0.022***	0.00017	-121.93	0.000
CR	-0.002***	0.00006	-36.03	0.000
LR	-0.021***	0.00039	-54.22	0.000
Short run estimates				
$ECT(-1)$	-0.066*	0.034	-1.95	0.051
MR	-0.001	0.006	-0.23	0.817

CR	-0.0191	0.019	-1.01	0.315
LR	-0.038**	0.015	-2.51	0.012
No. of observations	138			
Hausman test	0.02			
χ^2_k	(0.993)			

***, ** and * indicate statistical significance at 1%, 5% and 10% respectively.

The long run estimates from Table 4 indicate that all other things being equal, 1% increase in market risk will lead to a decrease in banks' performance by 0.022% and this is significant at 1%. This result is consistent with the findings of Namasake (2016) which found evidence that in Kenya, the effect of market risk on commercial banks' profitability is negative and statistically significant. Market risks are systematic risks such changes in interest rates, exchange rates that affect the quality of financial assets. For example, as inflation increases, net interest margin which is the difference between the lending and borrowing interest rate is eroded thus reducing the profitability of banks.

Similarly, the long run estimates reveal that 1% increase in credit risk leads to a decrease in banks' performance by 0.002% and this is statistically significant at 1%. When the quality of credit reduces by 1%, bank performance reduces by 0.002%. Practically, where nonperforming loans increase owing to poor credit screening among other things, the profitability of banks is negatively affected. This result coincides with the finding of Tassew and Hailu (2019). The authors found that in Ethiopia, both credit risk and liquidity risk have negative and significant impact on the financial performance of commercial banks.

Furthermore, the long run estimates show that other things being equal, 1% increase in liquidity risk induces a decrease in banks' performance by 0.021% and this is also statistically significant at 1%. Banks that do not maintain a good ratio of current assets to liabilities are likely to find themselves cash trapped i.e. unable to meet their short-term debt obligations as they come due. One of the notable challenges faced by UT Bank before it collapsed was that it had significant amount of its funds in long-term maturing investments and did not have enough liquid funds to fulfill cash withdrawals at the banking halls. As liquidity risk rises, banks may not be able to carry out day-to-day operations which will result in a decrease in their performance and later total shutdown. This result is consistent with the study by Endaweke (2015) which found evidence that liquidity risk has negative and significant impact on banks' performance in Ethiopia.

The short run estimates show that financial risk has a negative and significant impact on banks' performance. As expected, the error correction term of the model is negative (-0.066) and statistically significant which shows a return to equilibrium when there is disequilibrium.

5. CONCLUSION AND RECOMMENDATIONS
Banks play a vital role in the economic growth of a country. A sound financial system is required for efficient financial mediation, which leads to long-term investments and growth in entrepreneurial activities. To withstand macroeconomic risk and ensure the stability of the financial system, it is critical to unearth the key factors affecting the performance of the banking sector.
5.1 Conclusion
The main objective of the study was to examine the effect of financial risk on the performance of banks listed on the GSE. Specifically, the study sought to find out if financial risk (i.e. market risk, credit risk and liquidity risk) influences the profitability of the banks listed on the GSE. In order to achieve these objectives, a panel data set comprising data from six (6) banks listed on the GSE was compiled and

analysed. Panel unit root tests were conducted so as to establish the stationarity of the data series. The Kao cointegration test was conducted to determine if there was cointegration among the variables. After that, the panel ARDL estimation technique was applied to obtain both the short run and long run relationship between the explanatory variables and the dependent variable (Return on Assets). The long run estimates showed that all the three explanatory variables have negative but significant impact on banks' performance. In essence, as financial risk increases bank performance declines. These outcomes are consistent with findings in existing literature. Furthermore, the short run relationship showed that, on the whole, financial risk negatively affects banks' performance.

5.2 Recommendations

This study provides policy implications for the management of Banks listed on the GSE. The negative impact of market risk, credit risk and liquidity risk suggest that banks can improve their profitability by reducing their financial risks. Thus, it is recommended that.

i. The listed banks maintain or improve upon their credit risk management practices. This includes, but not limited to, effective screening of the creditworthiness of loan applicants. Furthermore, banks should not be overly concerned about reaping higher margins on loans to the extent that they will end up with higher volumes of nonperforming loans.

ii. The listed banks maintain adequate levels of cash and cash equivalents and effective management of their current ratios so as not to be caught up in a liquidity crisis where short-term financial obligations (such as deposit withdrawal) cannot be effected.

iii. The listed banks do not comfortably apportion majority of their loanable funds to government securities owing to its perceived lower risk. Price volatility in Ghana's securities market is a possibility and it does affect the bottom line of banks.

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GOVERNANCE AND SUSTAINABILITY OF PUBLIC-PRIVATE PARTNERSHIP IN GHANA'S URBAN WATER SECTOR: THE CASE OF TESHIE-NUNGUA SEA WATER DESALINATION PROJECT

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ABSTRACT

The paper explores the governance architecture of the Teshie-Nungua Sea Water Desalination Project (T-NSDP) and its implications for sustainability outcomes and Ghana's Sustainable Development Goals (SDGs) agenda. Using qualitative research design by employing purposive sampling and snowball sampling techniques, qualitative data was collected from a sample of 14 individual participants and 2 different focus-group discussants. Thematic analysis was employed to analyse primary data. The results revealed that the project operates under a Build-Own-Operate and Transfer Public-Private Partnership (PPP) model which requires the private partners to invest, procure, process and distribute potable water to Teshie-Nungua and surrounding communities. The results indicate that implementation was threatened by a lack of due diligence, weak oversight and accountability, and poor financial arrangements, as well as deficit in technical expertise on the part of the contracting authority, leading to stalling of the project. The study recommends that the Government of Ghana improves on its policy coherence and the monitoring function, develop technical capacity, and foster active ownership and commitment of key state institutions to accentuate the sustainability outcomes in order to meet both intended and unintended project outcomes.

KEYWORDS: Water governance, Private-Public Partnership, sustainability, SDGs, T-NSDP. Ghana.

1.0 INTRODUCTION

The involvement of private investment in public infrastructural services fosters effective partnership for efficiency in resource sharing in the provision of public goods and services, while reducing the complexity of social problems (Klijn, 2010; O'Leary & Vij, 2012). In the last two decades, Public-Private Partnerships (PPPs) have been recognized as instruments for delivering sustainability goals (Grimsey & Lewis, 2004; Hodge, Greve, & Boardman, 2010; Lenferink, Tillema, & Arts, 2013; Yescombe, 2007). However, the adoption of PPP in many countries for economic, social and political reasons (Nyanyofio, Domfeh, Buabeng, Maloreh-Nyamekye, & Appiah-Agyekum, 2022; Ahenkan, 2019; Ohemeng & Grant, 2008) has experienced some governance deficits, including insufficient funding, political interference and public sector capacity deficit (Nyanyofio et al., 2022; Ahenkan, 2019; Verhoest, Thiel, Bouchaert & Laegreid, 2012; Free & Radcliffe, 2009). Meanwhile, PPP risks the dilemma of development direction and value orientation due to the dominance of economic considerations in current studies and practices (Cheng, Wang, Xiong, Zhu, Cheng, 2021; Wang, Xiong, Wu, & Zhu, 2018) without emphasis on governance practices as well. The reality is that, the objectives for the implementation of many PPP programmes are not exclusively economic, but in many instances non-economic (Nyanyofio et al., 2022; Wang, Xiong, Wu, & Zhu, 2018: World Bank, 2018). The neglect of research focus on governance architecture of PPP and its implications for sustainable outcomes ought to be resolved, particularly in developing countries where PPP is given prominence. In particular, as observed in Ghana, the focus on economic issues in the sustainability of public goods and services established under PPP seems unsatisfactory, requiring analysis of other non-economic factors such as

governance structures (Ahenkan, 2019), hence the need to explore these perspectives in PPP research. The policy recommendations deducible from such a study would not only contribute to the literature but also the achievement of sustainable outcomes of PPPs. This intends to expand the existing theoretical contributions, by highlighting the necessity of integrating both economic and non-economic constructs regarding PPPs.

Also, recent studies in the area have recognised the need to incorporate sustainability considerations in PPP infrastructure projects (Akomea-Frimpong, Jin & Osei-Kyei, 2022; Pinz, Roudyani &Thaler, 2018; Hueskes, Verhoest, Block, 2017). As Pinz et al. (2018) noted, the growing influence of PPPs highlights the need for further enquiry into their contributions to sustainability-related objectives. Akomea-Frimpong et al. (2022) argue that the incorporation of sustainability issues into public infrastructure projects through the adoption of PPP is central to the realization of Sustainable Development Goals (SDGs). Akomea-Frimpong et al. (2022) found that despite acknowledgement of social, economic, and environmental factors as core tenets of sustainability, there is limited interest within the PPP research field that provides an integrative review and operationalisation into the key sustainable performance measures. Similarly, despite the plethora of PPPs implemented in Ghana and the emphasis in literature for it to be studied, the inherent sustainability outcomes have not been explored, particularly in the services sector.

Besides, a recent study by Nyanyofio *et al*. (2022) on the governance arrangements for the implementation of PPP management contract model in Ghana's rural water sector found that a robust community-owned governance architecture is crucial for successful outcomes. The paper recommended that the focus on PPP management contract model in a rural/community water sector may limit generalization of its findings to different contexts, hence the need for broader research on other PPP models with larger numbers of participants.

In response to these gaps in empirical literature, the present study aims to contribute to the PPP governance literature by assessing investigating the governance architecture for a BOOT model in Ghana's urban water sector, focusing on the Teshie-Nungua Sea Water Desalination Project (T-NSDP), as well as exploring the governance implications for PPP water sustainability outcomes and Ghana's SDGs, serving as the basis for practical and managerial policy making. The uniqueness of the current study from existing ones globally (Akomea-Frimpong, Jin & Osei-Kyei, 2022; Pinz, Roudyani & Thaler, 2018) and locally (e.g., Nyanyofio et al, 2022) are empirically and theoretically indicative. First, the study highlights the fact that even though PPP governance architecture can promote the successful delivery of urban-based PPP water projects to facilitate the achievement of SDG goal six on access to "clean water and sanitation for all", enhanced governance arrangements could have implications for broader economic, social, environmental and governance sustainability outcomes. While some studies have been done in the developed (Wang et al., 2020; Wei et al., 2018; Verhoest, et al., 2016; Mouraviev, N., & Kakabadse, 2015; Sabry 2015) and developing economies (Nyanyofio et al., 2022; Akomea-Frimpong et al., 2022); Ahenkan 2019), there is a paucity of literature to unearth the link between PPP governance practices and sustainability outcomes in the Ghana context. Among the few empirical PPP studies in Ghana are; mainstreaming PPP (Ahenkan, 2019), effectiveness of PPP (Nyanyofio et al., 2022) and performance measurement of PPP projects (Akomea-Frimpong et al., 2022). These studies on governance of PPPs in Ghana have predominantly focused on non-sea water and less multi-stakeholder PPP, with only a few in the water related sector (Nyanyofio et al., 2022; Akomea-Frimpong et al., 2022). Hence, this paper contributes to the literature by providing new understanding on governance practices of PPPs and sustainability of such projects generally and particularly in Ghana.

Second, the paper deviates from the dominant application of economic and neo-liberal theoretical paradigms in PPP research and instead deploys public administration theories. Thus, the paper makes a theoretical contribution by deploying the public-value and stakeholder theories to magnify important dimensions of the PPP architecture.

Third, the study focuses on the T-NSDP as a case, recognizing the huge capital involved in the project and the uniqueness of the BOOT PPP model, as well as its enormous implications for sustainability outcomes. The import of the study will spawn further interest for future research on different PPP models. Fourth and finally, the PPP system is dynamic with increasing complexities, with diverse stakeholders which requires continuous and up-to-date knowledge through research. The present study fills these gaps. The rest of the paper is structured as follows. The literature review is in section two while materials and methods are in section three. The results and discussion are in section four while the conclusion and policy recommendation are in section five.

2.0 LITERATURE REVIEW
2.1 The Theoretical Framework
This study used both the Stakeholders Theory and Public Value Theory as the main theoretical framework. Freeman (1984) defined the stakeholders from two perspectives: first, it can be described as a "group of people who can affect or can be affected by the achievement of the organization's objectives" and second, as "those groups who are vital to the survival of the organization" (Freeman, 2004, p. 46). According to Nwanji and Howell (2007), Stakeholder Theory serves as a framework for prescribing, describing, and developing options for corporate governance that integrates and balances the interests of many parties.

Freeman and Phillips (2002, p. 342) focused on "The Principle of Stakeholder Responsibility", and they argued that all parties involved in a social contract must duly and mutually comply with their responsibility and accountability for their actions, including any potential harm they cause other parties or stakeholders involved to mitigate the government regulations. According to McDonald (2005), citizen involvement fits the governance dimension instead of the partnership architecture itself.

Investigating the implementation of the T-NSDP from the perspective of the stakeholder theory highlights how parties to the project discharge their responsibilities and manage their relationships in a way that minimizes harm and improve the value of the consequences of their actions, while at the same time addressing the overarching interests of all stakeholders more sustainably (Nwanji &Howell, 2007).

On the public value theory, Barzelay (2007) argued that public value is "what public managers do or a normative prescription of what they should do" (p. 526). Thus, public value is developed through the commitment of partnerships and organisations (Hartley et al., 2017; Hartley et al., 2015). Thus, the public value theory explains the democratic and deliberative processes by which public officials and users of PPP projects co-operate in response to -what the public values and also, -what adds value to the public sphere (Benington, 2011, p. 31) while creating values relevant to sustainable societal outcomes (Hartley et al. 2017). This presupposes that PPP in the water sector can create public value once there is sufficient commitment from the partners involved, including the government, private investors and the community.

2.2 Concept of Governance and Sustainability in Urban Water Supply
OECD (2004) argued that "governance involves a set of relationships between a company's management, its board, its shareholders and other stakeholders" (p. 11). Governance involves relationships, tools and management of a complexity of various actors in the delivery of public service (Wang et al., 2020). Puni and Anlesinya (2020) define governance as a set of relationships between a company's board, management, its shareholders and stakeholders.
Thus, this set of relationships offers the necessary arrangements that can be used to achieve organisational objectives, and engage in performance monitoring and evaluation towards good governance and outcomes of the project (OECD, 2002). Wei et al. (2018) maintained that effective water governance can expand water quality because stakeholders' welfare is constantly fused into

the framework and most fundamentally employed toward realizing effective arrangement, harmonisation and joint production among these key stakeholders. Sabry (2015) embraces good governance institutions as a precursor to promoting effective Public-Private Partnerships and collaborations. According to the reference guide of UNECE (2008), a good governance framework in a PPP arrangement should exhibit six key principles including Accountability, Decency, Participation, Efficiency, Fairness and Transparency.

The Efficiency dimension of the principle focuses on the prudent use of resources without delay, waste, corruption or unjustified burden on future generations. Accountability focuses on the degree to which both public and private actors in PPP are answerable to the general public for their actions and behaviours; The Transparency aspect hinges on the clarity and openness in decision-making by the actors involved. The Decency aspect of the principles deliberates on the rules of development and implementation in a way that eschews potential harm being caused to people. The Fairness focuses on ensuring equal application of rules to all members of society, while Participation highlights the involvement of all stakeholders (UNECE, 2008).

The incorporation of governance principles in urban water supply has received increased recognition by policymakers and researchers. With the increasing wave of urbanization, both international development prescriptions and policy research have recognised the need to encourage stakeholder participation in urban water management, for short- and long-term sustainability considerations (Morinville, & Harris, 2014).

2.3 OECD Principles of Water Governance & Sustainable Development Goals (SDGs)
The water governance principles provide the arrangements for key players of PPP water projects to investigate and understand the governance system's performance and to evaluate the appropriateness of implementing PPP projects successfully (OECD, 2015). Thus, water governance involves diverse political, institutional, processes (formal and informal), demonstrative rules and practices through which informed decisions are built and implemented with much emphasis on the interests of other stakeholders, including the community and the end-users, and the responsibility of managing the water resources and facilities execution (OECD, 2015).

Figure 1: OECD 12 Principles of Water Governance
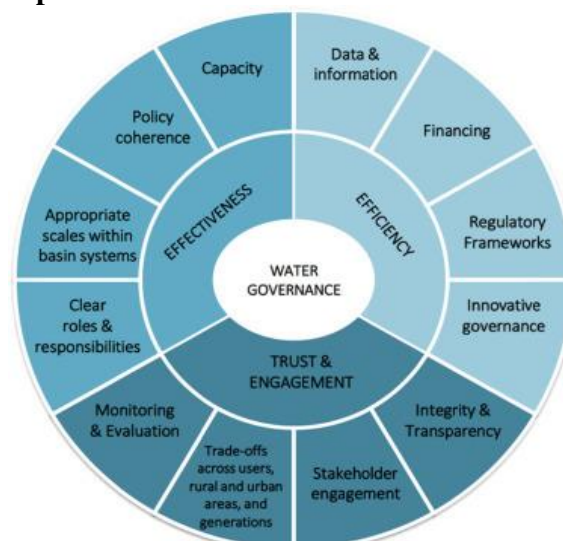
Source: Adopted from OECD (2015)

The OECD identifies twelve principles of good water governance framework which can be applied in all aspects of water management functions, all water uses, and all government levels irrespective of the ownership models. These are broadly based on efficiency, effectiveness, and trust and

engagement as shown in Figure 1 (OECD, 2015a; OECD, 2018). OECD (2015a) argues that water governance *efficiency* focuses on expanding the benefits and welfare of sustainable water management practices, including cost reduction to the community and the government. Additionally, water governance *effectiveness* focuses on policies and principles in project implementation in relation to best-practices for achieving objectives, executions and expectations. Moreover, the principles of *trust and engagement* in water governance, support the creation of confidence, fairness, and democratic legitimacy that would enhance stakeholders' interest in decision-making and sustainable PPP water management practices (OECD, 2015).

According to Akomea-Frimpong et al. (2022), the integration of sustainable practices into PPP infrastructure projects is a prerequisite to the realization of the United Nation's Sustainable Development Goals (SDGs). Since the inception of the SDGs agenda in 2015, the attention of the world has been shifting towards more sustainable practices, and it is essential that the conventional performance measurement models on PPP projects also adapt to the trend of sustainable practices. Meanwhile, sustainable potable water supply to rural and urban communities has been found to have significantly influenced the achievement of SDG targets, specifically SDG 6 (clean water and sanitation), SDG 1 (no poverty), SDG 2 (elimination of hunger), SDG 4 (equitable and inclusive quality education), SDG 3 (healthy lives), SDG 13 (life below water), and SDG 15 (life on land) as well as promoting sustainable local socio-economic development (SDG 8) (Nyanyofio et al., 2022; Mugagga and Nabaasa, 2016).

Since 2011, Ghana's PPP regime has been governed by the *National Policy on Public-Private Partnership (PPP)*, now referred to as the Public Private Partnership Act, 2020 (Act 1039) which gives full expression to the relevant sections of the OECD governance framework. To ensure that Ghana realizes the overall value-for-money in its PPP regime, the National PPP policy framework requires that the Government of Ghana shall establish intuitional arrangements for successful implementation of PPP programmes. The governance institutions shall undertake among others; policy development monitoring and enforcement, project preparation and execution, gatekeeping and approvals, as well as PPP promotion and advise. The adoption of the National Policy Framework as a guideline for implementing PPP projects in Ghana represents an adequate governance mechanism for the delivery of sound PPP in the Ghanaian water sector. This is in line with the World Bank, UNECE (2008) and OECD (2015) PPP governance frameworks that highlight the need to promote the principles of efficiency, effectiveness, trust and engagement, accountability, decency, participation, fairness and transparency in PPP arrangements.

2.4 PPP Sustainability
With the inauguration of the United Nation's Sustainable Development Goals (SDGs) in 2015, sustainability has received significant research appeal in various areas. The increasing recognition of sustainability is not only limited to procurement and PPP literature. In the field of project management, sustainability has seen some attention as well (Silvius, Schipper, Planko, Van Den Brink, & Köhler, 2012). Despite this growing attention, debate continues to rage on the exact definition of the sustainability concept (Hueskes et al., 2017) and a subject of controversy, particularly between strong and weak sustainability (Neumayer, 2003) making the concept ambiguous. Brundtland (1987) offers a more appropriate explanation of sustainability, as actions that produce the kind of development that addresses the needs of the current generation with adequate mechanisms that preserve resources for future generations.

In their study, Liang and Wang (2019) argued that to realize a balance between PPP arrangements and sustainability, there is the need for the integration of efficiency, technological innovation and social dynamics into such projects. What remains a puzzle, however, is how the incorporation of sustainability considerations can be encouraged, and how public authority will address sustainability issues in PPP contracts, especially as private partners in PPPs are reluctant in addressing such concerns (Silvius, 2012). Studies have underscored the need to investigate

sustainability outcomes as various contract types influence sustainability outcomes differently. This is due to the fact that the form of a particular PPP provides a various incentive structure (Hueskes et al., 2017).

Some authors have argued that for sustainability to realize its core outcome, there must be a move beyond the action-rhetoric gap, to a decision-guiding strategy which is conceptualized as a roadmap for a desired future state (Hugé, Waas, Dahdouh-Guebas, Koedam, & Block, 2013). Similarly, Akomea-Frimpong et al. (2022) underscore the need for an examination into how the integration of these foundational tenets of sustainability (social, economic, and environmental factors) in PPP research provides a view of how to develop key sustainable performance measures.

In the literature, the "three-pillar" or "triple bottom line" approach of sustainability has been discussed. These include the social, ecological and economic perspective (Carter, 2018). In a more recent work, Akomea-Frimpong et al. (2022) identified four dimensions of sustainability; economic, environmental, social and governance. While the economic perspective embraces financial and value-for-money considerations, the environment criteria focus on energy consumption, environmental pollution and resource use. Meanwhile the social perspective addresses issues affecting end-users whereas the governance dimension focuses on contractual and regulatory governance. Studies have found that sustainability considerations have been given limited attention in many PPP projects and that the social dimensions, in particular, have often been ignored (Hueskes et al., 2017).

2.5 Empirical Evidence on Water Governance Outcomes
Chetty and Luiz (2014) examined the private investment in South Africa and observed that technical skills and efficiency had improved due to the private sector participation while the equitable distribution of potable water supply across the communities is realised. Mouraviev and Kakabadse (2015) maintained that overregulation through government dominance in PPP management is theoretically unsuitable. According to Mouraviev and Kakabadse (2015), collaborative and co-production arrangements between the government and the private sector partners can improve PPP outcomes (Mouraviev & Kakabadse, 2015). Asare and Frimpong (2013, p.11) revealed that Public-Private Partnership in Ghana has not realised the 'much touted' efficiency and effectiveness outcome due to deficits in accountability and participation structures. Mitchell, Agle and Wood (1997) maintained that stakeholders who exercise their power of engagement, their sense of managerial urgency, level of usefulness and legitimacy to connect with other stakeholders, exhibit a positive impact of attaining robust governance systems to ensure project success. Thus, strong governance in legal, institutional, and regulatory mechanisms is requisite to ensure sustainable PPP water governance systems.

Ahenkan (2019) observed that PPPs implementation in Ghana faces enormous challenges such as weak institutions, poor technical expertise, lack of robust regulatory arrangements, high bureaucracy, weak political will, maintenance culture, frail risk-sharing arrangement, and high corruption. According to OECD (2017), the political drive continues to influence PPP investment in infrastructure, and as argued by Ruiters and Matji (2016), this makes it challenging for effective and successful execution of PPP projects, particularly in the water resource sector. Several empirical studies showed mixed findings on the objective of PPP to improve value for money. For instance, Vining, Boardman and Poschmann (2006) examined PPP in both Canada and USA and observed that they did not realise the value-for-money goal. Greve and Hodge (2009) also showed that PPP in many developing countries failed to meet the value-for-money objectives. However, Pollitt (2005) and Grimsey and Lewis (2004) showed a positive outcome on value for money whereas Fitzgerald (2004) was uncertain. World Bank (2010) and Gassner et al. (2009) showed that PPP promotes efficiency in infrastructural projects. World Bank (2010) argued further that PPP improves fiscal constraints and infrastructural services for deprived communities whereas Hall and

Lobina (2006; 2007) observed that contractual commitment failures, poor service quality and financial problems are the main causes of unsuccessful implementation of PPPs.

Chong et al. (2006) examined PPP performance within the water sector and showed that the average tariff (customer price) is usually higher when PPPs are involved as compared to direct public water supply management. Thus, the involvement of PPP in water services usually causes problems such as network density or water quality (Carpentier et al., 2006).

3.0 METHODOLOGY
3.1 Research Design and Sampling Technique
The study used a qualitative case-study method to examine the governance architecture of the implementation of the T-NSDP and its implications for sustainability outcomes. This choice is based on the interpretivism paradigm which seeks to present the perception of the truth of the event (Roth & Mehta, 2002). This approach helped to obtain quality and relevant data to explore in-depth a phenomenon in a real-life context such as the T-NSDP (Simons, 2009; Ahenkan, 2019; Nyanyofio et al., 2022). The present study used a qualitative case study research methodology, although there are alternative methods that could be suitable for conducting the research, such as documentary, content and observational studies. Quantitative approaches would not permit exploring the understanding of the governance structures and processes. The qualitative case study (which utilizes interviews and focus-group discussions) enables researchers to obtain detailed explanations of a subject matter. It helps to discover the perspectives, understandings and responses of people on a phenomenon of interest unlike other quantitative designs. The choice of this qualitative design is to enable follow up questions, probing and further clarifications as required in studying the issues of interest. Also, this study focused on the T-NSDP due to the large size and cost of the project and its enormous implications for sustainability outcomes. To address the objectives of the study, the authors purposively sampled 14 participants who constitute all major stakeholders involved in the governance and implementation of the T-NSDP. These included the Ministry of Water and Sanitation (for policy oversight), Public Utilities and Regulatory Commission (regulator), Ministry of Finance (the gatekeeper), Befesa Limited (private partner), the Ghana Water Company Limited (contracting authority) and residents of Teshie-Nungua communities (end-users).

These participants were considered on the basis of their rich experiences and their capacity to provide rich and quality data on the implementation of the project (Tongco, 2007). Additionally, snowball sampling techniques helped the researchers to receive referrals and reached key participants who provided relevant and quality data to a point that it was realized that new data could not provide further insights to address the research objectives (Guest et al., 2020).

3.2 Instrumentation and Qualitative Data Collection
The study collected qualitative primary data through interviews and FGD. The interviews and FGDs enabled the researchers to obtain explanations of actions and inactions, which helped to discover the perspectives, understandings and responses of people on a PPP phenomenon of interest. The interview was designed with the aim of eliciting responses from the targeted sample, who were persons with adequate information and knowledge about the study issues. The interview and FGD questions guide drew their focus and contents from the objectives of the study and the extant literature. The guides contained sets of questions which had been arranged sequentially according to the objectives in the preferred order for the interviews and FGD implementation processes.

Both primary and secondary data were used. The primary data employed were interviews and Focus-Group Discussions (FGDs) which comprised 10 representations each from the Teshie-Nungua residents, while the secondary data focused on archival and relevant documents related to the T-NSDP contract arrangement. This include the National Policy on Public-Private Partnerships

(NPPP) developed by the Ministry of Finance to guide PPP projects in Ghana, Water Purchase Agreement (WPA) between the Government of Ghana (GoG) and Befesa Desalination Development Ghana (MoF, 2011).

3.3 Reliability and Validity

In line with Lincoln and Guba (1985), the researchers enhanced the quality of the study by ensuring that consistency, applicability, credibility, neutrality, and dependability are maintained. The researchers used the feedback from the pre-test to review the interview guide by rewording, rephrasing and reducing errors to enhance readability and clarity for the participants.

3.4 Data Analysis

The primary data collection was subjected to a data analysis process. First, there was cleaning of the data. There was a cleaning of the transcribed interview and FGD files. This involved the removal of responses that were considered irrelevant to the study objectives. The transcribed documents were then subjected to a detailed examination with the purpose of identifying the important themes and concepts within the data. These themes and concepts were identified by the number of times they occurred in the data. By using thematic analysis, the authors identified emerging themes after transcribing and familiarizing with the data. The themes were then indexed, charted and mapped for analysis and interpretation in line with the data analysis protocols prescribed by Pope, Ziebland and Mays (2000), and Nyanyofio et al. (2022). The emerging themes highlight the water governance architecture of T-NSDP and its influence on sustainability dimensions (economic, social, environmental and governance sustainability) and Ghana's SDGs as presented in figure 2.

3.5 Ethical Consideration

The researchers obtained an institutional clearance and informed consent was sought from the study institutions. Also, diverse research ethics such as consent of all participants, privacy and confidentiality, reporting accurate information, and right to access the research report to enhance the trustworthiness of participants' responses (Allmark et al., 2009) were adhered to.

4.0 RESULTS

4.1 Profile of Participants

The participants in the study had diverse positions including Directorship, District Managers, Union Chairperson, Principal Economic Officer, Policy and Governance Officer, Senior Technical Managers for Water Performance and Monitoring, Water Quality Managers, Finance Managers, and Water and Health Policy Analysts from the key institutions including Befesa Ghana Ltd (Befesa), Ghana Water Company Ltd (GWCL), Public Utilities Regulatory Commission (PURC), Ministry of Water and Sanitation (MoWS) and Ministry of Finance (MoF). The participants had extensive years of work experience between 2 and 35 years (average of 17 years) with qualifications in diverse areas such as MSc. in Engineering, MPA in Public Finance and Policy, Master in Business Administration, MA in Governance, MSc in Environmental Management, PhD. in Water Management, MA Policy and Political Economy, and MSc Water Management. Also, participants in the focus-group discussion (FDG1 and FDG2) had Senior High School as their highest academic qualifications and had stayed in their respective residences for a maximum of 30 years. The participants therefore had strong professional and educational backgrounds and hence could contribute to quality data related to governance, sustainability and outcomes of the T-NSDP.

4.2 Thematic Analysis Results and Discussion
4.2.1 Water Governance Arrangement of the PPP Project
In respect of objective one which is assessing the water governance arrangement of the PPP, it was revealed that the T-NSDP is an unsolicited Build, Own, Operate, Transfer (BOOT) Private-Public Partnership (PPP) arrangement between Befesa, the private developer, and GWCL representing the

Government of Ghana (GoG). Thus, the investing partners were to procure, invest, process and distribute safe potable water to the beneficiary communities under a Water Purchase Agreement (WPA).

A detailed analysis of the governance structure of the unsolicited T-NSDP shows that the Parliament of Ghana approved the project for the developers (Befesa) to produce water for sale to Teshie-Nungua and its environs. However, there was a lack of robust oversight responsibility, due diligence and policy oversight responsibility relating to the financing and water production on the part of the MoF (Gatekeeper) and MoWS (parenting and monitoring), as revealed by some respondents.

> *a proper feasibility study and due diligence would have dictated the kind of governance structure which would have helped to deliver the project to its specification. Without such, the Ministry of Finance could not have the insight to appraise the entire project……, those were lapses that may have contributed to the challenges that the project has faced right from its inception*

Also, P 1 confirms that:

> *For an expensive project such as this, one that involves international developers and international money, the risk becomes higher if you don't monitor. So, there was a complete lack of monitoring and reporting system*

The PURC oversaw the regulatory functions including setting water tariffs, water quality and delivery services benchmarks with the GWCL (Contracting Authority) performing monitoring and evaluation responsibilities to ensure that standards are achieved. On governance structure, P1 recounted that the unsolicited T-NSDP was approved by the Parliament of Ghana, where GWCL asked the developers (Befesa) to produce water and sell to the Teshie-Nungua community.

On issues relating to how governance mechanisms influence stakeholders' interest, the interview participants believe that even though the PURC effectively exhibited regulatory supervision, the project exhibited deficit in due-diligence, oversight and monitoring responsibility from the MoF, MoSW and the GWCL, which affected its outcomes. The evidence of poor due diligence practice is not consistent with the World Bank (2009) which argued that an extensive due diligence checklist should include pre-feasibility and feasibility, technical and financial due-diligence, government support, fair procurement process, monitoring, tariff and standard settings, and dispute resolution mechanism. Further, it deviates from the requirements for adherence to insolvency laws and sovereign immunity, as well as labour, environmental and social issues related to stakeholders. Finally, on oversight, accountability and monitoring mechanisms, participants generally believed that the project stakeholders failed to follow the recommended governance guidelines.

4.3. Analysis of PPP Water Governance and Sustainability Outcomes
4.3.1 Economic Sustainability
From a value-for-money perspective, the PPP governance framework for the T-NSDP is to support the Government of Ghana to optimise the use of fiscal resources and mitigate risk and financial repercussions towards achieving high returns for key stakeholders, including the end-users of the water within the catchment community (MoF, 2011). Participants revealed that the total cost of the water project (USD $ 125 million) is relatively more expensive for the Government of Ghana to operate. In considering the cost and affordability, a distinction must be made between availability and volumetric payment from the contracting authority and user payment by consumers. On the availability charge, one participant said,

> "...then, I was in the Water Quality Department…. My candid opinion was that the project was going to be expensive in terms of the production cost and the water customers purchased" (P10).

Certainly, high costs per cubic meter can lead to a high cost of water service to the consumers which may, in turn, affect the revenue from the project. The GWCL buys water from the plant at $1.32 per cubic metre. This was against the PURC-approved tariff for the water of GH¢1.47 ($ 0.28) per cubic metre. Thus, a huge tariff differential of $1.03 per cubic metre was incurred as a result of the bad water purchase agreement covering the project. In addition, the GWCL was incurring extra capacity charges of about $1.4 million per month even when the plant was not in production. Hence, the GWCL built a large debt stock which is now being borne by the GoG through its sovereign guarantee.

Similarly, P12 confirms that;

> *.... our main problem is the unsustainable cost; the capacity charge is like the total cost of construction, we are paying tariff, capacity charge, variable charge for abstracting or for off-taking the water, electricity and energy for the treatment….*

He continued:

> *.....hmm, you know when we started the times, we were so low that we were not able to pay the bills. When we started in 2015 February our collections for the month were around GH¢ 17 million. And the capacity charge alone was $1.4 million which those days when added to variable charge we would be running into like 8 million.*

Admittedly, a desalination plant is not cheap. Water from a river is cheaper compared to sea water which undergoes a complex technical treatment process to ensure the right quality for human use. Thus, this highly unsustainable project cost is not in line with the fundamental premise of improving affordability through a PPP project by the government (OECD, 2015) and is inconsistent with the economic prescriptions recommended by Akomea-Frimpong et al. (2022).

The cost of the capacity charge of water from the T-NSDP is almost equivalent to the construction of the plant. Meanwhile, GWCL is expected to pay $1.4 million every month for 25 years, causing high indebtedness and default by GWCL, resulting in the long period of shut down. This finding is consistent with Asare and Frimpong (2013) who observed that PPP projects in Ghana are usually saddled with high costs due to inefficiencies and ineffective governance frameworks underpinning the PPP regime. Thus, the failure of the MoF, MoWS and the GWCL to adhere to the financial arrangements undermine the cost, investment, profitability, value for money, debt service and affordability (economic) sustainability criteria of the project (Akomea-Frimpong et al., 2022)

4.3.2 Social Sustainability

The social sustainability aspect of the sea-water desalination PPP project addresses issues about access; coverage, financial and volume (quality and quantity) (Nyanyofio et al., 2022), as well as general satisfaction of the end-users in the target communities. On the access to potable water and general satisfaction with the delivery of water, participants were of the view that the consumers within the targeted communities experienced good access to potable water and were satisfied. For instance, one participant stated:

> "I will say by and large these are being met… there's good access to water in the beneficiary communities…I happened to have an uninterrupted flow of water during the period that the plant was operational. Also, many other community folks have indicated their satisfaction with the service delivery in terms of output and flow of water" (P4).

The FGD 1 participants also indicated that the construction of the sea-water desalination plant has increased access to potable water which in turn has encouraged many people within the community to start the construction of water closet toilets in many households.

However, residents in the community are unhappy with the high cost of operating the project which is impacting the cost of treated water they consume. In practice, a full costs recovery of the water PPP project is dependent on a sound tariff structure and policy that focuses on sharing the charges among consumers in a fair manner. This arrangement has implications for the operational sustainability and quality of water services delivery through prompt payments of the charges. Thus, a sound tariff arrangement should consider a balance between the cost recovery of Befesa and the affordability of the consumer. Therefore, contrary to the views of P1 on the weighted average principle for determining utility tariffs in Ghana, in principle, the tariff set by the regulator (PURC) defines the maximum charge that consumers can afford to pay to GWCL. In a developing country such as Ghana, the government provides significant subsidies for water tariffs especially in low-income households such as residents in the Teshie-Nungua communities to help reduce the financial burdens and make the water supply affordable to the consumers. Consequently, any additional increase in the water charges per cubic metre supplied to the GWCL by Befesa would increase their financial obligation and the overall financial burden of the GoG. The net effect is that customer tariff would be increased making it difficult for prompt payments of water bills which can affect the objective of making water affordable to the Teshie-Nungua communities. According to the National Policy on PPP, the key consideration for all PPP projects is the ability of the end-user to pay while the PPP "must demonstrate long-term affordability" to the government and public budget sustainability whilst it provides the necessary investment return to the private investor (MoF, 2011, p. 4).

On social externalities, one participant quizzed:

> *"How would you quantify ailment with cost….how about not having adequacy of water in terms of quality and quantity and you have to go searching for water at the expense of your life…. at the expense of your [child] schooling, at the expense of health/life. Getting water from unapproved locations, the quality will be compromised" (P10).*

This confirms that the general assumption underpinning the implementation of PPP projects, and indeed the T-NSDP, extensively considers project success based on the traditional economic preoccupation without extending it to other important social externalities resulting from the project implementation process. This is consistent with Hueskes et al. (2017) who argued that the social dimensions of sustainability often play only a limited role and are largely neglected in PPP projects. Thus, the study confirms that effective water governance architecture of the T-NSDP can improve positive social externalities (Nyanyofio et al., 2022; Akomea-Frimpong et al., 2022) with implications for the achievement of Ghana's SDGs (Grimsey & Lewis, 2004; Hodge, Greve, & Boardman, 2010; Lenferink, Tillema, & Arts, 2013; Yescombe, 2007).

4.3.3 Environmental and Governance Sustainability of the T-NSDP
Respondents were asked whether the desalination plant was delivering on its mandate and outcome based on the quality standards. Even though residents were of the view that the water as supplied is of good quality and drinkable, the residents complained of it being salty.
FGD 1 revealed:

> *the more they delay, the more the sea water rusts and wears out the metals. Even if they decide to operate it today, the water will give stomach problems when consumed.*

Similarly, FGD 2 noted:

> *I think the salt content in the water should be reduced to make it drinkable and useful for washing too.*

Similarly, P10 said:

> *"Occasionally, they went off the standards…there were complaints that the quality of the water was not that good. Considering the higher level of salinity ranging around 120 milligrams per litre compared to about 12 milligrams per litre for the Kpong corridor, there was a problem" (P10).*

P 7 confirmed that:

> *We normally receive complaints about the water and we go and check according to water quality standard …. but when we have this problem, by the time you realize and are going to rectify, people would have consumed the water already. So, we came out with something called the water safety plan to be monitoring the quality of the water from the production right down to the consumer level to be able to detect problems*

The level of salinity (quality and potability) of the water is dependent on compliance with the chemical parameters prescribed by the regulator (PURC), Ghana Standards Authority and the contracting authority (GWCL). In this regard, the concerns about the high salinity of the water as reported by both the residents, and officials of the regulator (PURC) as well as the contracting authority (GWCL) suggest that there was a lack of compliance with the water quality specifications as prescribed by the relevant governing authorities. This is consistent with studies on desalinated water which suggest that desalinated water is not the most suitable option for direct use as it is prone to corrosion and adverse effects on human health and the environment (Lesimple, Ahmed & Hilal, 2020).

The poor quality of water can potentially affect effective collaboration with the beneficiary communities which in turn would harm the outcome of the T-NSDP. According to the WPA, Befesa has the responsibility to supply quality water to the residents of Teshie-Nungua. The WPA further prescribed that in a situation where parties doubt the water quality, there is a need to collectively call for an independent expert/consultant to assess and report the state of the water quality in order to ensure that the water standard is maintained (MoF, 2011b). However, based on P1's arguments, these expert views had not been engaged. Consequently, in the absence of quality water for the consumers, Befesa is expected to compensate the consumers through an acceptable tariff or based on a mutually agreed compensation model between the contracting authority and the developer. Wei et al. (2018) argued that effective water governance can help improve water quality as all stakeholders interests are always incorporated into the sustainable framework and most essentially working towards securing agreement, coordination and joint production among key stakeholders. Thus, inconsistent with the fundamental governance and environmental criteria prescribed by Akomea-Frimpong et al. (2022), the project was unable to meet some output specifications and regulatory requirements, thereby resulting in an 8-month long dispute between the contracting authority (GWCL) and the private party (Befesa).

4.4 Implications of the Sea Water Desalination Project for Ghana's SDGs

The findings suggest a lack of proper execution of water governance framework with implications for Ghana's 2030 SDG agenda. For instance, the lack of proper adherence to the financing arrangement is inconsistent with the OECD Water Governance principles 12 and 15 which argue for the establishment of a robust and coherent financing arrangement, stronger and responsive engagement with key stakeholders, including project partners (OECD, 2015a). In this regard, the challenges observed in the governance architecture of the sea-water desalination PPP project led to the project being stalled for several months and thus interrupting the constant flow of potable water across the Teshie-Nungua communities.

This challenge is as good as the project not being commenced in the first place, which could potentially worsen the sanitation condition in the catchment communities and hence affect national efforts at achieving SDG 6 *(clean water management and sanitation).* Poor sanitation can generally heighten the health burden on the target community in several ways: diarrhoea, cholera, typhoid

fever and general worsening health and wellness. This poses serious implications for the capacity to sustain a productive labour force and economic productivity for the achievement of SDG 8 in the target communities. It has further implications for efforts to *end hunger, achieve food security and improve nutrition* (SDG 2) among affected families or household.

Likewise, poor water governance architecture of the sea water desalination project significantly impacts economic activities of business operators who depend on potable water to offer products and services to their clients. Again, this inhibits efforts at achieving *sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all* (SDG 8). Moreover, lack of access to potable water can reduce the school attendance of school-going children. This is because traditionally, children are invariably heavily involved in searching for potable water for their families and this, affects the equitable and inclusiveness of the *quality education target* as described in SDG 4 (Mugagga & Nabaasa, 2016).

4.4 Challenges Associated with the T-NSDP PPP
4.4.1 Economic Sustainability
Unsustainable financial burden
Lack of investor commitment and support was observed which caused weak financial obligation and potential international commercial dispute between GoG and Befesa during T-NSDP implementation. Consequently, the project was halted for several months for a renegotiation of the Water Purchase Agreement by GoG in order to conserve capital and avoid financial liability. As one participant indicated:

> *"...the project has already been constructed. Our primary interest is to conserve capital. We want to avoid the case going through court proceedings and to protect the GoG from having to pay any sums in settlement and termination, which is estimated to be about US$126 million" (P8).*

Even though the WPA document required Befesa to formally complete the T-NSDP in June 2014, there was a delay due to a lack of financial commitment from the MoF. According to the National Policy on PPP, "the Government shall take all steps to institute mechanisms to ensure that its financial obligations under PPPs are settled promptly" (MoF, 2011, p.16). This suggests that the MoF failed to meet its financial obligations as prescribed in the PPP policy and governance framework, with serious implications for the economic sustainability of the project.

4.4.2 Social Sustainability
Poor stakeholder engagement
Also, the lack of adequate engagement with end-users and community stakeholders posed a significant challenge to the effective execution as user satisfaction and public perception of the T-NSDP was low. For instance, an FGD1 participant observed:

> *"…….. they should have involved the people of Nungua on the panel…we don't get to know what is going on… No information has come to us as to whether repair works have caused this or what exactly is the problem" (FGD1).*

The participants of FGD1 believe they needed to be involved in the preliminary arrangements and renegotiation process as they constitute an important group of stakeholders in the T-NSDP. They further explained that the information about the shutdown was not communicated to them directly, and rather, through a radio announcement and rumours from grapevine sources. Similarly, FGD2 said they were expecting that government would find a way to engage them to discuss how the problems such as high levels of salinity of the water and high cost of power would be resolved for the plant to continue operations. This is consistent with studies that suggest that the implementation of desalinated water PPP projects suffer popular scepticism and disaffection (**Dolnicar** & Schäfer, 2009; Dolnicar, Hurlimann & Grün, 2011).

The study findings reveal a clear exclusion of the host community in the decision-making process resulting in failure to adequately address their interest leading to trust deficit from key project

stakeholders. These findings contradict the Principle of Water Governance which encourages effective stakeholder engagement in PPPs to promote effective multi-actor relationships between public organisations, private sector operators, non-profits, volunteers, citizens and communities as a crucial requirement for project success (OECD, 2015). Similarly, the findings are inconsistent with Akomea-Frimpong et al. (2022), Wang et al. (2018) and Yun et al. (2015). Wei et al. (2018) suggests the importance of ensuring that there is a collective platform for stakeholder engagement and collaboration to promote good governance in PPP projects. Yun et al. (2015) advised that stakeholder relations will foster an effective governance mechanism that aligns project goals with different stakeholder interests and addresses conflicts.

4.4.3 Governance Sustainability
Lack of public sector competence
Deficit in technical expertise on the part of the government party that negotiated the Water Purchase Agreement, resulted in project implementation challenges, ineffective legal, financial and technical due-diligence, as well as poor contract negotiation. Majority of the participants revealed that the private party had more expertise than the government party which presupposes that there was a competency deficit on the part of GWCL, which disadvantaged the Ghanaian side from obtaining competitive terms under the agreement.
As revealed by the Director of the private party (Befesa);

> *We have these challenges because they don't do enough research. If you're going to fight somebody, you make sure you do research about the person, know enough about the person so that when you're putting up facts, you know that it is based on research. These guys don't do any research. They don't even read about desalination to understand how the process works.*

From the point of view of the Ministry of Finance, P8 noted that one of the challenges that confronted the government was the lack of public party officials with the requisite technical expertise to be engaged on the contract negotiation.
In the interview, P8 revealed that:

> *I think that one area that we struggle with as a country is matching the level of expertise that our private partners normally have when it comes to PPPs. So, you know, they probably have an army of lawyers, researchers and analysts who are running models and simulations of how they're going to get their money back and the profits margins etc. We don't have that same level of rigor and intensity on the government side.*

As a result of the poor technical know-how of the key public officers involved in the project negotiation and implementation, Ghana's first-ever desalination PPP project was bedevilled with serious challenges culminating in several months of shut-down. This evidence of a lack of technical expertise is consistent with Ahenkan (2020) who argued that public sector staff and the technocrats who are directly involved in PPP implementations must be well equipped with the competencies and sound knowledge of the PPP project development, and the legal and regulatory arrangements to ensure effective and efficient delivery of project outcomes.

OECD's (2015) governance framework argues that public stakeholders should develop professionals who can support the effective implementation of PPP projects. According to the National Policy on PPP, the PPP Advisory Unit (PAU) shall "build capacity among public sector stakeholders, and MDAs, to enable them lead the implementation of PPP projects from start to finish in a professional and technically competent manner" (MoF, 2011, p.8). To address the technical deficit among public officers, the stakeholders' theory encourages the government to obtain access to technical expertise as well as established networks for complementary resource sharing to improve the efficiency and effectiveness of the governance mechanisms and to eliminate the perception that the private sector is better at management than the public sector (Austin, 2007).

Constraints due to lack of infrastructural support

There was lack of adequate infrastructure such as water pipelines to support the effective distribution of potable water across the catchment community. As one participant noted:

"…we found out that the metal tubes to draw the water were all faulty and that is why the water is not flowing to our houses" (FGD2).

The participants of FGD2 revealed that water tubes were not properly functioning, resulting in the closure of the plant for repair works to be undertaken. In agreement, P1 was of the view that there was the pressing need for GWCL to invest more in the distribution infrastructure as the systems for distributing water were largely inefficient leading to wastage of water with GWCL incurring huge losses. He argued:

The challenge was that they (GWCL) had low infrastructure so they couldn't take the water. So, when we (Befesa) started delivering the water, there were burst pipes all over Nungua and Teshie.

Consistent with the World Bank (2018) the T-NSDP requires private involvement to improve infrastructural services, and ease fiscal constraints in order to provide services for such deprived communities.

Lack of commitment and support from government parties

The study found that the absence of strong supervisor commitment required from the contracting authority (GWCL) and inadequate support on the part of the Ministry of Water and Sanitation to exercise full policy oversight for the project implementation, affected the smooth implementation of the T-NSDP. As P1 indicated:

The challenges were as a result of Ghana Water Company failing to honour its responsibilities and the Ministry of Sanitation and Water not playing its parental role on the project. They are simply apathetic towards the project.

This is inconsistent with the PPP governance best-practice as identified by the OECD (2015a). Also, the National Policy on PPP underscores that the GoG "shall provide the necessary assistance and resources as a shareholder to GWCL to meet all of its obligations under the WPA" (MoF, 2011, p.42). This suggests that GoG failed to act per the WPA for a smooth and effective implementation of the T-NSDP. Thus, the key governance sustainability criteria, transparency and accountability, output specification and project completion and bureaucratic dimensions suggested by Akomea-Frimpong et al. (2022) were not realized. It is also consistent with Hartley et al. (2017), who contend that public-value is created through institutional collaboration and partnership commitments. Overall, the study confirms the argument by Kemp et al. (2005) that an effective governance architecture is a prerequisite for realizing sustainability outcomes.

5.0 CONCLUSION

Using qualitative data and the stakeholder and public-value theoretical perspectives, this study examined the sustainability dimension of the Teshie-Nungua Sea Water Desalination Project and its implications for Ghana's SDGs agenda. The study shows that the governance architecture for the implementation of the T-NSDP was not adequately developed and enforced to fully realise the targets in key sustainability outcomes discussed in the literature. In terms of the economic sustainability criteria, the study highlights that as a result of the governance deficit, the implementation of the project was saddled with high project cost as well as debt service challenges with implications for value for money. On social sustainability, the study evidenced that issues regarding water quality, poor engagement with end-users, and inadequate provision of infrastructure for water distribution, resulted in intermittent interruptions in water supply across the project communities which led to dissatisfaction and low public perception. Even though no major environmental challenges were recorded, the presence of high salinity in the water supplied to the

target communities with potential for human health and material contamination, undermined the environmental sustainability of the project. Overall, the study evidenced that the quality of governance architecture; monitoring, oversight, due-diligence, technical expertise, accountability and public sector commitment can serve as pillars for designing and implementing Ghana's PPP regime, with implications for Ghana's SDGs agenda.

6.0 RECOMMENDATIONS
Firstly, the lack of water policy oversight and monitoring by the MoWS and the GWCL in the implementation of the project requires that key stakeholders apply the global PPP best practices and give recourse to the National PPP policy instrument developed by the GoG. Secondly, despite the evidence of sound regulatory practices by the PURC, the deficit in key governance areas, due diligence, monitoring, and oversight, coupled with the inadequacy of funding and infrastructure support which resulted in high indebtedness and intermittent disruptions in the supply of water, requires that the GoG undertakes a critical review of the entire sea water desalination operation to identify the funding deficit and gaps in revenue inflow. This will help to comprehensively address major project challenges relating to project cost (capacity charges) and its implication for public sector budget. The MoF should conduct a proper financial audit of the entire project and build a roadmap for Ghana's PPP governance and implementation regime in order to forestall future financial obligations which may ruin the international reputation of the country and the possible termination of the project. Additionally, the long period of unsettled dispute which led to the temporary shutdown of the project requires a robust conflict resolution mechanism for the management of fiscal commitment to address any other potential disputes in the future particularly those involving investor risk and sovereign guarantee. This will protect Ghana's international reputation as well as boost investor confidence while at the same time, address the interests of key stakeholders in a responsible manner
.

Research Contribution and Future Direction
This study reinforces the fact that PPP sustainability outcomes depend on multiple perspectives. Thus, the dominance of economic theoretical perspectives cannot adequately advance PPP research. It therefore highlights a departure from the traditional PPP research which predominantly focuses on the economic (value-for-money) considerations without much attention to other sustainability criteria, social and environmental perspectives which have crucial implications for achieving Ghana's SDGs. It therefore provides a fertile direction to advance the frontiers of PPP research in the future.

Additionally, the adoption of a qualitative research paradigm to highlight how different governance architecture impacts water PPP projects in an urban context, contributes to PPP research. Consequently, the study strengthens the research argument which suggests the view that governance deficit, due diligence, oversight, monitoring and public sector competency deficit in developing and implementing PPP regime threatens project outcomes thereby producing a "dominating effect" that can empower the private party to direct technical needs, especially, in the case of an unsolicited project. However, the adoption of qualitative research design to address the gaps may limit the generalization of the findings. Future researchers can employ a quantitative method with a larger sample of respondents to validate our findings focusing on other PPP models and in different PPP contexts.

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Respondents' Profile

Code	Job Position	Organization	Education	Experience	Type Of Data	Age	Sex
P1	Director	Befesa	Masters	25 Years	Interview	55 Years	Male
P2	Managing Director	GWCL	PhD	20 Years	Interview	56 Years	Male
P3	Dist. Manager	GWCL	Masters	30 Years	Interview	55 Years	Male
P4	Policy & Gov Officer	MoF	Masters	11 Years	Interview	42 Years	Male
P5	Principal Econ Officer	MoF	Masters	20 Years	Interview	54 Years	Female
P6	Economic Officer	MoF	Masters	13 Years	Interview	s37 Years	Male
P7	Tech Mgr. for Water Perf.	PURC	Masters	11 Years	Interview	48 Years	Male
P8	Technical Assistant	MoF	BSc	2 Years	Interview	20 Years	Female
P9	Dep. Mgr. Water Qty	GWCL	MSc	25 Years	Interview	56 Years	Male
P10	Chief Mgr. Special Duties	GWCL	MSc	25 Years	Interview	54 Years	Male
P11	Director of Water	MoWS	MSc	25 Years	Interview	58 Years	Male
P12	Chief Manager Fin.	GWCL	ICAG/EMBA	35 Years	Interview	57 Years	Male
P13	Water & Health Policy Analyst	ISODEC	MA	15 Years	Interview	42 Years	Male
P14	Snr Mgr Water Perf	PURC	Masters	14 Years	Interview	48 Years	Male
FGD1	Residents	Nungua	Secondary	30 Years	FGD	Mixed	Males
FGD2	Residents	Teshie	Secondary	30 Years	FGD	Mixed	Female

Source(s): Field data
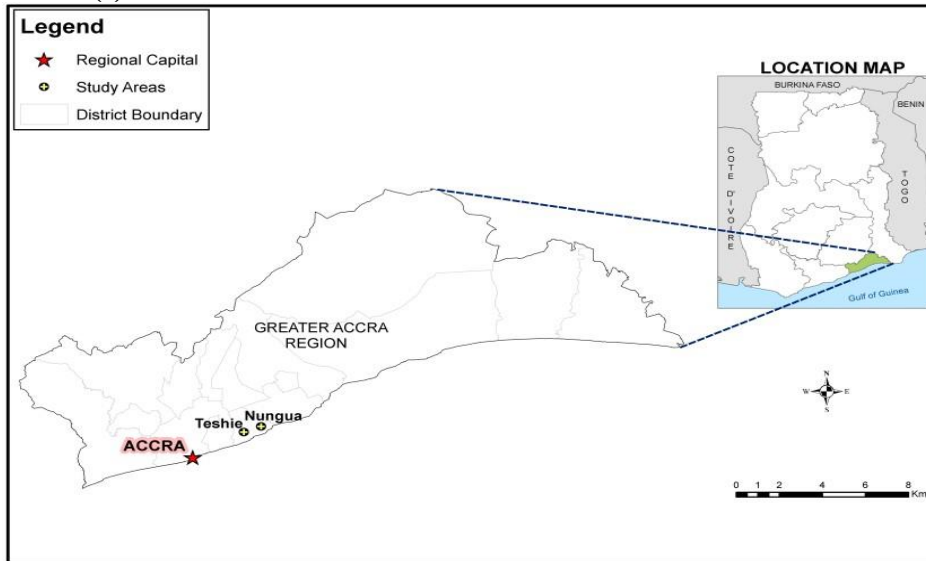
Figure 2: Map of Teshie-Nungua communities
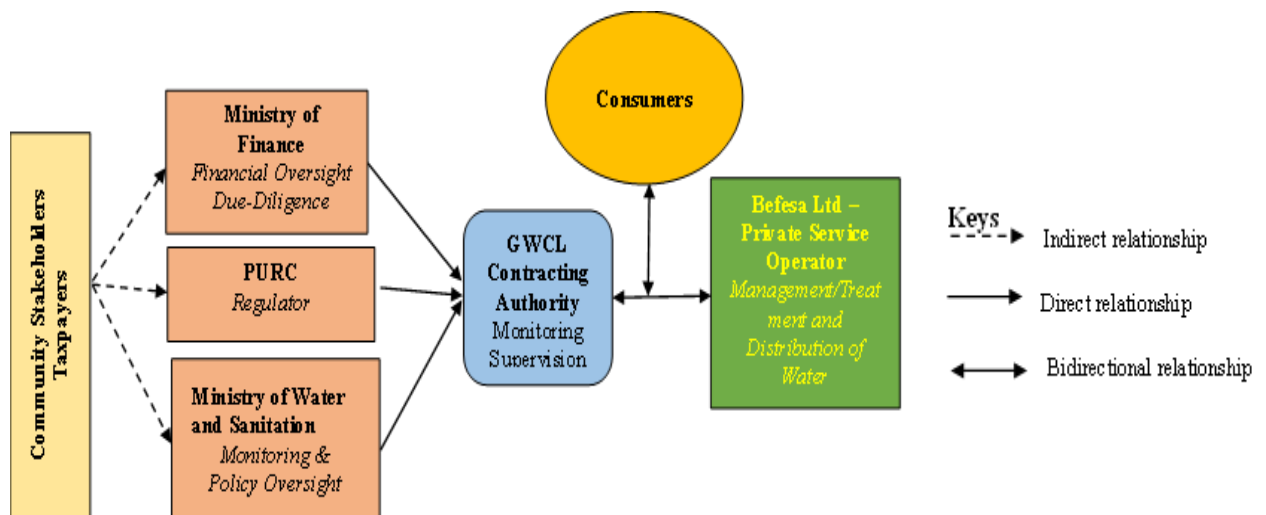
Figure 3: Governance arrangement for the Teshie-Nungua Sea Water Desalination Project

TECHNOLOGY AND TOURISM SAFETY: A CRITICAL INSIGHT OF GOVERNMENT INITIATIVES AND EMPIRICAL LITERATURE ANALYSIS

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ABSTRACT
The study provides an insightful analysis of government technological initiatives in tourism and hospitality sector through the lens of the Protection Motivation and Dynamic Capability theories. This study draws on a two-stage data source review of literature. The results showed that Ghana has made countless efforts in providing technological supports for tourism businesses: increase e-services (online booking, e-compliant, e-taxi, e-ticket, chatbots) in the sector, and the deployment of fire alarms, smart room keys and fingerprint recognition, surveillance cameras in protecting tourists at destinations. However, the results also identified some constraints associated with technology applications including: non-affordability of the needed technologies, limited technological skills of end-users (tourists) and inadequate legal support. This study has made a contribution in filling a knowledge gap in tourism literature regarding the role of technology and safety in improving business outcomes in the tourism sector, a phenomenon which has been understudied.

KEYWORDS: technology, tourism safety, e-services, destination safety, government initiatives, tourism

1.0 INTRODUCTION
In our contemporary 21st century world, tourism and hospitality (T&H) (scenarios/affairs) are progressively molded by technology. Extant studies within the sector have focused and highlighted on technological supports in tourists' safety and security (Preko, 2021); technology strategies for tourism planning (Gore *et al*., 2021); technology and Generation Z's perceptions (Sfodera *et al*., 2022); future of technology integration (Tlili *et al*., 2021; Kitsios and Kamariotou, 2021); Artificial Intelligence (IA); and robotics in tourism (Samala *et al*., 2022); and mobile booking (Mohamad *et al*., 2021). Despite the plethora of studies in technology and tourism safety, limited recognition is given to synthesizing government initiatives and empirical articles on how the T&H sector utilizes technology applications in promoting tourism safety. Indeed, some scholars have examined the varied gains of technology in this sector. But further investigation is needed to understand Ghana's journey and efforts in technology applications in the sector. This study considered tourism safety to connote safety at destination sites and safety in accessing e-services (e.g., e-payment, e-booking, e-ticketing etc.,) by tourists devoid of risk, cybercrime, fraud and victimization. Furthering, safety at destinations is operationalized as safety measures at sites such as installation of surveillance cameras, fire alarm, *gadgets* to screen tourists and vehicles prior to entering the sites, metal *detectors* and bomb *detection* devices utilization within the T&H sector. The current study aims at addressing a contextual-knowledge gap by providing an insightful analysis into government technological initiatives for assuring and promoting tourism safety in the T&H sector. We used the following specific objectives to guide this research:

a) To explore the nature of technology adoption and safety in Ghana's T&H sector;
b) To assess how technology initiatives (policies, regulations, strategies) have impacted stakeholder behaviour regarding the promotion of safety in the T&H sector;
c) To explore the role of technology in promoting tourism safety;
d) To identify the main safety constraints associated with the use of technology in the tourism sector.

Importantly, technology applications have offered many gains to the tourism sector in the way tourists travel, book hotels online, purchase electronic tickets, access online taxi services, update websites, grievances redress system for accepting complaints and addressing issues, among others.

Clearly, it is shown that the T&H sector which is regarded as a service sector has no other choice than to embrace technology in its operations. An interesting example is that tourism and hospitality websites have now topped traditional word-of-mouth marketing; as the prime source to inspire and guide tourists in their travel plans and choices. The trend has now become the modus operandi by which tourists now easily find and book their destinations via any device, be it a smartphone or personal computers. According to the World Tourism Alliance (WTA, 2022) reports, new technologies applications such as 5G, AI, robotic, big data, and space technologies are driving innovation in the tourism sector. Thus, enriching visitor experience; reducing costs; boosting economies of scale; improving service efficiency; strengthening tourism infrastructure, targeting specific customer groups, and amplifying marketing effects. This signifies that technology has brought significant changes to the demand, supply and growth of the sector. In the industry, technology applications utilization includes contactless payment platforms used by tourists in paying for bills (e.g., visa or master cards, mobile money etc.,), Wi-Fi, mobile apps, robots and infrared sensors, cloud services, chatbots, among others. In this study, technology is interchangeably used as a digital or technology application used to promote the industry in context. Significantly, this study is of value to policy-makers, T&H businesses, practitioners, and tourists in and around the world.

Categorically, we have contributed to the extant literature in three ways. One, our study is among the few studies on the African continent that has attempted to extend the understanding of leveraging technology in promoting excellent e-services to tourists, given the growing relevance of the sector. This new insight has supported UNWTO (2003) agenda for countries to formulate a state policy that will protect and safeguard tourists against risks, crime, terrorism, food safety and hygiene related matters. Two, our findings have responded to calls to support WTA (2022) agenda on technology applications in tourism services. This is evidenced in how the Ghanaian T&H sector uses technological applications (Internet or WI-FI) in providing e-services such as online traveling sites, e-booking, e-transactions, e-tickets, online taxi services, fingerprint recognition, smart room keys, artificial intelligence (chatbots services, marketing decision support, forecasting short time-series tourism demand), and others. This provides insights into how technology can strategically manage tourism safety. Three, we have made a contextual contribution by synthesizing government initiatives and empirical literature to fill a knowledge gap in tourism literature which has been an understudied field in tourism studies. The study is constructed into three sections. Section one includes the introduction and the literature review, while in the section two we explain the methods used for the study. The last section deals with the discussion of results, conclusion, implications and future research directions.

2.0 THEORETICAL UNDERPINNING
2.1 Protection Motivation Theory
The Protection Motivation Theory (PMT) is a vital theory used to explain the motives for individuals to adopt protective behaviors (Rogers, 1975; 1983). This theory evolved from the Theory of Reasoned Action (Fishbein & Ajzen, 1975) and posits that an individual's decision to adopt protective behavior is influenced by perceived threats, which further lead to the development of coping appraisals. The theory's major arguments are that threats are evaluated through perceived vulnerability and risk susceptibility. Coping mechanisms are then developed from self-efficacy, response efficacy and response costs linked with safe or adaptive behaviors. In our study, the PMT is used to explain the role of protective measures in ensuring tourist safety when using online booking, payment or service platforms, whilst also ensuring that destination sites have basic security protocols to ensure tourist safety and reduce or minimize vulnerability and physical security risks.
The PMT theory is adopted in this study because it facilitates a clearer understanding of the role of security protocols in ensuring data security, privacy and also physical protection from harm. Thus, applying this theory to the present study on technology and tourism safety helps in expanding knowledge on how tourism stakeholders and institutions implement security protocols as a means of reducing perceived vulnerability and perceived risks to ensure that tourist feel safe when using

digital or technological resources and infrastructure at destinations or at any hospitality institution in a country. Furthermore, this theory helps to highlight how technology such as fire alarms, security cameras, and security doors can help to offer a sense of security to tourists using tourism and hospitality facilities. Essentially, the theory provides a framework within which to argue that the potential of perceived risks and vulnerability to cyber-attacks necessitates the adoption of preventive ad protective actions which are coping mechanisms from various tourism and hospitality stakeholders.

2.2 Dynamic Capabilities Theory
The Dynamic Capabilities Theory is the second theory adopted in this study. This theory posits that firms seeking sustainable competitive advantage need to configure their resources into dynamic capabilities that respond to emerging opportunities and threats from the firm's environment (Cavusgil et al., 2007; Teece, 2018). The theory further postulates the development of internal firm competencies such as adaptive capabilities and innovative capabilities (Van de Watering et al., 2017; Reinhardt et al., 2018). In this study, the role of technology and safety in tourism can be explained further using the dynamic capabilities theory. The protection motivation theory has been used already to highlight the presence of risk factors and perceived threats which make tourists and hospitality firms vulnerable to digital and physical attacks. The dynamic capabilities theory is adopted to augment this argument and further advance the need for tourism destinations and hospitality organizations to develop adaptive and innovative capabilities to combat the security threats that may arise.

Adaptive capabilities within the tourism and hospitality sector pertain to the development of competency in managing security systems such as CCTV cameras, fire and smoke detection systems, threat alarms and other security protocols that ensure that tourists are safe and protected. Furthermore, pertaining to the technological and online aspect of tourism service delivery, adaptive capabilities of T & H firms include developing online security systems for customer data protection and prevention of cyber-attacks and fraud. Clearly, the threats posed by digital and physical entities to tourists require firms in the T & H sector to develop adaptive and innovative capabilities to ensure tourist safety. Thus, the PMT and dynamic capabilities theory are used to explain the nature of threats posed to tourists and the capabilities required to prevent and manage these threats in the event they occur. Using these two theories simultaneously in this study provides deeper perspective on how technology presents risks and opportunities which require the development of adaptive and innovative capabilities to provide coping mechanisms for T & H firms.

3.0 LITERATURE REVIEW
3.1 Contextual Background of Tourism in Ghana
The World Travel and Tourism Council (WTTC, 2015) states that Ghana's tourism industry is crucial to the socioeconomic development of the country. Unceasingly, tourism has been a pivotal tool in strengthening both the economy and poverty alleviation. The Launch of the "Year of Return and Beyond the Return" in 2019 revealed that Ghana's economy could receive a significant boost through tourism (Gebauer & Umscheid, 2021). Interestingly, the contribution of tourists' receipts to the Ghanaian economy was expected to increase from $1.5 billion in 2017 to $2.5 billion in 2022, and projected to $4.3 billion by 2027 (International Labour Organization (ILO), 2020). Additionally, the contribution of foreign exchange to the Gross Domestic Product (GDP) is expected to increase from 5.0% in 2017 to 5.2% in 2022 to 5.7% by 2027 (International Labour Organization (ILO), 2020). Within context, technology has been applied in explaining and enhancing tourism to some extent (Preko *et al*., 2022). However, leveraging technology to promote tourism safety requires a critical review of literature and government initiatives. Hence, the contextual application of technology and safety might be important in enhancing tourism in Ghana.

3.2 Technology and Tourism Safety
The associations between technology and tourism are documented in a formative way based on technological involvement in tourism development. Related to earlier studies (Akaka and Vargo,

2014; Vargo and Lusch, 2008), technology is considered as an operant resource that serves as a platform for promoting tourism development (Ali and Frew, 2014; Çiftçi and Çizel, 2020). Garg's (2015) research has shown the relevance of safety, peace and stability as major worries for tourists when selecting a destination for a vacation. Though the concept of technology has drawn a wider attention in tourism literature, research that reflects government initiatives on technology insight analysis is still limited. In this research, we consider technology as a podium that enhances or facilitates tourism directly or indirectly.

Perhaps the most crucial factor in determining a destination's magnetism, and thus generating and sustaining interest in a destination, is safety (Boakye, 2010; Mohammed *et al.*, 2021). Therefore, every destination tries to portray itself as a safe place. The term "safety" relates to people's emotional reactions to how well their physical and psychological requirements are met in their surroundings (Zou and Meng, 2020). Reflecting on the study of Michelberger and Labodi (2012), one can cite one of the simplest definitions of safety as the minimising risk factors to protect tourists from injury or death their destination. Their definition implies that safety at destinations can be minimal as safety is regarded as a primary factor in tourist decision making when thinking of traveling for tourism purposes.

A study by Preko (2021) on safety and security at the beach in Ghana indicated the relevance of using closed-circuit television (CCTV) cameras at the beach to protect the tourists from unforeseen circumstance. Similarly, the findings of Kotoua and Ilkan (2017a) posited the importance of tourism websites to tourists community when browsing for tourism information about a destination and also the websites help the T&H businesses to market their products and services to their customers (tourists). Further, technology has provided tourist with avenue to determine how safe and reliable a destination might be in terms of terrorism events and threats. Similarly, the findings of Kotoua and Ilkan (2017a) on tourism destination marketing and information technology in Ghana posited the importance of tourism websites to the tourists community when browsing for tourism information. Meanwhile, the websites also help the T&H businesses to market their products and services to tourists. Their study further revealed that online word of mouth and information search by tourists are significant predictors of intention to visit a tourism destination. Once more, prior literature in the Ghanaian context has attested the signficant contributions of online destination image, online word-of-mouth, online security vulnerability to tourist satisfaction in a mediation analysis (Kotoua and IIkan, 2017b).

Contextually, other studies that investigated destination safety and technology applications in the Ghanaian T&H sector (ICT and tourism promotion (see: Ayeh, 2008; Boakye, 2010; Poku and Boakye, 2019; Akyeramfo-Sam and Nti, 2017) acknowledged the nexus between these variables and their roles in developing the Ghanaian tourism sector of a developing country perspective. Further, safety issues pertaining to accommodation, and destination threats in relation to crime have also been advanced through technology. Interestingly, technology was found as a panacea for promoting tourist safety especially during the COVID-19 pandemic (Foris *et al.*, 2022). This study conceptualized safety as the extent to which e-services provided by the destinations are secure, and also how the physical environment of destinations are free from terrorism threats, crime, cybercrime, and others. This implies that safety in this paper connotes two ideas, that is, safety in the technological services that they use, and risk-free tourism destinations.

4.0 METHODOLOGY
4.1 Search for Materials
This study adopted the SPAR-4-SLR protocol recommended by Paul et al. (2021). This facilitated three core processes including: assembling, arranging, and assessing literature on tourism and security over a seven (7) year period spanning from 2016 to 2022. Thus, the first activity conducted in this reviewing was assembling articles pertaining to the areas of social influence and sustainable consumption. The review specifically sought to explore the nexus between these two concepts. To achieve the stated objectives, a two-stage data source review of specific government initiatives and published articles. In stage one, we conducted a Google search by using Boolean Operator "AND"

"OR" "NOT" in tracking "Ghana government initiatives and tourism" and "technology initiatives and/not tourism in Ghana" separately into the search box. We collected secondary data comprising of some national tourism documents which are: National Tourism Development Plan (NTDP) 2013-2027 and Sector Skills Strategy for Tourism and Hospitality Sector and other legislative instruments such as Data Protection Act (Act, 843 of 2012) and Electronic Transaction Act (Act, 772 of 2008). Softcopies of online documents that address the issues of technology related and tourism as the inclusion criteria were collected on PDF format.

Further, data was gathered in stage 2 to address the limitations in phase 1 and to meet objectives two and three that focused on the technology initiatives and challenges associated with tourism safety and technology. In stage two, we used the Google search to find 31 relevant articles that linked technology and tourism safety published with these academic publishers. These publishers include Elsevier, Sage, Emerald Insight, Taylor and Francis, and Inderscience. We used these academic sites due to their global recognitions, importance and focus on the topic under investigation. Again, these sites are recognised and listed among high quality peer-reviewed journal articles publishers for academic community and industry professionals on the globe. Finally, the articles reviewed were published between 2016 to 2022 signifying that current literature were used for this study.

4.2 Data Extraction
Furthermore, we used these steps for the data extraction and context analysis for both data sources. First, the downloaded materials were uploaded into Nvivo software and we used the "text search" function of the "explore" option to search using these keywords "e-service", "technology", "electronic", "digital", "ICT" and "tourism safety". Second, the researchers used a systematic approach by independently reading all the documents to guarantee familiarity of the keywords used and its applications. Third, we grouped the key technologies that the T&H sector leverage for their services into e-services and technological infrastructure (gadgets) deploy at destinations to guarantee tourism safety.

Notably, we have presented evidence of technology and/or safety contents and extracts of the government initiatives documents used in Table 1. For example, the NTDP document revealed the application of technology and tourism safety together, while the T&H Sector Skill Strategy document details specific areas where the technological service should be deployed. This includes online booking of accommodation, e-transport (e-taxi services), e-transactions, CCTV, e-safety signs at destination, e-complaints services, etc., signifying the significant connectivity between technology and tourism safety in context.

Technology and tourism were considered for this study, for some reasons. First, Ghana has launched "A Safer Digital Ghana, 2018" and "Demonstrating Ghana's Cyber Security Readiness, 2019" as part of National Cyber Security Awareness Month (EU Cyber Direct, 2018) to promote admirable safety in public services which the T&H sector is part of. Second, Ghana has engaged in wide-ranging e-transform projects such as National Biometric Identification Card (Ghana Card), Digital Property Address System (Ghana Post GPS), emerging the Ghana Card (ID) with the database of the Criminal Investigation Unit of Ghana Police Service, e-payment platforms (FinTech: mobile money transactions, Ghana Quick Respond (QR), Zeepay and others) which backed by Cybersecurity Act, 2020 (Act 1038).

5.0 FINDINGS AND DISCUSSION
This study examined Ghana's technological initiatives in promoting tourism safety through technological applications in the tourism and hospitality sector through the lens of the Protection Motivation Theory and the Dynamic Capability Theory. The results of this study indicate that stakeholders in Ghana's tourism and hospitality sector have recognised the threats inherent in technology usage in the sector, and have responded by developing adaptive capabilities evidenced through policy and legal support to curb the threats that users of these technology are exposed to.

The study found first of all that the nature of technological innovation geared towards safety in the T & H sector comprises of the introduction of surveillance cameras, fire alarms and other security alarm systems in protecting tourists at destinations. These are the core technological infrastructure that the country has set up to combat threats posed to tourists. The adoption of the technological devices instils a sense of confidence in tourists visiting various destinations in Ghana. This study found that hotels, guest houses, restaurants and other hospitality organisations have adopted these security systems in order to enhance guest/visitor experience, particularly in relation to security. Furthermore, in terms of e-services, the study's findings reveal that e-services like online booking, e-compliant services, e-taxi, e-ticket, tourist checkout hotel photos, artificial intelligence (chatbots services) are accessible and available to tourists in Ghana. This is a relevant finding as it confirms the adoption of technology in the tourism and hospitality sector in Ghana. It further highlights the effects of a conducive policy and legal framework geared towards maximising technology adoption in the sector. This finding is regarded as one of the original contributions of this study compared to earlier studies on technology and tourism.

Our findings validate the findings of Mills et al. (2010) who found that biometric technologies were being adopted in the hospitality sector to beef up security and protect client data. Their study, like ours highlights data protection and privacy as an important aspect of technology usage in the hospitality sector. Also, this study's findings corroborate the findings from Khatri et al. (2019) that highlight a decade worth of research indicating the extent of technology usage in the tourism and hospitality sector, and its security implications. Even though Willie (2019) found that technology such as block chain was being adopted in the hospitality sector, our findings reveal that this is not a widespread phenomenon in Ghana, and could be an emerging area still requiring further policy and institutional strategy and implementation. Nonetheless, our findings contribute to the literature by identifying the teething problems hospitality and tourism sectors in emerging countries like Ghana face when dealing with issues of technology adoption and security.

Theoretically, the use of the Protection Motivation Theory advances knowledge in the area of technology use and security in tourism by delineating how protective mechanisms in technology use are vital to protect user data and information and also facilitate risk coping among organisations and individuals. Further, our study used the Dynamic Capabilities Theory to emphasize the importance of adaptive capacity among stakeholders in the tourism sector in order to understand the security implications of technology usage in the tourism and hospitality sector, and develop effective coping strategies to safeguard stakeholder data and privacy. Adopting these two theoretical perspectives has provided further depth to the literature on technology usage in the tourism and hospitality sector by highlighting how risk triggers and perceptions result in coping mechanisms which are adaptive capabilities.

Importantly, the findings of our study confirm prior research (Preko & Anyigba, 2022; Preko *et al.*, 2022; Akyeramfo-Sam and Nti, 2017) on how the Ghanaian T&H sector is responding to the international best practices in terms of technologies applications to support e-services. This is an important contribution as it explicates the role technology usage plays in boosting the profitability of the tourism and hospitality sector. On the other hand, in the contemporary business environment, e-services have advantages in increasing services to customers, enhancing organizational image, and serving as a competitive edge for businesses survival. Our study therefore provides evidence on the relevance of technology usage in tourism and hospitality, and how safety and security contributes to increased stakeholder confidence, especially among foreign tourists.

This study also found that although, the T&H sector strives hard to leverage technological applications, the safety of the e-services in terms of how secured and reliable they are, present one of the biggest challenges as the e-services are linked to cybercrime and fraud. This is an area where the literature on tourism and safety has been surprisingly silent. Past studies have not addressed the issue of cybercrime and its effect on technology use in the tourism and hospitality sector. Using the Ghanaian context as an example, this study found that mobile money fraud associated with e-

payment platforms represents a barrier to the growth of technology use in tourism and hospitality. Nonetheless, this study provides clarity by identifying the regulatory interventions that have been put in place to enhance security and reduce risk of mobile payment fraud and cybercrime. According to Eboibi (2020), Ghana has incurred a cumulative total of $299.9 million in domestic economic losses due to cybercrime between 2016 and 2018. This situation has led to the directives of compulsorily showing personal IDs (Ghana Card) before withdrawing mobile money at all electronic money transaction centres.

The results from this study highlight Ghana's countless efforts in providing technological support for businesses to operate in all sectors including the tourism sector. Specifically, the country has launched the "Ghana Digital Economy Diagnostic" initiatives that detail a rapid digital transformation in the entire economy that is changing the way businesses operate, trade and how customers can access public and private services and information (World Bank, 2020). Past studies have not provide such clarity and practical examples of government initiatives to drive and promote technology usage and security in tourism and hospitality. This makes the findings of this study unique as it provides practical examples that enrich the literature and can be used as a case study for advancing knowledge and teaching in this field.

The results of this study also reveal the legal and regulatory frameworks underpinning technology and security issues in tourism and hospitality. This study has found that to boost the growth potential and increase profitability within the tourism sector, the country has accepted diverse technology adoption measures that are reinforced by legislation like Electronic Transaction Act (Act, 772 of 2008), National Information Technology Agency Act (Act 771 of 2008), Data Protection Act (Act, 843 of 2012), and Cybersecurity Act, 2020 (Act 1038) to protect, safeguard and deliver excellence services to customers in all sectors of the economy. The introduction of these legislations have showcased Ghana's commitment to the deployment of technology in every sector of the economy. Unquestionably, every sector including the T&H sector relies on the Internet as one of the technological platforms to serve tourists to access the relevant information during their vacations or trips to their destinations. The record shows that in August 1995, Ghana among the became the first West African country to have a permanent and full Internet connectivity on the continent (Hegener, 1996). According to the report of Digital Ghana (2022), Ghana has 53% of Internet users of the total population of 32 million in 2022.

Added to this, our findings have thrown light on other legislative instruments implemented by the government of Ghana to safeguard and promote safe e-transactions (payment platform technologies, and trade and investment technologies) among customers and businesses. These initiatives consist of the National Digital Property Addressing System and the Re-registration of SIM cards. Other initiatives also include Ghana Interbank Payments and Settlement Systems (GhIPSS) and the universal QR code system, the first to be launched in Africa, to support instant payments from their mobile money wallets, bank accounts, or international cards for business and personal transactions. For example, the re-registration of SIM cards was introduced to bring about a single database that is linked to the national identification card. This will then support verification and confirmation of individuals' details that will lessen cybercrime and fraud and increase the usage of e-services in context. Again, one other leading example is the National Cyber Security Awareness Month launch known as "A safer Digital Ghana, 2018". This awareness agenda complements the policy fight against cybercrime and victimization, thus building individuals' confidence in using technologies. Correspondingly, an empirical review of Preko and Hod (2022) for this current research on the "tourism and hospitality career progression pathway" also revealed a high demand for technology supported occupations such as website designers, digital marketers, and data analysts in the Ghanaian T&H sector. All the results of our study demonstrated the significant role of government initiatives in promoting e-tourism, that is digitisation of all the processes and value chains in the T&H industry.

Evidently, our findings on the main constraints associated with the nexus between technology and tourism in the sector revealed that these two terms are intertwined. According to Leung and Law

(2015), there is a direct nexus between technology and tourism, where tourism is affected by technology. Clearly, technology has become a strong driving force that has changed the face of tourism through the creation of new products or services, communication channels, business practices and business models. Early research (Benckendorff *et al., 2014*) also emphasized that technology is the backbone of tourism development, as it enables the T&H sector to search for meaningful and profitable niche markets, increasing revenue and enhancing customer experience. Effectively, technology remains an indispensable catalyst for global marketing of the T&H sector.

Based on the extracted documents and empirical studies reviewed, the main challenges associated with technology applications emerged as hindering e-service as well as e-tourism growth. We herewith identify the following constraints, among others. The first set of constraints is considered as technology access-related issues, which include over-reliance on technology, the uncertainty of some technologies, and non-affordability of the needed technologies due to the low purchasing power of T&H institutions to purchase modern technology. The second challenge is associated with the limited technical skills of end-users (tourists) due to poor awareness creation that ought to be initiated by state institutions in-charge of the sector. The third constraint is inadequate legal support, compliance, observing risks protocol, and managing data privacy by the institutions in-charge of the promotion of e-transactions and e-payment. This was confirmed in the study by Akomea-Frimpong *et al*. (2019) who found/observed that weak internal controls and systems, lack of sophisticated information technology tools to detect the menace. Besides, their study found inadequate education and training, and the poor remuneration of employees of mobile money operators and mobile money agents affect e-transactions.

6.0 CONCLUSION

To conclude, we showed that Ghana is dedicated to strengthening the applications of technologies in the Ghanaian T&H sector to support the WTA (2022) agenda on technology in the tourism space on the globe as well as guaranteeing safe destinations in context. This is showcased in the diverse legislative instruments (e.g., Cybersecurity Act, 2020 (Act 1038), Data Protection Act (Act, 843 of 2012), and others initiated by the state to protect consumers of e-service. Our study makes the first attempt to contribute to filling the knowledge gap in the T&H literature by synthesizing state documents and empirical articles that offer an all-inclusive overview of how a nation like Ghana continually leverages technology to promote tourism safety. For example, the enforcement of the new registration of sim-cards with the Ghana Card as the single national ID to be used for all financial transactions beginning from 1 July 2022 (Bank of Ghana, 2022), provides confidence in the usage of e-transactions in context, which equally benefit the tourism sector.

Additionally, our findings have gone beyond the earlier research (Kotoua & IIkan, 2017a; Kotoua & Ilkan, 2017b) to expand the frontiers of technology-tourism literature. Firstly, while the study of Kotoua and IIkan (2017a) found online security vulnerability as a significant mediator of the relationship between online destination image and tourists' satisfaction within the Ghanaian tourism context, our findings revealed the availability of online booking, e-compliant services, e-taxi, e-ticket, tourist checkout hotel photos, artificial intelligence (chatbots services) to tourists in Ghana. These technological resources provide tourists with secure options that enhance their tourism experience. Furthermore, the availability of these services elevate the tourism sector in Ghana to global standards given that presently, most countries with high tourist influx have robust digital tourism systems from ride hailing applications, online hotel and accommodation booking, e-taxi and other tourist related services (Pancarelli, 2020; Hossain et al., 2022; Nguyen & Ha, 2022). Our findings confirm that Ghana has taken strides to integrate these services in the tourism sector for competitive advantage.

This study's findings are also distinct from the prior research by Preko (2020), which findings underscored how the government of Ghana is committed to the promotion of tourism through job creation opportunities, cyber-attack examination, innovation, and using music and festivals to promote tourism in context. In this study, we highlighted the legislative initiatives introduced by

the government of Ghana to safeguard and promote safety e-transactions and the constraints associated with the nexus between technology and tourism in the sector, which have been overlooked in earlier tourism literature in context, our findings suggested that Ghana is on course to developing a robust technological environment, which will position and market the country's T&H sector among other tourism destinations in the world. Admittedly, this research may be fraught with some inherent conceptual limitations that could impact on the generalization of its findings due to the lack of empirical testing of the key variables used in context. Further, studies can also empirically test the impact of these government initiatives on the growth of T&H sector in Ghana.

7.0 IMPLICATIONS AND RECOMMENDATIONS FOR POLICY AND PRACTICE

Our findings have some policy and managerial implications for major stakeholders in the sector. First, stakeholders such as the Ministry of Tourism, Arts and Culture of Ghana, Ghana Tourism Authority, and allied agencies like the Ghana Tourism Federation (GHATOF) need to develop innovative and supportive policies that can support and promote technological innovation in Ghana's tourism and hospitality sector. These state agencies need to encourage local technology adoption across every level of the tourism value chain, including the development of mobile applications for guided tours, market visits, heritage tourism, and other relevant tourist-centred services. Formulating policies that support and promote technology adoption in this sector can be crucial to accelerating the degree of technological adoption which enhances tourist experience. This recommendation is predicated on the need to match up with global standards in tourism, which has seen a considerable rise in technology adoption especially over the past decade.

Secondly, the institutions mentioned above including the Bank of Ghana (BoG), Ministry of Information, Ministry of Interior, Judiciary and Fintech institutions need to recognise the unique potential in Ghana's tourism sector that has opened up since the launch of the Year of Return 2019 campaign and the Beyond the Return campaigns. In view of this, we recommend that these institutions engage other stakeholders in the tourism and hospitality sector such as the various unions and their members to deliberate on service touchpoints and areas that require additional support in policy implementation in facilitating technology adoption in the sector, and also combating technology-associated crimes and frauds. This collaborative engagement will ensure stakeholder salience which is vital in the mission to safeguard the image of Ghana as a digitally innovative and technologically secure destination among tourism destinations on the globe. dditionally, a strategic approach to technology acceptance (e.g., e-transaction and e-payment) by T&H businesses and institutions should be embraced and promoted by the government of Ghana through the BoG that oversees e-finance in the country. The fintech space is vital to ensure that tourists from various parts of the world are able to access their funds securely to pay for tourism experiences without stress or duress. This is key in enhancing Ghana's image with regards to technological savviness. The Bank of Ghana and its agencies and partners need to develop tourism specific policies that promote digital innovation and seamless payment options for tourists visiting Ghana.

Another important recommendation we offer to the government and other development partners such as WTO, and the International Labour Organization is to offer financial and technological assistance to T&H businesses to facilitate adoption and implementation of digital technology. One of the challenges or obstacles our study identified with regards to technology use and safety in the Ghanaian context is the lack of technical and financial support for stakeholders at the bottom of the pyramid in the tourism and hospitality sector. This is an area where government and tourism partners need to invest in to create an ecosystem that supports technology adoption and capacity building. For example, the taxi system in Ghana could benefit for investments in metered taxis and digital access services so that tourists can easily access local taxis. Such a technology can revolutionize the taxi system in Ghana, and can even be applied to local busses popularly known as "trotros". In relation to this, we also propose that government makes financial commitments to

facilitate the affordability of the technologies, as well as encourage the development of locally tailored technology applications for the sector.

We further recommend that the government of Ghana oversee the efficient and effective implementation of legislative instruments that support and promote the data privacy of tourists. Government support and advocacy is vital in ensuring that the required legal instruments are passed to support technological innovation, safety and security. It is also recommended that T&H managers and practitioners invest in technology innovation and orientation for staff. Firstly, managers in the various hospitality institutions need to identify areas of service delivery that can benefit from technology use, especially with regards to booking, confirmation and payment. This is vital in ensuring a seamless purchase and post-purchase experience for tourists and local tourism consumers. Additionally, managers need to invest in staff training and orientation on best practices in managing technology to deliver excellent services to customers. Staff at the front end and back end need to be trained on how to ensure security of tourist data especially during payments. This implies that management and employees of the sector should comply with the BoG's directive, whereby the Ghana Card for Ghanaians and foreign nationals with valid passports are considered as the only acceptable national IDs required for all financial transactions in the country. Implementing these recommendations will boost tourism safety and appeal to tourists.

Essentially, the recommendations we have proffered will aid tourism policy makers and practitioners to stimulate change and transformation within the tourism space with regards to technology and security in mobile and other digital service systems in the tourism sector. Our findings will therefore help in the management of tourism safety in Ghana and the development of a technologically innovative, robust and secure tourism industry.

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COVID-19 PANDEMIC AND CYBERCRIME: INSIGHTS FROM PRACTITIONERS

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ABSTRACT

The scare of the COVID-19 pandemic in the early stages and subsequent lockdowns by countries worldwide caused many business organisations to shut down their operations. To mitigate the effects of the ensuing socioeconomic hardships, businesses resorted to work-from-home and online digital interactions. However, as economic activities migrated online, criminals followed suit. This study employs qualitative research methodology and the combined theories of rational choice and general deterrence to explore the relationship between online activities during COVID-19 and cybercrime. The findings from this study show that COVID-19 norms increased and deepened the social circumstances that cybercriminals exploit to engage in their nefarious acts. These circumstances include stay-at-home, charity, global attention, known authorities, urgency, system vulnerabilities, lack of cybersecurity awareness training, and lack of qualified cybersecurity professionals. The study has implications for cybersecurity practices for business organisations and research.

KEY WORDS: COVID-19, cybercrime, cybersecurity, qualitative study

1. INTRODUCTION

The onset of the COVID-19 pandemic and the subsequent lockdowns by many countries to curb the spread of the virus forced businesses to work from home, aided by digital technologies. However, as business activities migrated online, criminals joined, creating a surge in cybercrime (Savić, 2020). Cybercrime refers to illegal computer-mediated activities that often occur through a network of computers (Srivastava et al., 2020), typically the internet. Recent reports in cybercrime indicate growth in severity, with the prediction of loss of $6 trillion by end of 2021, an increase of $3 trillion from 2015 (Herjavic Group, 2020). Yet a recent survey revealed that only 30% of business organisations surveyed have clearly defined cybersecurity policies (Srivastava et al., 2020). There is, therefore, the need for researchers and businesses to give more attention to cybercrime, especially under COVID-19 conditions, with evidence showing that cybercrime threats have increased five-folds (Williams et al., 2020).

This study, therefore, seeks to explore the relationship between online activities during COVID-19 and cybercrime from practitioner perspectives to inform cybersecurity policies and practices. The study is motivated by the objective of raising awareness about cybercrime to help reduce its adverse impact on businesses and society in general. Accordingly, this research engaged three experts in the fields of cybercrime and cybersecurity through a webinar to gain insights into the phenomenon. Insights gained from the experts were then analysed using theories in criminology.

The research questions guiding this study are:
- How have online activities during COVID-19 pandemic shaped cybercrime within the business environment?
- What cybersecurity measures are being employed to curb the challenges of cyber threats and attacks?

To answer these research questions, the study employed qualitative research methodology (Myers, 2013) and the combined theories of rational choice (Cornish & Clarke, 1987) and general deterrence (Silberman, 1976).

The remaining part of this paper is organised as follows. Section 2 reviews the literature on cybercrime, its relation to COVID-19 as well as theories on cybercrime. Section 3 presents the qualitative research methodology for this study. Section 4 presents the study's findings. Section 5

analyses and discusses the findings, while Section 6 concludes the study with recommendations on cybersecurity at the individual, organisational and government levels. Future research areas and the study's limitations are also presented in the concluding section.

2. LITERATURE REVIEW
2.1 Cybercrime
Cybercrime refers to criminal offences committed on the Internet, such as slander, threat of violence, identity theft, fraud, or sexual harassment (Mikkola et al., 2020). The upsurge in cybercrime in recent times, and the loss of many businesses and investments, can be attributed to increase in internet traffic (Wiggen, 2020). With the increasing use of digital technologies, many socio-economic activities and, inappropriately, crime have shifted online (Hiscox, 2021; Srivastava et al., 2020). Analysis and research show that cybercrime is here to stay due to its lucrative and low-risk level (McGuire, 2018). Research indicates that cybercrime causes financial losses in the billions of dollars annually on a global scale, affecting millions of individuals as victims (Mikkola et al., 2020). Factors that create opportunities for cybercriminals include panic, distraction, time constraints, work pressure, situational changes, medical and home-based e-work (Kshetri, 2019; Nurse, 2018). These factors cause people to be susceptible to deception because of uncertainties, anxieties, and pressure, which lead to mistakes.

Cybersecurity is defined as "technologies and processes used to protect computers, hardware, technology devices, software, networks, and data from unauthorised access and vulnerabilities" (Neo et al., 2021, p. 55). Information system resources include data, networks, servers, and end-user computer systems. Cybersecurity policies include raising user awareness of scams (Naidoo, 2020), updating passwords and security software, using firewalls, backing up systems and data, and using surge protectors. Other policy measures include maintaining access controls, implementing redundant systems, and using system activity and intrusion detection monitors (Workman et al., 2009). Cybersecurity technologies include firewalls, intrusion detection systems, anti-viruses, anti-spam, and anti-spyware malware (Naidoo, 2020; Srivastava et al., 2020). The changing nature of cybercrimes poses challenges to cybersecurity (Srivastava et al., 2020; Workman et al., 2009). Therefore, cybersecurity policies and technologies require regular updates in step with changing trends.

2.2. COVID-19 and Cybercrime
The COVID-19 pandemic brought about enormous disruptions around the world, with new realities ("new normal") such as working from home and a reduction in social interactions and physical activities (NHS UK, 2020). The increase in digital interactions over the internet due to COVID-19 norms has resulted in significant increase in scams and malware attacks (Gallagher & Brandt, 2020), with phishing claimed to have surged by 600% in March 2020 (Shi, 2020). To boost their chances of succeeding, cybercriminals target high-demand commodities, such as personal protective equipment (PPE), coronavirus testing kits and medications, potentially lucrative investments in COVID-19 related stocks, and impersonations of companies' representatives. Brute force attacks on Microsoft Remote Desktop Protocol (RDP) systems have also increased (Galov, 2020), indicating that attacks are also on technology. It is evident that cybercriminals are taking advantage of the pandemic's disruption within the business environment.

3. 3 Cybercrime Theories
Various theories have been advanced to understand general crime in the social context. Since the motives behind cybercrime are similar to general crime, these theories can be applied to cybercrime, though its context is unique (Srivastava et al., 2020). The frequently used theories of general crime are rational choice theory (RCT) and general deterrence theory (GDT).

RCT posits that an individual will act based on the associated opportunities, costs, and benefits (Cornish & Clarke, 1987). If the benefits are seen to be more than the cost, then the individual will

act. Applying rational choice theory to cybercrime suggests that cybercriminals are likely to exploit a surge in online activity because they perceive it as a convenient and low-cost opportunity for defrauding their targets. GDT, on the other hand, considers deterrence as the discouragement of criminal activity by the threat of punishment, whether implicit or explicit (Silberman, 1976). When applying GDT to cybercrime, the underlying idea is that cybercriminals attack their targets because they believe that the chances of being apprehended and facing consequences are extremely slim. Srivastava (2020) applied RCT and GDT to explain factors that affect cybercrime by testing the influence of three broad category factors, namely economic capital, technological capital, and cybersecurity preparedness. In this study, we use the two theories as sensitising devices (Klein & Myers, 1999), that is, not to test but to understand the relationship between online activities during COVID-19 and cybercrime. In the case of GDT, the assumption is that cybercriminals will attack their targets, knowing that the possibility of being caught and punished is negligible.

3. METHODOLOGY

This study draws on qualitative research approach (Myers, 2013) to gain in-depth understanding of the phenomenon from the perspectives of experts in the field. Following purposive sampling (Patton, 2005) and focus group data collection method (Eigner et al., 2017) three cybersecurity and cyberforensic experts were invited as the panellists on a webinar organised by the authors' university on 17th March 2021. The purpose of the webinar was to raise awareness on the relationship between COVID-19 pandemic and cybercrime and how governments, business organisations and the industry are responding to the increased cybercrime threats as a result of COVID-19 norms.

The three panellists were purposively selected to represent three perspectives on the subject, namely, industry, government, and corporate organisation. The profile of each panellist is shown in Table 1.

Table 1 – Brief Profile of Panellists

Panellists	Brief Profile
Panellist 1	• A PhD holder and 20+ years of professional experience • chief operating officer of an international cybersecurity company and founder of a training academy in cybersecurity in the United States of America (USA). • Cybersecurity professional qualifications include CISSP, Security+, Cybersecurity Analyst (CySA+), Pentest+, AWS Cloud Practitioner, Security Analytics Professional (CSAP), Security Network Professional (CNSP), Network Vulnerability Assessment (NVA). • Cybersecurity consultant • A skilled ethical hacker
Panellist 2	• A PhD holder and 20+ years of professional experience • A cybersecurity advisor at the national level and playing a key role at the national cyber security centre in Ghana • Founder of a digital forensics company that operates in West Africa • Cybersecurity consultant who has consulted with international and local organisations, including Interpol, UN, European Commission, and Commonwealth
Panellist 3	• 20+ years of professional experience and a MSc holder • A chief technology security officer at a multinational telecommunications company in Ghana • Consultant in information systems security audits and assurance, and digital forensic investigation

The panellists responded to questions on the subject asked by the webinar's moderator, who was one of the authors of this study. The following questions were posed to the panellists:

1. Can you share your perspectives on cybercrime concerning the methods, technologies that these criminals employ, what they do, and the effects?
2. Would you say there has been an increase in cybercrime across the world as a result of an increase in online transactions due to the social distance requirement of COVID-19? Please share any evidence you have concerning the surge in cybercrime
3. What policies, strategies, and technologies are available to combat the threat of cybercrime at the individual, organisation, and country levels?

Further questions were also asked of the panellists by the webinar participants. The responses by the panellists were recorded as part of the webinar's proceedings. The recordings were then transcribed.

Data analysis was data- and theory-driven. The data-driven analysis involved reading transcribed material several times to identify themes (Braun & Clarke, 2006). The theory-driven analysis involved using the principles and concepts of RCT and GDT theories (see Section 3.3) to analyse the relationship between online activitites (induced by COVID-19) and cybercrime. With RCT, it is anticipated that cybercriminals will find it easy and less costly to take advantage of the increase in online activity to defraud their victims. In the case of GDT, the assumption is that cybercriminals will attack their targets, knowing that the possibility of being caught and punished is negligible.

4. FINDINGS

In this section, we present the panellists' insights on the phenomena of cybercrime and cybersecurity, arising from COVID-19 pandemic. The panellists' responses have been organised into three sections: 1) cybercrime, methods, and technologies; 2) COVID-19 induced cybercrime and effects; 3) cybersecurity under COVID-19.

4.1 Cybercrime, Methods, and Technologies

The panellists were asked to share their perspectives on what constitutes cybercrime, the methods and technologies used by criminals to attack their victims. In their responses, the panellists explained the key concepts, namely ***cybercrime, social engineering,*** and ***phishing***.

Cybercrime is crime that involves use of computers, phones, and electronic devices. Cybercriminals employ *social engineering,* which is the exploitation of social circumstances to psychologically manipulate people into performing actions or disclosing confidential information. Social engineering is the most used method of cybercrime.

> Social engineering is a very popular, common, and effective cybercrime method used by cybercriminals. Phishing is a common form of social engineering. (panellist 1)

Phishing is the practice of using unsolicited communications such as email, short message service (SMS) or phone to scam a person into doing something he or she will not do. A cybercriminal scams people by using "fake identities based on email addresses, domain and websites that mirror recognised entities such as governments, international bodies and organisations" (panellist 1). Typically, the target is enticed to click on links or download attachments sent through email.

The panellists described phishing types, indicating that they predate Covid-19.).
The phishing types reflect the different channels cybercriminals use to send unsolicited content and the target groups. The phishing types are
- email phishing (use of electronic mail),
- smishing (use of short message service),
- vishing (use of voice/phone),

- spear-phishing (targeting a specific group), and
- whaling (targeting CEOs /top management).

For instance, smishing is sending unsolicited SMS messages. Vishing is by voice, currently used by most mobile money scammers. The phishing types indicate that a cyber target can be an individual, organisation and even a country. In emphasising that no one is immune to phishing attacks, one panellist cited a recent attack on the United States government.

> …the United States government was hacked almost about 2 months ago. And these attackers were in their systems almost 6 months before they were detected.

4.2 COVID-19 and cybercrime
Panellists were asked to speak on the effect of COVID-19 norms on cybercrime and provide evidence of any increase in cybercrime. Panellists noted that COVID-19 is unique because many countries were under lockdown and social distancing rules required many to stay home.

> During the early stages of COVID-19, there was confusion and fear due to lack of information about the virus. The lockdown, social distancing, and ban on social gatherings created a lot of idle time for everyone. So, governments, businesses, churches, and schools moved their activities online. Guess who also moved online? Criminals! The more virtual you go, the more cyber risks there are (panellist 1).

Thus, the COVID-19 norms of social and physical distancing provided many social circumstances that cybercriminals exploited. The panellists enumerated some of the social circumstances that COVID-19 created for scammers. These circumstances are interrelated and include stay-at-home, personal gain, charity, global attention, known authorities, urgency, system vulnerabilities, lack of cybersecurity awareness training, and lack of qualified cybersecurity professionals.

The COVID-19 *stay-at-home* directive by governments created more cyber targets as many individuals and organisations moved online for social and economic reasons. *Personal gain* is when a victim is enticed with a financial reward. *Charity* is where the scammer appeals to the target's generosity in combating disasters. COVID-19 provided many such opportunities because of the global attention in fighting the virus. As a result, cybercriminals impersonate *known authorities* (or organisations) such as the UN and WHO to scam their victims. They leverage on *urgency*, that is, fear of a situation, to demand urgency from their targets. They also identify vulnerable targets; these include unsecured organisational networks (e.g., those without robust firewalls and authentication systems) and persons who lack cybersecurity awareness training. Also, the general lack of qualified cybersecurity professionals throughout the world is an indication of an exposed world to cyber-attacks. According to panellist 1, there were about 3.1 million unfilled cybersecurity jobs around the world, projected to reach 3.5 million by the end of 2021.

All panellists noted that COVID-19 has provided much space for cybercriminals to operate. With COVID-19, many of the phishing types (i.e., channels) were being exploited – that is, email, phone, SMS and social media. According to panellist 1, the latest threats that came with COVID-19 were: malicious domains, i.e., registered domains on the internet that contain the terms "coronavirus", "corona-virus", "covid19" and "covid-19"; online scams and phishing, data-harvesting malware, disruptive malware (ransomware and DDoS) and vulnerability of working from home.

Concerning the impact of cybercrime during COVID-19, panellists shared their experiences. According to panellist 2, reports received at the national cybersecurity centre revealed all kinds of crime including identity fraud, recruitment fraud, blackmail, and sexual offence:

> There has been increase in use of social media in view of COVID-19, we have a lot of fraudsters engaging on that platform. A lot of people have been scammed. Recruitment fraud is one of the major reported cases of COVID-19 related phishing attacks. There have also been incidence reports of sexual offences in terms of nude pictures being taken and posted on social media and other platforms, people making contacts on WhatsApp they don't know. Sexual offences are the second most reported cases in the centre.

At the organisational level, panellist 3 shared his experience in the corporate world:

> Within the first two months when everybody had to work from home we saw 100%-fold increase in phishing attacks, scamming alerts on the network …… so a lot of people used covid as the agenda to get into people's network, and their personal lives.". That's why we saw a lot of phishing attacks related to covid.

Citing some online reports, panellist 1 gave a global view of the impact of COVID-19 on cybercrime which showed an upsurge in cybercrime:

1. Interpol (2020) January to April, 2020: some 907,000 spam messages, 737 incidents related to malware and 48,000 malicious URLs all related to COVID-19 were detected.
2. FBI (2021): Internet Crime Complaint Centre (IC3) of the FBI recorded a 300% increase in the daily reported cases of cybercrime since the onset of the COVID-19 pandemic, surging from the pre-COVID-19 daily reports of about 1000 to between 3000 and 4000 during the pandemic (Federal Bureau of Investigation (FBI), 2020)
3. Tidy (2020): A BBC online news report that according to Google scammers are sending 18 million hoax emails about COVID-19 to Gmail users every day. In addition, Google was blocking 100 million phishing emails daily.
4. KPMG Ghana (2021): Organised crime mounted large scale campaigns to defraud banking customers, preying on fear and anxiety related to Covid-19.

Panellists concluded that cybercrime would continue to evolve to take advantage of online and social behaviour and trends.

4. 3 Cybersecurity under COVID-19
The panellists were asked to discuss policies, strategies, and technologies used to combat the threat of cybercrime at the individual, organisation, and country levels. One panellist defined cybersecurity as the practice of protecting digital assets from criminals or unauthorised use.

Panellists agreed that cybersecurity, whether at the organisational or national level, starts with the individual. "If individuals can avoid being scammed, then cybercrime could be stopped" (panellist 3)". Cybersecurity measures were identified as largely behavioural. At the individual level, panellists stressed vigilance as the key to stopping cybercrime. Vigilance implies the state of being suspicious of electronic communications. A vigilant person will not:
1) click links of unknown source;
2) entertain unsolicited email, phone call, SMS and social media post;
3) call the official source or known person to verify a communication;
4) keep his or her personal data safe by not sharing password and backing up important files;
5) perform software updates to keep his or her device with the latest version of software.

Panellist 1 stated that individuals and organisations can avoid being scammed by systematically addressing the social circumstances mentioned above that criminals exploit as opportunities under COVID-19. For instance, to deal with lack of cybersecurity awareness training, panellist 1 advised

that organisations should organise periodic cybersecurity awareness training for employees. Panellist 3 emphasised cybersecurity awareness programme and equipping employees with secured mobile computing systems at the organisational level.

> A robust security awareness programme can stop a lot of phishing attacks. Because the more people are aware, the more they stop clicking on these things... So awareness reduce your threat levels.

> … equipping staff with a corporate laptop that is well secured using VPN connectivity. With that there is no way you can get into our environment…also blocking all the ports on the laptop so you cannot use a flash drive…. You get to use a specially encrypted flash drives which we whitelist for you if you need to use it.

Panellist 2 stressed that cybersecurity should be seen as an ecosystem where intra- and inter-cooperation is needed. "A chain is as strong as its weakest link", panellist 2 remarked. Accordingly, panellist 2 described happenings at the national level in Ghana. He explained that cybersecurity at the national level is essentially about enabling interventions at all levels of society. He described the national cybersecurity interventions in five thematic areas: 1) legal and policy, 2) technical, 3) organisational, 4) capacity building and 5) international cooperation.

At the legal and policy level, Ghana enacted a cybersecurity ACT in December, 2020 (Cybersecurity Act 2020 (Act 1038)). The national cybersecurity policy and strategy have also been revised. The ACT establishes the Cyber Security Authority, protects the critical information infrastructure of the country, regulates cybersecurity activities, provides for the protection of children on the internet and develops Ghana's cybersecurity ecosystem. The technical component of the ACT involves protection of critical national information infrastructure, establishing national cybersecurity centre and incident reporting points of contact across the country. The organisational aspect involves bringing together players within the cybersecurity ecosystem of the country to identify and implement cybersecurity initiatives. Capacity building concerns training programs for public sector workers. Finally, international cooperation affords cooperation through conventions such as the African Union Convention on Cyber Security, Personal Data Protection (Malabo Convention), Convention on Cybercrime (Budapest Convention) and countries' judicial authorities.

5. Analysis and Discussion
This section uses the theories of RCT and GDT to analyse the practitioners' perspectives on the relationship between COVID-19 pandemic, cybercrime, and cybersecurity presented in Section 4. Following the analysis, we discuss the findings in relation to the research questions.

RCT suggests that people commit crime when there are opportunities to do so, and the benefits can be gained with little effort or least cost. From the panellists' submissions and literature, during the COVID-19 era, cybercrime shot up. By RCT logic, COVID-19 norms presented many opportunities which were easy to exploit by cybercriminals. The RCT logic is supported by the study's findings, which show that the COVID-19 era offered several social circumstances as opportunities for cybercriminals. For instance, the stay-at-home directive by governments and the new normal of digital interactions (as opposed to physical interactions) increased internet traffic (Gallagher & Brandt, 2020). Thus, COVID-19 was a catalyst for internet traffic growth, creating more cybercrime opportunities (Williams et al., 2020).

GDT posits that threat of punishment, directly or indirectly, is a disincentive to committing crime. The study's findings show that in the COVID-19 era, the threat of punishment or the possibility of being caught is minimal or nonexistent. The possibility of being caught is low because scammers use fake identities or impersonation, as the study's findings show. The use of fake identities and impersonation is not exclusive to the COVID-19 era. However, the many phishing channels and

increase in traffic during the pandemic are factors that the criminal mind will consider worthwhile. Moreover, punishment of cybercriminals is uncommon. The low-risk level and lucrative nature of cybercrime (McGuire, 2018) should therefore be of great concern to business organisations.

From the foregoing, it is evident that COVID-19 pandemic restrictions presented cybercrime opportunities as many businesses and individuals were forced to engage in online activities. While working from home is not unique to the COVID-19 era, online activities shot up significantly under the pandemic. Some estimates on internet service usage indicate increase from 40 to 100% (De' et al., 2020). It is said that criminals go where people are congregated. Again, with lack of cybersecurity awareness training, COVID-19 increased the population of people who lacked awareness of cybercrime, as evidenced by the study's findings.

With respect to cybersecurity, the study's findings show that the measures are mainly policy, strategy, and behavioural-based at the individual, organisational and national levels. Vigilance at the individual level has been stressed, while at the organisational level, awareness training programmes. At the national level, enabling policy interventions at all levels have been advocated. From the RCT perspective, cybersecurity measures decrease vulnerabilities technically and socially and therefore make the channels of cyber-attacks less effective. As one of the panellists stressed, individual vigilance, such as not clicking links from unknown sources, can stop criminals. From the GDT perspective, cybersecurity measures can be used to increase the possibility of catching criminals as pertains to cyber forensics and biometric systems – these are areas worth exploring within the context of COVID-19.

6. Conclusion.
This study explored the relationship between online activities during COVID-19 and cybercrime from practitioner perspective. The key finding of the study is that the significant increase in cybercrimes under COVID-19 era is the result of the substantial increase in digital interactions, leading to increase in crime opportunities at the individual and organisation levels. Under COVID-19 era, the cybercrime opportunities identified in the study as social circumstances that cybercriminals exploit, include stay-at-home, charity, global attention, known authorities, urgency, network vulnerabilities, lack of cybersecurity awareness training, and lack of qualified cybersecurity professionals. These opportunities are themselves the basis for strengthening cybersecurity policies and systems.

This study's practitioner's perspective has also emphasised the interrelatedness of cybercrime and cybersecurity at the individual, organisation, and national levels. With increase in internet traffic under COVID-19 norms, vigilance, awareness and enabling interventions at the individual, organisation, and national levels, respectively, have been emphasised by the practitioners. For business organisations, the implication is that cybersecurity policies should be exhaustive in covering these levels.

6. 1 Summary of Recommendations:
From the analysis of the findings, the paper makes the following recommendations:

Individuals: Should exercise vigilance in all forms of electronic communications. Individuals are admonished to be careful of personal information put out on social media, as attackers can use such information to impersonate and profile them for future cyber-attacks
Businesses/ Organisations: Establish a programme of awareness and sensitisation on cybercrime and cybersecurity periodically throughout the year; continually monitor and review system security. Organisations should invest heavily in cybersecurity training of employees and upgrade their infrastructure to prevent security breaches onsite and from remote connections.

Government: Should sustain the enabling interventions and work with the private sector to establish a robust cybersecurity ecosystem. Governments should enact/review laws on cybercrime and cybersecurity, promote public awareness and education, and, together with private entities institutionalise comprehensive cybersecurity training and education to produce qualified cybersecurity professionals as well as maintain a well-resourced National Cybersecurity Centre.

6. 2 Implications for Research

For research, this study serves as one response to the call to information systems scholars to bridge the gap between practice and research (Taylor et al., 2012). This study provides insights into cybercrime and cybersecurity under COVID-19 norms from practitioner perspective and a theoretical basis using RCT and GDT to understand the phenomenon. For subsequent studies, researchers can consider building on the combined theories of RCT and GDT to develop a framework for understanding disasters, cybercrime, and cybersecurity. Another area worth exploring is the use of cyber forensics and biometric systems to combat cybercrime within the context of COVID-19.

6.3 Limitation of study

The study findings are limited by the three panellists' perspectives on the relationship between COVID-19 pandemic, cybercrime, and cybersecurity. However, the theoretical understanding of the relationship can be generalised.

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PROJECT MANAGEMENT COMPETENCIES: A LITERATURE-BASED ANALYSIS

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ABSTRACT

A concept that is deemed a critical factor in determining either the success or failure of projects is project management competency. However, examining project management literature reveals that limited reviews of the concept have been conducted based on systematic literature review (SLR) methodology. This study presents a more encompassing SLR on project management competencies. Thus, broadening the scope of the inquiry, specifically, the study was aimed at identifying the various dimensions and positions of project management competencies in literature and also to find from the reviewed literature the prevalent or most occurring project management competencies constituting the core competencies required by project managers, based on a review and synthesis of 50 research studies. The study suggests that project management competencies can be categorized as soft or hard. Prevalent soft competencies identified are people/behavioural, communication, team, and leadership competencies required to manage conflict and project stakeholders, both internal and external. In contrast, hard competencies describe the project management (PM) body of knowledge and knowledge in the subject area that the project manager must know to help deliver projects, as well as computing skills and problem-solving abilities. With the above soft and hard competencies, project managers can deliver projects successfully on time, within budget, and according to specifications. Future research can veer into a quantitative enquiry into the relationship between the competencies above and project success in a specified industry.

KEYWORDS: Project management, Project management competencies, Systematic review, Soft skills, Hard Skills

1.0 INTRODUCTION

It is essential in the business market for organizations to be successful in their projects. According to Crawford (2000), a competent project manager is one of the critical factors determining the success of projects in organizations. This indicates that for project managers to ensure the success of projects carried out by organizations, they need to be equipped with specific skills and competencies reminiscent of the professionals in other disciplines, such as engineering or medicine. However, project management has yet to be widely acknowledged as a discipline despite the existence of project management associations since the late 1960s (Morris, 2003, p. 1). Despite project management tools and techniques gaining recognition and project management organizations growing to be characterized in the likeness of other professional bodies such as in other fields, the acceptance of project management as a discipline and, consequently, its impact on project-based sectors of business and economy are limited at best (Morris, 2003). This may be due to several reasons. There needs to be more research that seeks to investigate project management as a discipline. Also, there needs to be more clarity about using the term 'discipline' and how project management falls under the term. Again, industries and research bodies fail to regard project management as a discipline akin to others, as essential to performance and success in business (Morris, 2003). Morris (2003) summarizes it by claiming that, too often, project management "is seen merely as, at best, project execution or, at worst, planning and scheduling" (p. 1). Nevertheless, according to Kwak (2005), before and during the turn of the 1900s, projects were generally managed by creative minds from disciplines such as architecture and engineering until the 1950s when organizations started to methodically apply project management procedures and practices to large-scale, multifaceted engineering projects – similar to practices in other fields accepted as

disciplines. This shows that the recognition of project management as a field of discipline cannot be dismissed. Morris (1987, as cited in Kwak, 2005) added that project management practices and techniques were recognized as a separate discipline around 1980 by the management of the Atlas missile program, which was modelled on the Polaris project (Mindell, 2011). As a field of discipline, project management must be carried out by practitioners with clearly defined skills and competencies.

The competencies of a project manager are all of the experiences, knowledge, understanding, skills, and abilities that the manager brings to a project (Project Management Forum, 2019, p. 2). Going back, project management was implemented as a technical project without specialized methods or skills. This has changed, with companies increasingly requiring exceptionally skilled project managers with a mix of competencies who can plan, structure, and move projects through the various life cycle phases of initiation, planning, execution, monitoring and control, deployment, closure, and finally, post-project review (Project Management Forum, 2019). Several research studies support this new assertion that project managers need a set of competencies to be effective and contribute to project success or directly impact the success of projects (McClelland, 1973; Alvarenga et al., 2019). However, the numerous studies on competencies have resulted in an "ever-growing list of competencies" (Alvarenga et al., 2019, p. 278) such that project managers are expected to possess an unreasonably wide range of competencies (Napier et al., 2009) with new ones being added regularly. The variety of competencies required by modern project managers has become increasingly extensive to the point that the competencies deemed core to the success of projects are difficult to pinpoint (Alvarenga et al., 2019).

This work is premised on employee competence and performance theories, which seek to say in explicit terms that competent employees can perform efficiently and effectively. These competencies are wide-ranging, and depending on the type of discipline, the employee would need some specific forms of competencies (Elbaz et al., 2018; Kamukama et al., 2017; Mandourah et al., 2017; Otoo, 2019; Otoo & Mishra, 2018; Potnuru & Sahoo, 2016; Scapolan et al., 2017; Zacca & Dayan, 2018; Zaim et al., 2013; Gabriela, 2014; Salman et al., 2020) which are tackled in detail in the literature section. Based on the theories that competent employees can perform efficiently and effectively, employees with the requisite and appropriate project management competencies, as would be unravelled later in this work, could perform the project management job efficiently and effectively in organizations.

1.1 PROBLEM STATEMENT

Project management has been assumed to be a simple technical execution of projects for some time. However, implementing unique practices and techniques has established project management as a discipline for about half a century (McClelland, 1973; Morris, 2003; Alvarenga et al., 2019). Recently, companies have found themselves with people who are working as project managers who have yet to gain prior specialized training or the requisite skill set. The resulting non-performance of these managers may be a deciding factor in the overall success of most projects (McClelland, 1973). Again, existing literature tends to focus on the ever-growing list of competencies required of a project manager to the point that the competencies that are deemed to be core to the success of projects are difficult to pinpoint (McClelland, 1973; Morris, 2003; Alvarenga et al., 2019). It is, therefore, imperative that the core competencies necessary for project managers to ensure the success of projects are revealed through a critical analysis of the literature on project manager competencies. This is imperative, considering that a project manager, for instance, has to be equipped with finance or costing skills to deliver projects successfully by staying within budget, especially in this era of economic crises.

1.2 Research Objectives

The main aim of this study is to contribute to the general body of knowledge and research work in project management competencies that are critical in economic crises. Specifically, the study aims to:

1. Identify the various dimensions and positions of project management competencies in literature.
2. Find from the reviewed literature the prevalent or most occurring project management competencies constituting the core competencies, especially in eras of economic crises

2.0 METHOD

In conducting this systematic review, we adopted Bendermacher, Egbrink, Wolfhagen, and Dolman's (2017) methodological approach to (i) develop a search strategy for using several databases, (ii) define exclusion and inclusion criteria for publications – assess for eligibility, (iii) define review and coding scheme, (iv) analyze and synthesize data and (v) develop write-up. This ensures transparency and rigour regarding the publication selection and analysis process. The database search was delimited to keywords, abstract, and title. Given the literature volume, this strategy was adopted to reduce the number of publications to review while enhancing the precision of the information search (Savolainen, 2016). The goal was to identify relevant publications that explicitly discussed the concept of project management competencies as a central thesis (Syed & Collins-Thompson, 2017).

2.1 Data Collection: Selection of Databases

The researchers used only secondary data, which refers to data already collected for other purposes (Allen, 2017, p. 1). Secondary data is helpful for this study's purpose of analyzing the literature on project management competencies and skill sets as well as project management success factors. To identify publications relevant to the concept being investigated, twelve (12) databases were explored. These include Springer, Association Information System (AIS) library, SAGE Journals, Scopus, IEEE Xplore, Association of Computing Machinery (ACM), Google Scholar, ResearchGate, Academia.edu, Emerald (database), Elsevier (database), and Pro-quest. The above databases were chosen due to the relevance and currency of papers in the project management discipline, especially those on project management competencies. The key search terms or keywords used were project management skills, project management competencies, skills of project managers, and contemporary skills of project managers.

2.2 Criteria for Inclusion and Exclusion of Publications

The number of research publications to be reviewed was reduced by specifying the criteria for inclusion and exclusion. The inclusion criteria were that the publications should be conference papers and articles (conceptual and empirical studies) in peer-reviewed journals written in English. Furthermore, publications such as book chapters, reports, policy documents, newspapers, and magazine reviews were excluded from our sample. As much as the authors tried to restrict the publications to the last 20 years, earlier publications containing vital definitions, concepts, and relevant information relating to the subject matter were included. The pre-selection strategy was adopted to ensure that the systematic literature review process included relevant publications that contributed substantially to the phenomenon under investigation. Also, we examined each article's abstracts, keywords, introduction, and conclusion to reduce selection errors.

2.3 Eligibility assessment

The eligibility assessment involved manually screening each publication to enhance the rigour, accuracy, and reliability of the publication selection process.

2.4 Sample size

A total of 1157 publications were retrieved from the database search, of which 340 were selected based on analysis of titles. A total of 152 publications were deemed irrelevant after analyzing the abstracts of the publications. Also, 65 articles were removed due to duplication, leaving 123

publications. Furthermore, 35 articles were excluded based on the criteria for inclusion and exclusion because they needed to match the research aim. Then, 38 publications were taken out after analyzing the text of the complete publications because the central focus of such publications was not on the concept of project management competencies, leaving a total of 50 (36 empirical studies and 14 conceptual papers) sample size for detailed review and synthesis. It is worth noting that even though the authors worked with 50 articles, not all of them were useful in the analysis.

3.0 RESULTS AND DISCUSSIONS

The literature presents a myriad of competencies required for a project manager to have and exhibit for the successful completion of the project. The project manager is the project's chief executive officer, and as such, the project's success largely depends on the skills he or she brings to bear on the project. The general practice is that the first person to blame is the project manager whenever there is a significant problem with a project, be it delays or any other cause. Therefore, entrepreneurs and job owners need to know the key competencies of project managers to help them recruit the best of them. Competence is a combined set of an individual's knowledge, abilities, and personal characteristics used to perform a specific task or activity (Crawford, 2005; Müller & Turner, 2010).

As cited by Araújo and Pedron (2015), competence is defined as a combined set of an individual's knowledge, abilities, and personal characteristics used to perform a specific task or activity (Caupin et al., 2006; Crawford, 2005; Müller & Turner, 2010). From the quarter of the Project Management Institute, Competence is

> "A cluster of related knowledge, attitudes, skills, and other personal characteristics that affects a major part of one's job correlates with performance on the job, can be measured against well-accepted standards, and can be improved using training and development" (Project Management Institute, 2007, p. 73).

The literature presents several categorizations for competencies. Some of them are discussed below:

i. **Person-Related Competencies**: Woodruffe (1991) defined this competency as a dimension of behaviour. Roberts (1997) defined it as input-based criteria, which means personal behaviour, traits, and characteristics that a person brings to projects.

ii. **Job-Related Competencies:** Roberts (1997) defined this competency as a performance standard expected to be achieved. This type of competency has a direct practical influence on the job, leading to the achievement of the stipulated goal of the project.

iii. **Contextual Competencies**: In research by Crawford (2005), results showed that competencies valued by project management practitioners differed from those valued by senior management. Therefore, contextual competencies should be addressed to have a comprehensive competency standard in which all parties' expectations are fulfilled accordingly.

A core competency is the knowledge, trait, skill, motive, attitude, value, or other personal characteristics important in performing a job. A core competency can be a hard skill, where technical ability is required, or a soft skill, where interpersonal skills are needed. Effective project managers must have hard and soft skills (Alam et al., 2010). Technical ability here does not refer to subject matter experts like the engineering or Information Technology discipline. It is mainly referring to project management as a discipline. While much research agrees, Gillard (2009) determined that soft skills are more important than hard skills. Soft skills encompass a range of competencies but can be considered people skills. This can include interpersonal communication and conflict management, among others. However, hard skills can be seen as the more technical skills. While this traditionally may be thought of solely as technical skills such as programming or deep systems thinking by some, hard skills are essential knowledge of project management processes. The project manager must be trained in project management to qualify as a project manager. In other jurisdictions, the supposed project manager must produce professional

certificates like the PMP, Prince2, and so on to be accepted as a qualified or certified project manager.

The Project Management Body of Knowledge (PMBOK) identifies the **hard skill** competencies of effective project managers, supporting each of the ten knowledge areas, including project scope management, time management, cost management, risk management, procurement management, communications management, quality management, resource management, integration management, and stakeholder management.

Soft skills are also essential attributes of an effective project manager. Numerous soft skills have been found to impact a project manager's effectiveness positively. For example, one study identified six "soft skills" core competencies: leadership, communications, verbal and written skills, attitude, and the ability to deal with ambiguity and change (Stevenson & Starkweather, 2010). In another study, optimism positively affected project outcomes by facilitating better collaboration and problem-solving (Smith et al., 2011).

As far back as 1976, Archibald came out with a list of competencies which, when categorized, will fall into the hard and soft competencies needed by a project manager. Prabhakar (2009), in citing Archibald (1976), said that to be a successful project manager, one should have the following skills and competencies:

i. flexibility and adaptability
ii. preference for significant initiative and leadership
iii. aggressiveness
iv. confidence
v. persuasiveness
vi. verbal fluency
vii. ambition
viii. activity
ix. forcefulness
x. effectiveness as a communicator and integrator
xi. the broad scope of personal interests
xii. poise
xiii. enthusiasm
xiv. imagination
xv. spontaneity
xvi. able to balance technical solutions with time, cost, and human factors
xvii. well-organized and disciplined
xviii. a generalist rather than a specialist
xix. able and willing to devote most of his or her time to planning and controlling
xx. able to identify problems
xxi. willing to make decisions
xxii. able to maintain a proper balance in the use of time

The International Project Management Association (IPMA) Competence Baseline divides project manager competencies into three groups: *technical, behavioural, and contextual* (Caupin et al., 2006).

The technical competencies refer to competencies related to project management itself, for example, project planning and time management. Behavioural competencies have to do with the personal abilities and skills of the project manager, such as leadership, creativity, and commitment, and the contextual competencies range involves the competencies related strictly to the context of a specific project, such as development and programming skills, business knowledge, knowledge of legal issues, and others (Caupin et al., 2006).

We compiled an extensive list of IT project manager competencies relevant to IT project success based on various articles, especially the studies of Keil, Lee, and Deng (2013) and Skulmoski and Hartman (2009). These competencies were grouped into ten categories according to their characteristics and purposes. They are discussed below:

i. Team Management: Includes competencies required to manage and lead team members effectively. Not only should IT project managers lead their teams, but they also need to motivate and empower project team members.

ii. Business domain knowledge: This category encompasses the competencies to work effectively with business partners. A successful IT project manager understands the project's overall context and oversees its impact on the organization.

iii. Communication: Communication involves all the skills necessary to communicate effectively with the team, stakeholders, and all those affected directly or indirectly by the project.

iv. People skills: These skills are used to build and maintain good relationships with the individuals involved in the project. Building good relationships is crucial to avoid political and relational obstacles.

v. Technical: Generally, these skills are related to IT developers. They include knowledge of IT development methodologies, processes, and techniques.

vi. Project management: This category includes competencies necessary to ensure the project is well managed, such as planning and motoring.

vii. Personal characteristics: Personal characteristics help project managers achieve positive results. This category includes innate and nurtured personal features.

viii. Organizational: Organizational competencies include abilities that enable the IT project manager to organize and coordinate the project activities and resources.

ix. Problem-solving: Successful IT project managers can identify, analyze, and solve problems that occur during the project.

x. Professionalism: Professionalism refers to the project manager's values and characteristics that express his/her commitment and integrity.

Katz (1974) is one of the pioneers in investigating practical managerial competency skills. He examined the competent skills which executives exhibit to perform their jobs effectively. He suggested three basic developable skills: (1) technical, (2) human, and (3) conceptual. He defines *technical skill* as the "specialized knowledge, analytical ability within that speciality, and facility in the use of the tools and techniques of the specific discipline" *human skill* as "the ability to work effectively as a group member and to build cooperative effort within the team", and *conceptual skill* as the "ability to see the enterprise as a whole including recognizing how the various functions depend on one another and how changes in one part can affect all the others" (Katz, 1974: pp. 91, 93).

Another study was conducted by El-Sabaa (2001), who explored the skills of the ideal project manager in Egypt. El-Sabaa utilized Katz's (1974) three-skill approach and developed a list of 18 characteristics of effective project managers, which he clustered into three-skill categories, namely:

1. Human Skill: This refers to the skill needed in mobilizing, communicating, coping with situations, delegating authority, political sensitivity, high self-esteem, and enthusiasm.

2. Conceptual and Organizational Skill: This refers to skills needed when planning and organizing, strong goal orientation, ability to see the project as a whole, ability to visualize the project's relationship to the industry and the community, and strong problem orientation.

3. Technical Skill: This has to do with special knowledge in using tools and techniques, project knowledge, understanding methods, processes, procedures, technology required, and skills in using the computer.

Lei and Skitmore (2004) surveyed South East Queensland, Australia, and identified essential skills project managers should possess for the future. The skills identified are:

i. technical skill

   ii.   people skills
   iii.   legal understanding
   iv.   client-related skill
   v.   stakeholder's management skill
   vi.   cost management skill
   vii. computing skill
  viii. risk management skill
   ix.   time management skill
   x.   coaching skill
   xi.   networking skills, and
   xii.   business knowledge.

Kerzner (2009), in his research, also listed ten required competent skills project managers must possess:

   i.   team building
   ii.   leadership
   iii.   conflict resolution
   iv.   technical expertise
   v.   planning
   vi.   organizing
   vii. entrepreneurship
  viii. administration
   ix.   management support and
   x.   resource allocation.

Cech and Chadt (2015) in their research revealed three competencies:

   i.   **Technical competencies:** This umbrella term serves as an instrument to describe the basic features of the project management competencies. That is, Project management success; Interested parties; Project requirements and objectives; Risk and opportunity; Quality; Project organization; Teamwork; Problem resolution; Project structures; Scope and deliverables; Time and project phases; Resources; Cost and finance; Procurement and contract; Changes; Control and reports; Information and documentation; Communication; Startup; Close-out

   ii.   **Behavioural competencies**: This is also a feature of competence that helps as an instrument to describe the basic features concerning personal project management- Leadership, Engagement and motivation, Self-control, Assertiveness, Relaxation, Openness, Creativity, Results orientation, Efficiency, Consultation, Negotiation, Conflict and crisis, Reliability, Values appreciation, Ethics.

   iii.   **Contextual competencies**: Helps as an instrument to describe the features of the project management competencies relating to the project context: Project orientation; Programme orientation; Portfolio orientation; Project, program, and portfolio implementation; Permanent organization; Business; Systems, products, and technology; Personnel management; Health, security, safety, and environment; Finance; Legal.

The Project manager competency development (PMCD) framework utilizes three dimensions of project manager competencies: knowledge, performance, and personal.

   i.   **Knowledge Competence:** As one of the three central competencies required to be a project manager, knowledge competence is essential to the extent that it reflects the project manager's knowledge or body of information (the processes, tools, and techniques for project activities) required to perform the tasks required for the project (Project Management Institute, 2007).

   ii.   **Performance Competence**: Regarding knowledge competence, project manager performance competence can be demonstrated by assessing project-related actions and outcomes. In other words, project managers must apply their knowledge to meet project

outcomes. Within project-based sectors, a growing imperative exists to link project managers' performance with the organization's performance (Gillard & Price, 2005).

iii. **Personal Competence**: Personal competence reflects how the project manager behaves when performing activities. The project manager's competence includes elements of the manager's attitude and personality characteristics. These skills tend to be often described as "soft skills" or "other" attributes from an HRM perspective. However, research suggests that personal aspects are essential in the project manager role (Bierhoff & Müller, 2005; Clarke, 2010a; Gehring, 2007; Malach-Pines et al., 2009; Thal & Bedingfield, 2010)

Leadership is one area of personal competency that has received the most attention (Muller et al., 2012). There is a statistically significant relationship between a project manager's leadership competencies and project success; a project's success depends on the project manager's overall competence.

Silvius and Schipper (2014), in their research on project management competency gaps, came out with the following competencies:

i. **Systems Thinking Competencies:** competence of analyzing and understanding root causes of complex problems and the role technology plays in the constellation

ii. **Anticipatory Competences:** the ability to develop visions and scenarios of possible futures based on an extrapolation of the current situation and expected developments

iii. **Normative Competencies:** The normative competencies of understanding concepts of justice, equity, social-ecological integrity, and ethics are most explicitly visible in the Individual Competence Baseline 3 (ICB 3) competencies

iv. **Strategic Competencies:** Strategic competencies refer to designing and implementing interventions. This ability relates to the core function of projects in organizations.

v. **Interpersonal Competencies:** The interpersonal competencies of sustainability, for example, strong communication skills, negotiation skills, collaboration skills, Teamwork, and diversity facilitation, can, without exception, be recognized in the behavioural competencies of the ICB.

Sutling, Mansor, Widyarto, Lecthmunan, and Arshad (2015), in their work "Understanding of Project Manager Competency in Agile Software Development Project (ASDP)", came out with four main competencies needed to be a project manager to ensure success in the agile space. These are as follows:

A. Skill

1. Communication skill: The project manager is expected to have listening and understanding skills to address individual differences and reduce conflict, strengthening cooperation and build good relationships among team members (Adler, 2012; Deemer & Benefield, 2007; Jo, 2010)

2. Team building skills: The project manager should build a strong bond with other team members, and he or she needs to know how these interactions will contribute to their software development tasks.

3. Problem-solving skills: This refers to the ability of the agile project manager to visualize and solve complex problems by making sensible decisions based on the available information.

B. Knowledge

1. Strategic agility: Strategic agility is essential to pay attention to the strategic direction that leads to the big goal and make decisions accordingly.

2. Planning: The project manager must determine what the project will accomplish, when it will be completed, and how it will be implemented or monitored. The project manager must create the plans and define the goals, objectives, activities, and resources needed.

3. Coaching: Coaching is about Teamwork, motivation, communication skills, and strategies. The project manager's primary role is to train staff and help the team into a cohesive unit, facilitate interaction, optimize skills and build motivation towards a common goal. Hence, the project manager should act in developing and implementing the tactics and strategies in much the same way as sports coaches (Fraser et al., 2003).

C. Personal Attribute

1. Common Sense: As a project manager in ASDP, a project manager must use his common sense in most of the project situation for project success (Lajos, 2013)

2. Good Listener: The project manager in ASDP needs to listen to what the customers need and understand the need to provide feedback on the technical aspects of how this problem might be solved or cannot be solved. Therefore, the relationship between the customer and project manager can be handled in the Planning Game (Doug, 2004)

3. Good Communicator: Project managers in ASDP who have good communication can clearly outline what each team member should be doing.

4. Motivator: The project manager in ASDP must have a high level of self-motivation. Project managers must ensure that their teams produce quality work and that the team members make decisions and promptly complete tasks Reich (2013) and Amiryar (2012).

5. Courageous: The project manager must be courageous to develop confidence in the leadership. A leader with significant challenges and risks in ASDP requires more splendid courage and confidence. Therefore, project managers can build more confidence (Anais, 2012).

D. Behavior

1. Leadership: The different leadership styles are more likely to lead to a successful outcome on different types of projects. Furthermore, the leadership style adopted includes patterns of behaviour such as communication, conflict resolution, criticism, Teamwork, decision-making, and delegation (Trivellas & Drimoussis, 2013).

2. Creative and Innovative: Creativity and innovation will enhance the creativity and innovation of project manager behaviour in agile software development. The project manager must communicate creatively using colours, charts, and pictures to communicate concepts visually (Warner, 2012).

3. Openness: The behaviour of Openness, a project manager involving ideas, collaboration, and communication (Goran, 2013). Communication behaviour is essential to project managers in agile software development projects (Thomas, 2012).

4. Communication: Communication behaviour is an essential tool to a project manager, especially in an agile software development project

5. Result Orientation: A project manager is required to ensure project results satisfy one's stakeholder relevance and to help focus current teams and attention on critical objectives to obtain orientation optimum outcome (Gerrit, 2006).

6. Strategic: Strategic is especially important for knowledge throughout project manager behaviour in ASDP. The strategy is inspiring and guiding team members (Steven, 2013). Strategy is usually essential to cover attention to the strategic direction; this leads towards big goals and making decisions accordingly.

7. Ethics: Ethical behaviour leads to better projects, such as honesty, respect, and fairness (John, 2011; Ben, 2012; Scott, 2013).

Hanif and Tariq (2014) identified Teamwork, communication, leadership, decision-making, and organizational skills as some examples of competencies highly desirable in managers. Some core competencies were problem-solving expertise, context knowledge, leadership, and communication expertise (Brill et al., 2006). Another study identifies communication, decision-making, and the ability to meet objectives as core competencies (Lei & Skitmore, 2004). Technical, managerial, leadership, time management, decision-making, and Teamwork were identified as primary competencies in project managers in Hong Kong (Kwok, 2004).

Mansor, Arshad, Yahya, and Razali (2016) also maintained that a project manager's competency provides resource movement with a realistic transition plan that minimizes business impact. Moreover, the project managers need to keep the people continuously motivated and engaged with team members of the project by using a variety of processes, meetings, and documents. In answering the study's objectives, objective one has been fairly dealt with by the extant literature reviewed on the various dimensions and positions by researchers on project management competencies. In answering objective 2, it is clear from the literature reviewed that almost all the researchers conclude with either hard or soft competencies regardless of the angle taken. The soft competencies most commonly identified are people/human/interpersonal/behavioural, communication, team, and leadership. For the hard competencies, the literature reviewed presented vital areas as the project management body of knowledge (key project management knowledge areas like cost management, schedule management, quality management, risk management, scope management), business domain knowledge, computing skills, and problem-solving competencies. Table 1 below shows the summary of a few relevant publications that were used for the analysis.

INSERT TABLE 1 HERE!

4.0 CONCLUSION

The literature review on project management competencies has revealed that regardless of the researcher's position, dimension, and method, all competencies are hard or soft. Hard competencies relate to the knowledge of the project management discipline and what the project manager knows to help successfully deliver projects. This deals with knowledge of the processes involved in project management. It also concerns the project manager's knowledge of the business or functional area he manages. Knowledge of a related business or functional area may be optional. However, it benefits the project manager and the management activity for completing the project in that space. Another area is computing skills and problem-solving abilities.

Four main competencies for the soft competency category were identified: people/human/interpersonal/behavioural competency, communication competency, team competency, and leadership competency. These competencies are needed primarily to manage conflicts and people in general on the project, both internal and external stakeholders. These competencies are typically looked down upon, but they are the very ones that usually become the pain area in the project space. Projects are planned and executed by human beings, so the effective management of all the people in the project space will go a long way to help in the successful completion of the project.

HARD COMPETENCY defines the WHAT? What does the project manager know about the PM discipline he brings on board? SOFT COMPETENCY defines the HOW? How will the project manager manage direct and indirect stakeholders, manage and lead the project team, and manage issues, including conflicts, communication, and interpersonal problems? In other words, WHAT a project manager knows about PM discipline alone cannot guarantee him success; it has to be complemented by HOW he manages, leads, and works with people in a team, and so on, to ensure success. The converse is also true. Future research can veer into a quantitative enquiry into the relationship between the competencies identified in this research and project success in a specified industry.
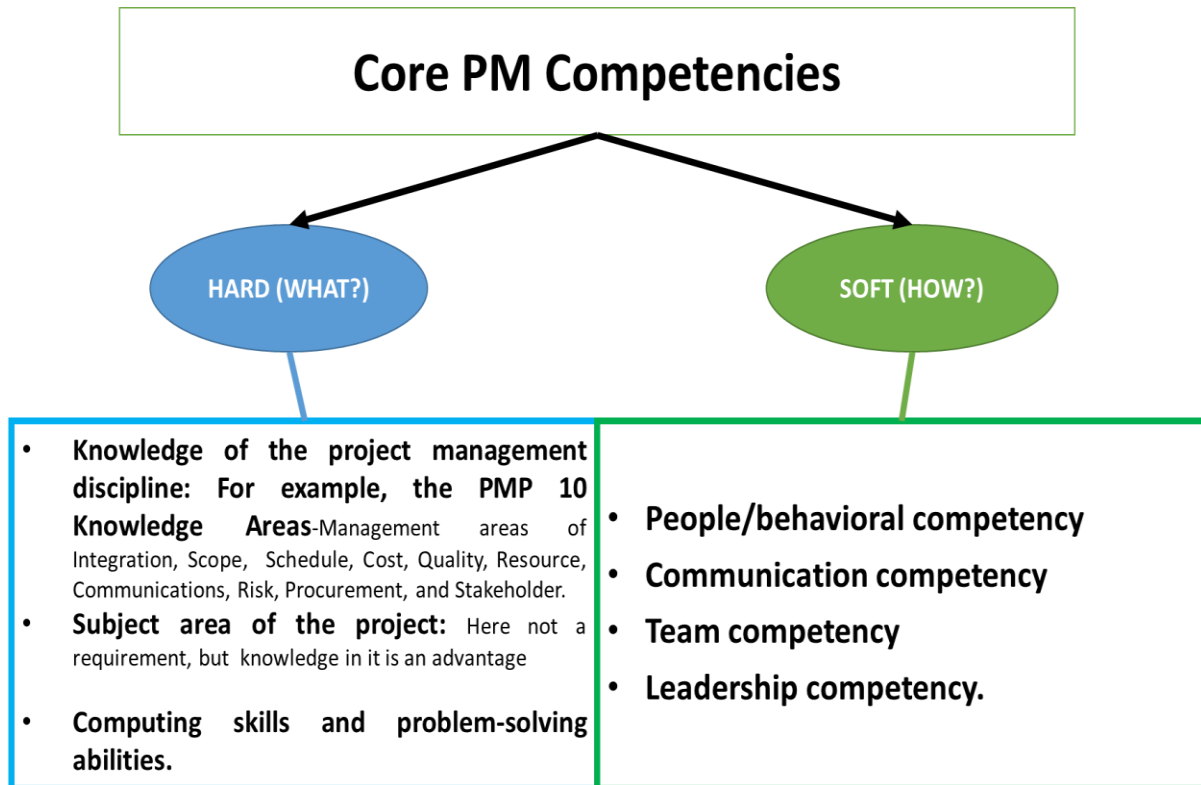
Figure 1 below shows the summary of the conclusion.

Figure 1: Summary of the conclusion.

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Table 1: Summary Table of relevant publications used for the analysis

Author	Findings/Output of work/area of work	A summary explanation of findings	Categorization: Hard or soft
Crawford, 2005; Müller & Turner, 2010; Project Management Forum, 2019, p. 2	Definition of PM Competence	N/A	N/A
Woodruffe, 1991	Person-Related Competencies	Interpersonal/Behavioural/Person-related Competencies	Soft
Roberts, 1997	Job-Related Competencies	Knowledge in PM Discipline	Hard and Soft
Crawford, 2005	Contextual Competencies	Skills in handling projects in changing environments and conditions: Versatility and Agility	Soft
Alam et al., 2010	Hard and Soft Skills	Hard and Soft	Hard and Soft
PMI-The Project Management Body of Knowledge (PMBOK), 6th edition	Hard Skills for Effective Managers: 10 knowledge areas: project scope management, time (schedule) management, cost management, resource management, risk management, procurement management, communications management, quality management, stakeholder management, and integration management.	Knowledge in PM Discipline	Hard
Stevenson & Starkweather (2010)	Soft Skills for Effective Managers: Leadership, Communications, Verbal and Written Skills, Attitude, Ability to deal with ambiguity and change.	Leadership, Interpersonal/people/Behavioural, and Communication Competencies	Soft Skills
Prabhakar (2008) in citing Archibald (1976)	PM Competencies: • Flexibility and adaptability • Preference for significant initiative and leadership • Aggressiveness • Confidence • Persuasiveness • Verbal Fluency • Ambition	Leadership, Team, Interpersonal/people/Behavioural, and Communication Competencies	Soft Skills

Author	Findings/Output of work/area of work	A summary explanation of findings	Categorization: Hard or soft
	• Activity • Forcefulness • Effectiveness as a communicator and Integrator • The broad scope of personal interests • Poise • Enthusiasm • Imagination • Spontaneity • Ability to balance technical solutions with time, cost, human factors		
Caupin et al. (2006)	Divided Project manager competencies into three broad groups: Technical Competencies, Behavioural Competencies, Contextual Competencies	Technical Competencies, Behavioural Competencies, Contextual Competencies	Hard and Soft
Keil et al. (2013)	10 Categories of Competencies: • Team Management • Business Domain Knowledge • Communication • People Skills • Technical • Project Management • Personal Characteristics • Organizational • Problem Solving • Professionalism	Leadership, Team, Interpersonal/people/Behavioural, Communication, Problem Solving, and Organizational Competencies. Also Knowledge in the PM discipline	Hard and Soft
Katz (1974)	Suggested three basic development Skills: 1. Technical Skill: Specialized Knowledge, the analytical ability within the specialty, and facility in the use of the tools and techniques of the specific discipline. 2. Conceptual Skill: Ability to see the enterprise as a whole including recognizing how various	Technical Competencies, Behavioural/People Competencies, Conceptual Competencies	Hard and Soft

Author	Findings/Output of work/area of work	A summary explanation of findings	Categorization: Hard or soft
	functions depend on one another and how changes in one part can affect all others. 3. Human Skills: Ability to Work effectively as a group member and to build cooperative effort within the team		
El-Sabaa (2001)	Utilized Katz's (1974) three-skill approach and developed a list of 18 characteristics of effective project managers which he clustered into three-skill categories as Human Skills, Conceptual, Organizational Skills, and Technical Skills.	Human/People Skills, Conceptual, Organizational Skills, and Technical Skills.	Hard and Soft
Lei & Skitmore (2004)	Proposed the following essential Skills for future Project Managers: • Technical Skills • People Skills • Legal Understanding • Client related skill • Stakeholder's management skills • Cost Management Skills • Computing Skills • Risk Management Skills • Coaching Skills • Time Management Skill • Networking Skill • Business Knowledge	Human/People Skills, Conceptual, Organizational Skills, Legal, Coaching, and Technical Skills. Also Knowledge in the PM discipline	Hard and Soft
Kerzner, 2009	Identified ten Required Competent Skills of Project Managers: • Team Building • Leadership • Conflict Resolution • Technical Expertise • Planning	Leadership, Team, Interpersonal/people, Behavioural, Technical, Entrepreneurship, and Communication Competencies	Hard and Soft

Author	Findings/Output of work/area of work	A summary explanation of findings	Categorization: Hard or soft
	• Organizing • Entrepreneurship • Administration • Management Support • Resource allocation		
Cech & Chadt (2015)	Revealed three Competencies: 1. Technical: This is an umbrella term that serves as an instrument to describe the basic features of the project management competencies. 2. Behavioral: A feature of competence that helps as an instrument to describe the basic features concerning personal project Management. 3. Contextual: Helps as an instrument to describe the features of the project management competencies relating to the project context	Technical Competencies, Behavioural/People Competencies, Contextual Competencies	Hard and Soft
Cartwright, C. & Yinger, M. (2007)	The Project manager competency development (PMCD) framework utilizes three dimensions of project manager competencies: 1. Knowledge (Project Management Institute, 2007). 2. Performance (Gillard & Price, 2005). 3. Personal (Bierhoff & Müller, 2005)	Knowledge in PM, Performance, and Personal	Hard and Soft
Silvius & Schipper (2014)	In their research for project management competency gaps, came out with the following competencies: 1. Interpersonal Competences 2. Systems Thinking Competencies 3. Anticipatory Competences 4. Normative Competences 5. Strategic Competences	Interpersonal, Technical, Pre-emptive, Normative, and Strategic Competences	Hard and Soft
Sutling, Mansor, Widyarto,	In their work "Understanding of Project Manager Competency in Agile Software Development Project	Knowledge in PM Discipline Behavioural/Person Competencies	

Author	Findings/Output of work/area of work	A summary explanation of findings	Categorization: Hard or soft
Lecthmunan, & Arshad (2015)	(ASDP)", came out with four main competencies needed by a project manager to ensure success in the agile space as: 1. Skill 2. Knowledge 3. Personal Attribute 4. Behavior		
Hanif &Tariq (2014)	Identified some examples of competencies highly desirable in managers as: 1. Team Work 2. Communication 3. Leadership 4. Decision making 5. Organizational Skill	Team, Communication, Leadership, Decision making, and Organizational Competencies	Soft

CONSUMER BEHAVIOR IN TIMES OF ECONOMIC CRISIS: THE INFLUENCE OF CONSUMER ETHNOCENTRISM

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ABSTRACT

The purpose of this paper is to examine some antecedents of consumer ethnocentric behavior in times of economic crisis. A model is proposed from extant literature to suggest the influence of consumer perception of economic crisis, and consumer domestic product responsibility on consumer ethnocentric intent during economic crisis with product category moderating the influences. Using convenience sampling method with a survey design approach, data was collected from some 307 respondents of domestic fmcg products and examined through structural equation modeling using Amos 26.0 software. Results suggest that consumer perception of economic crisis, and consumer domestic product responsibility strongly influence consumer ethnocentric intent during economic crisis. The findings also indicate that product-specific ethnocentric behavior enhanced consumer ethnocentric intent during economic crisis. The convenience sampling approach limits the generalization of the research findings. The study focused on respondents preferred product category and this limits the study findings. The study illustrates the need for managers to recognize consumer ethnocentrism as a psycho-social construct with relevance to individual level personality systems that can be employed as an effective marketing strategy. The empirical validation of the research model provides novel outlook of consumer ethnocentric behavior during economic crisis.

KEYWORDS: Consumer behavior, Consumer ethnocentrism, Economic crisis, Domestic products

1.0 INTRODUCTION

The global economy has recorded significant decline since the end of 2020, largely attributable to events like the covid-19 massive global health crisis and the Russian military operations in Ukraine (Gómez-Díaz, 2021). These events have had an unprecedented scale and effect in the global economy and triggered the largest economic crisis in more than a century (Gopinath, 2020), exposing the vulnerabilities of transitional economies of many developing countries especially in Africa. The systemic economic fragilities in many African countries like Ghana have been compounded by elevated inflation, subdued growth, and substantial pressure on public finances and debt sustainability (Oyetade & Muzindutsi, 2023). These changes occurring in the economy do not leave consumer behavior unchanged, but consumers are compelled to adjust and make decisions in an attempt to cope (Chinen et al, 2021).

Consumer purchase behavior has thus assumed critical importance in many countries (Birch et al, 2018) particularly given the tremendous growth of the global marketplace in recent decades. For instance, Bizumic (2019) argues that consumers in many developing countries are often reminded by their nations and domestic business organizations of their civic duty to purchase domestic goods. In addition, Karoui and Khemakhem (2019) argue that some consumers are more conscientious about their purchase decisions; for some these are grounded on moral considerations, for others, the consideration is the impact of their purchase on other individuals within the society. These sensitivities of consumers influence their perceptions regarding domestic and foreign products (Shimp & Sharma, 1987).

Consequently, these perceptions influence consumer self-concept and consumer identities in purchase consideration in many economies, strengthening the involvement of social identity in consumer purchase behavior. Accordingly, Siamagka and Balabanis (2015) point out that consumer

ethnocentrism, anchored on social identity, may be guided by economic motives when domestic products are considered and that consumer ethnocentrism may serve as a self-defence reflex of domestic economy during crisis. Thus, countries explore opportunities in domestic production and consumption to revive economies and to sustain economic growth (Karoui & Khemakhem, 2019). It is thus logical to expect consumer perception of economic crisis and consumers' domestic product responsibility to strengthen consumer ethnocentric intent. Nevertheless, some scholars (GE, 2021; Balabanis & Siamagka, 2017) posit that consumers from different countries are distinct from each other culturally, economically and demographically, thus it is imperative to assess consumer ethnocentric intent from sub-Sahara African perspective. Furthermore, Balabanis and Siamagka (2017) argued that there may exist product-specific ethnocentric effect as consumers do not perceive all product categories from a given country as being the same. For instance, most people have differing impressions of cars made in Germany and Korea; of fashion-forward clothing designed and made in France and Vienna; or of cameras made in Japan and China.

The concept of ethnocentrism and its measures were conceived in developed countries, where research showed that consumers have more positive attitudes towards domestic products (Kibret & Shukla, 2021). However, consumers in developing countries seem to exhibit uncertain attitude to product choice; whereas some prefer foreign products and tend to identify with global consumers, other consumers insist on local products (Karoui & Khemakhem, 2019). Consequently, there is the need to assess consumer ethnocentric intent from a developing country perspective and especially in times of economic crisis to promote domestic production and consumption capacities to strengthen vulnerable developing economies (Karoui & Khemakhem, 2019). Furthermore, Gómez-Díaz (2021) admits that the survival of developing countries is even important for the global market.

This study enriches existing literature on consumer ethnocentrism by identifying consumer perception of economic crisis (CPEC), and consumers' domestic product responsibility (CDPR) as direct antecedents of consumer ethnocentrism (CET) and investigating the moderating influence of product category (PDT). Additionally, the current economic crisis is unprecedented in the global economy. This paper is organized as follows; the next section provides the theoretical foundation of the study, this is followed by an outline of the supporting literature for the conceptual model and the hypotheses. Research methodology follows, including data sources and estimations. Then research results which provides an outline for the quantitative empirical analysis of the study. The final sections comprise discussion and conclusion of the study.

2.0 THEORETICAL FOUNDATION

Social identity is the perception of an individual's valuable membership in certain social groups (Tajfel, 2010). It refers to the ways that people's self-concepts are shaped by their membership in social groups and helps in the validation of their self-definitional and belongingness needs (Hossain & Chonko, 2018). In other words, social identity is the part of the self-concept that derives from group membership and that also assumes distinguishing features of the self-concept. Social identities determine not only how members define and evaluate themselves, but also how others define and evaluate them, because they not only describe but also prescribe suitable behavior and participation in the social category (Abrams & Hogg, 2010). Social identity is the principal construct of social identity theory which stipulates that individuals attempt to define, develop and distinguish their positive self-image and self-esteem through a process of social categorization in which they classify themselves and others into ingroup and outgroup that are prominent in a social context (Bourhis, 2020). Consumer ethnocentrism is theoretically anchored in the social identity theory and Siamagka and Balabanis (2015) argue that consumer ethnocentrism is guided by economic motives for in-group bias such that consumer perception of economic crisis triggers behaviors that tend to counter threats to domestic economy, similarly Karoui and Khemakhem, (2019) maintain that consumers responsibility of domestic production and consumption manifests an in-group bias that exemplifies consumer ethnocentrism. Thus the independent constructs ("consumer perception of economic crisis" and "consumer responsibility of domestic production")

constitute social identities which derive from the knowledge of belongingness of social groups together with the emotional significance attached to the membership (Siamagka & Balabanis, 2015). Additionally, Balabanis and Siamagka (2017) argued that there may exist product-specific ethnocentric effect.

Based on the above theoretical discussions, the following conceptual framework is proposed to guide the study as shown below. The literature support for the proposed hypotheses are presented in the subsequent discussions.
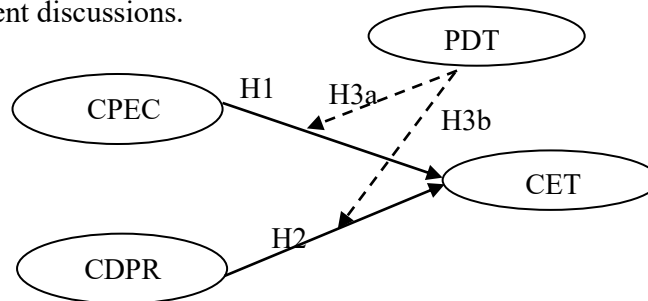

Fig.1: Influences on consumer ethnocentric intent

3.0 HYPOTHESES DEVELOPMENT

Ethnocentrism is one of the oldest constructs explaining consumers' bias toward domestic brands at the expense of foreign brands. Ethnocentrism is the one intrapersonal variable that promotes high in-group identifications and outgroup discrimination (Maksan et al., 2019). The term ethnocentrism and its fundamental concept was introduced in social science by Sumner (1906). It was defined as "the technical name for this view of things in which one's own group is the center of everything, and all others are scaled and rated with reference to it….Each group nourishes its own pride and vanity, boasts itself superior, exalts its own divinities and looks with contempt on outsiders. (p.13)". Ethnocentrism functions by increasing a group's solidarity, conformity, cooperation, loyalty and effectiveness, specifically perceiving events in terms of the group's social, cultural and economic interests (LeVine & Campbell, 1972). As a psycho-sociological concept, ethnocentrism incorporates individual, social, and cultural variations, as well as the social dimension of human psychological reality.

From the above, Shimp and Sharma (1987, p. 280) developed the concept of consumer ethnocentrism as specific to the marketing domain, defining it as a "unique economic form of ethnocentrism that captures the beliefs held by consumers about the appropriateness and indeed morality of purchasing foreign-made products." Consumer ethnocentrism, which is based on social identity theory, posits that consumers' strong connection with their home nation (in-group bias) leads them to choose domestic over foreign products in order to safeguard their country's trade and employment balance (He & Wang, 2019). Ethnocentric consumers are biased in their evaluations of domestic versus foreign brands and products and this manifests in their purchase behavior in general.

The involuntary, emotional and unconscious role of ethnocentrism has been demonstrated by neural (or brain) data yielded by neuroimaging, in the field of consumer neuroscience, revealing that highly ethnocentric consumers register a greater degree of activation in brain regions linked to self-reference and reward when considering to purchase domestic products and register a greater activation in brain regions related to risk in the case of foreign products (Karmarkar & Plassmann, 2019; Plassmann et al, 2012). Thus, consumers with high levels of ethnocentrism inherently desire to purchase products from one's own country rather than from other countries (Zeugner-Roth, Žabkar, & Diamantopoulos, 2015). Furthermore, Usunier and Cestre (2007) posit that consumers are inclined to purchase domestic, as opposed to foreign, products regardless of country of origin image. Ethnocentric consumers tend to perceive domestic products as superior to foreign alternatives due to the pride and reward triggered by local products, and their contempt and aversion to foreign goods (Gürhan-Canli & Maheswaran, 2000). An ethnocentric consumer has a negative

view of importing products from other countries as he/she deems it unpatriotic and detrimental to the domestic economy and employment (Jiménez-Guerrero, Gázquez-Abad, & Linares-Agüera, 2014).

3.1 Consumer Perception of Economic Crisis (CPEC)
According to Siamagka and Balabanis (2015), consumer ethnocentrism serves as a self-defence reflex of domestic economy during crisis and that ethnocentric consumers are guided by economic motives when choosing domestic products. Indeed, global companies have often employed consumer ethnocentrism as an affective marketing strategy to elicit consumer purchase (Saffu et al, 2012). Consumer ethnocentrism has been used as a strategic tool to develop local brand equity (Balabanis & Siamagka, 2017) and highly ethnocentric consumers may even be willing to pay more for domestic products over foreign products with comparable quality (Kavak & Gumusluoglu, 2007). The following hypothesis is outlined:
H1: there is a significant positive relationship between consumer perception of economic crisis and consumer ethnocentrism

3.2 Consumers' Domestic Product Responsibility (CDPR)
The variable, consumers' domestic product responsibility, contained items connected to buying domestic or foreign products and scholars (Karoui & Khemakhem, 2019) have argued that consumers express their ethnocentric intent through the promotion of domestic production and consumption capacities. These have the consequent effect of strengthening vulnerable economies. Under normative circumstances, Shimp and Sharma (1987) argue that consumer ethnocentrism is positively related to attitudes toward domestic products and negatively related to attitudes toward foreign products. Additionally, consumer ethnocentrism tends to create and generate a hostile attitude and feeling towards out-groups in the sense that buying imported products is perceived as inappropriate because it hurts the domestic economy, results in the loss of jobs, and it is unpatriotic (Shimp & Sharma, 1987). The following hypothesis is outlined:

H2: there is a significant positive relationship between consumer domestic product responsibility and consumer ethnocentrism

3.2.1 Product category (PDT)
Scholars (Strizhakova and Coulter, 2015) contend that consumer ethnocentrism has different consequences depending on the product category, and that they are less pronounced for utilitarian products. Okada (2005), however, reports that hedonic products are more likely to generate a sense of guilt compared with utilitarian products, and that assessing their benefits is more challenging. Furthermore, Khan et al (2005) review shows that hedonic products are richer in affect than products consumed for utilitarian purposes and are more likely to generate negative self-attributions that inhibit consumers' preferences. For ethnocentric consumers, guilt and negative self-attribution may be higher when consuming foreign hedonic products than foreign utilitarian products. That is, conspicuous and hedonic foreign products will have a greater negative impact due to ethnocentrism (Davvetas & Diamantopoulos 2019). Again, Stets and Burke (2014), suggest that the social context and those who share the same identity influence the salience, meanings, and expectations associated to identities. When behaviors are visible, the pressure to adhere to cultural standards is increased. Bearden and Etzel (1982) show that a product's conspicuousness makes it more susceptible to normative influences (e.g., consumer ethnocentrism) and amplifies its signaling features to the chosen identity group of the individual. In other words, product category has moderating influence on consumer behavior.
The above discussions suggest some moderating influence of categories of products on consumer ethnocentrism. The following hypotheses are suggested:
H3a: there is a moderating effect of product category on consumer perception of economic crisis in influencing consumer ethnocentrism
H3b: there is a moderating effect of product category on consumer domestic product responsibility in influencing consumer ethnocentrism

4.0 RESEARCH METHODOLOGY

Following a quantitative research approach, a survey design was used in this study to better understand the dynamics of consumer ethnocentrism in times of economic crisis and to test the hypothesized model (fig. 1). The survey instrument consists of a set of formalized standard questions and predetermined response options designed to solicit information from customers of shopping malls and this was considered appropriate to obtain measurable and objective data from the respondents and to help achieve the defined objectives of the study (Babbie, 2020). The scales used in the research were drawn and adapted from standard scales in the extant literature. 4 variables utilizing a 5 point Likert scale (Strongly Disagree – Strongly Agree) were used to measure consumer perception of economic crisis (CPEC), consumers' domestic product responsibility (CDPR), product category (PDT) and consumer ethnocentrism (CET). Table 4 outlines the scale items. Prior to the main study, a pilot test with 20 respondents from the population of interest was conducted. A preliminary analysis of the pilot study satisfied the content validity and reliability of the data (Cronbach's $\alpha > 0.7$).

4.1 Data Collection

In the substantive study, respondents were intercepted at the premises of some key shopping malls in Accra, Ghana, due to their convenient location and large patronage; the Accra Mall, the A&C Mall and the Marina Mall offer patrons convenience and unique experience of retail, leisure, entertainment, fashion, banking, dining and healthcare (Business Insider Africa, 2022). At the time of this study, these three malls account for over two-thirds of mall attendance in Accra (Business Insider Africa, 2022). Besides, these Malls make up some of the most modern shopping malls in West Africa with convenient locations to the International Airport making them easily accessible to international travelers (Business Insider Africa, 2022). Respondents had the purpose of the study explained to them, and willing participants were interviewed. Out of 350 questionnaires delivered, 327 were found useable (about 93% response rate) following comprehensive screening of completed questionnaires. In respect of respondents' profile, there were 54.0% males and 46.0% females. Most respondents (cumulatively 69%) were within the age range of 30 to 50 years, and about 31% of the respondents were under 30 years. Most respondents (about 75%) had up to university degree level and beyond (graduate and post-graduate), with about 6% having professional educational qualifications and up to 19% high school and higher national diploma levels (SHS & HND). The detailed respondent profiles are presented in Table 1.

Table 1: Profile of Respondents

Variable		Frequency	Percentage
Gender			
	Male	177	54
	Female	150	46
Age			
	<20 years	19	6
	21-30 years	82	25
	31-40 years	157	48
	41-50 years	69	21
Education			
	SHS/HND	62	19
	Professional	20	6
	Graduate	199	61
	Postgraduate	46	14

Source: author's field data (2023)

4.2 Measurement Model

Preliminary analysis of these results suggest the scale items were appropriate for the study; using SPSS and Amos 26.0 software, skewness and kurtosis of the data range from -0.78 to -0.39, and -

1.25 to 0.88 respectively. Further, there were significant standard loading of the items from each construct and so no item was dropped. To confirm the data's convergent validity, the composite reliability (CR) and average variance extracted (AVE) both had acceptable values (CR > 0.7; AVE > 0.5) (Fornell & Larcker, 1981). Additionally, the Cronbach alpha values of each construct demonstrate strong reliability (Cronbach's α > 0.7).

Table 2: Standard loading

Variables	Standard loading
CET α=0.758, CR=0.853, AVE=0.505	
CET1	0.840
CET2	0.737
CET3	0.809
CET4	0.902
CET5	0.765
CPEC α=0.867, CR=0.805, AVE=0.611	
CPEC1	0.901
CPEC2	0.886
CPEC3	0.742
CPEC4	0.878
CDPR α=0.767, CR=0.765, AVE=0.561	
CDPR1	0.702
CDPR2	0.820
CDPR3	0.784
CDPR4	0.771
PDT α=0.860, CR=0.895, AVE=0.567	
PDT1	0.888
PDT2	0.796
PDT3	0.725
PDT4	0.809
PDT5	0.901

Source: author's field data (2023)

Table 3: Fornell-Larcker's criterion

	1	2	3	4
CET	**0.7106**			
CPEC	0.6734	**0.7816**		
CDPR	0.5654	0.4347	**0.7490**	
PDT	0.6892	0.3876	0.5654	**0.7530**

Note- Square root of AVEs in bold on the diagonal
Source: author's field data (2023)

Table 4: Scale Items

Variable	Reference	# of scale items
CPEC	Siamagka and Balabanis, 2015	5
CDPR	Karoui & Khemakhem, 2019	6
PDT	Strizhakova and Coulter, 2015	5
CET	Shimp & Sharma, 1987	6

Source: author's field data (2023)

4.3 Testing for Direct Effect

Hypotheses 1 and 2 posit that consumer perception of economic crisis (CPEC) and consumers' domestic product responsibility (CDPR) would have direct influence on consumer ethnocentrism (CET). These hypotheses were tested using structural equation modelling (SEM) in Amos 26

software using latent values of the construct. SEM allows these hypothesized relationships to be analyzed simultaneously in a two-part process; a confirmatory factor analysis (CFA) of the model (i.e. causal relationships) and an estimate of the structural integrity of the model. The results of the CFA affirm *goodness of fit* in the data; $\chi^2_{(288)}$ =737.280, p=0.001, χ^2/df=2.56, RMSEA=0.046, RMR= 0.016, CFI=0.9814, NFI=0.974, GFI= 0.968, additionally, each of the regression values showed statistical significance ($p < 0.05$) and adequacy. Proceeding to the second part of the SEM process, the estimate of the structural model, tests on common method bias and multicollinearity were done to avoid misleading conclusions from the research data (Ranaweera & Jayawardhena, 2014). To minimize common method variance bias, measures were taken in the questionnaire design to reduce acquiescence bias (Kreitchmann et al., 2019). To detect multicollinearity, the study used a metric known as the variance inflation factor (VIF) and results showed a highest VIF value of 1.979, which is below the recommended threshold value of 3 (Hair et al. 2020). Consequently, the data did not violate the assumption of multicollinearity.

Following the above preliminary tests, the structural equation model (SEM) was estimated to test the hypothesized relationship in fig.1. The SEM affirmed *goodness of fit* ($\chi^2_{(23)}$ =66.240, p=0.001, χ^2/df=2.88, RMSEA=0.049, RMR= 0.018, CFI=0.9684, NFI=0.982, GFI= 0.988) and showed support for the hypotheses.

Table 5 reveals that consumer perception of economic crisis is positively associated with consumer ethnocentrism ($\beta = 0.61$, $t = 6.39$, $p < 0.05$), and similarly consumers' domestic product responsibility is also positively associated with consumer ethnocentrism ($\beta = 0.60$, $t = 6.36$, $p < 0.05$). These associations are significant implying that hypotheses 1 and 2 are supported.

Table 5: Direct effect

Variable	*β*	t	p
CPEC	0.61	6.39	<0.05
CDPR	0.60	6.36	<0.05

Source: author's field data (2023)

4.4 Moderating Effect Analysis

In line with established statistical practice (Ranaweera & Jayawardhena, 2014), moderation analysis was done by creating new variables through the process of mean centering and using a simple stepwise regression process. In effect, independent variable 'consumer perception of economic crisis' and the moderating variable were adapted to create a new interactive term (H3a), consumer perception of economic crisis X product category. Similarly, a new interactive term (H3b) was created, consumers' domestic product responsibility X product category.

The results (Table 6) show that product categories significantly enhanced the predictive effect of consumer perception of economic crisis ($\beta = 0.63$, $t = 6.40$, $p < 0.05$) and consumers' domestic product responsibility ($\beta = 0.61$, $t = 6.38$, $p < 0.05$) on consumer ethnocentric intent.

Table 6: Moderating effect

Variable	*β*	t	p
CPEC^PDT	0.63	6.40	<0.05
CDPR^PDT	0.61	6.38	<0.05

Source: author's field data (2023)

5.0 DISCUSSION AND CONCLUSION

Every economic activity operates within a set framework and consumer decisions primarily involve choices that operate within the framework. In situations of economic crisis, consumers are forced to respond with an adjustment process that involves identification, perception and evaluation of the changes, and the direction of consumer influence in the marketplace that tends to cope with the crisis. The outcome of this research shows that changes in the market triggered by economic crisis do influence consumer behavior. The consequence is the number of adaptive steps taken by consumers and the creation of ethnocentric intent.

5.1 Theoretical Implications

Massive decline in the global economy is not regular occurrence and so knowledge of potential mitigating factors are not widely researched especially in transitional economies. This research makes an attempt to address this gap by highlighting relevant issues in this regard taking advantage of the recent weakening of the global economy prompted by the covid-19 pandemic and the Russian military conflict with Ukraine. Given the integrated nature of the global economy, such economic turmoil easily transmits to various parts of the world. The unique characteristics of transitional economies makes the applications of established mitigating measures not comprehensive enough to have optimum effect. Thus in contributing to extant literature, this research employs intangible and inexpensive characteristics in social identity to gain a clearer understanding on the motivations for particular consumer behaviors to adapt and to further promote growth and development in transitional economies. Therefore, this study presents a conceptual model of consumer behavior in times of economic crisis and an empirical validation of the model provides unique contributions to academic literature in the field of consumer behavior in transition economies in circumstances of unprecedented global economic crisis.

First, the study provides support for a new way to understand consumer ethnocentrism through the identification of antecedents drawn out of characteristics of social identity. We find that consumers are motivated by (1) perception of economic crisis and (2) responsibility for domestic products, to demonstrate consumer ethnocentric intent in times of economic crisis. Accordingly, this elaborates the essence of social identity in consumer behavior as the antecedents clearly constitute a social group that act to protect its (in-group) interests. These results expand the assertions of Karoui and Khemakhem (2019) and Siamagka and Balabanis (2015) on variables that influence consumer ethnocentric intents. However, the results reject assertions by that foreign products are preferred because of the perception of higher quality. Consumers appear to opt for domestic products to protect domestic production and the domestic economy. The results further shows that ethnocentric intent is most common among young consumers (79% of respondents under 40 years) who are relatively well educated (75% of respondents graduates and post graduates).

The second major contribution of this research addresses the moderating role of product categories. Prior research has indicated varying influence of product categories on consumer ethnocentric intent such that some differing influences have been recorded depending on whether the products are hedonic or utilitarian (Davvetas & Diamantopoulos 2019; Strizhakova and Coulter, 2015), in this research respondents had the opportunity to select their preferred products and this clarified the phenomenon. That is, the product categories have positive influence on consumer ethnocentric intent. It should be understood that respondents indicated their preferred product categories which means that some other products may negate the findings.

5.3 Practical Implications

Managers and organizations can elicit favorable consumer behaviors by subtly influencing consumer social identities to stimulate consumer purchase of domestic especially in times of economic crisis. Focusing on tapping into favorable consumer reactions will likely increase consumers preference for domestic products. Managers should consider positioning strategies that focus on consumer ethnocentric tendencies as that may be more appropriate in persuading especially young ethnocentric consumers with high levels of education to purchase domestic products.

The findings of this research indicate that consumers are motivated to demonstrate ethnocentric intent if there is perception of economic crisis. This is an indication that perception of economic crisis, recognized as social category, is able to stimulate consumers to endeavor to demonstrate in-group bias. Similarly, the findings also show that consumers' responsibility for products is enough to enhance consumer ethnocentric intent. Thus, individuals who take responsibility for domestic products are motivated to demonstrate consumer ethnocentrism. Therefore, in times of economic crisis, managers can package their products to present the feel of consumer ownership as part of

the coping strategies. The findings further show that product categories have compounding influence on consumer ethnocentric intent. Managers and organizations can therefore identify specific products that enhance ethnocentric intents and leverage on that for optimum consumer patronage.

5.4 Limitations and Avenues for Future Research
The study used the convenience sampling approach where respondents were intercepted to undertake the study. This approach has its shortcomings and impairs the generalizability of the findings. Future studies could employ probabilistic sampling frame to reduce the risk of systemic bias thereby reducing the risk of over- or under-representation to ensure a much better representation of the population. Furthermore, to enhance the generalizability of the findings, future research could consider multiple country studies across Africa or the emerging markets to generate a holistic outlook of the study. Future studies could consider a longitudinal research approach to consolidate causality. Respondents were allowed to select own product category for the study. This would not allow uniform assessment of findings. Future studies could introduce standard products for assessment.

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