Conceptualizing Digital Technologies and Digital Entrepreneurship: Evidence from a Developing Country

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ABSTRACT

The involvement of digital technologies in facilitating entrepreneurship or as part of the goods and services of entrepreneurship is referred to as digital entrepreneurship. Digital entrepreneurship is becoming very important in practice and also attracting some research attention. However, despite the growing importance of digital technologies for entrepreneurship, our understanding and conceptualization of the digital entrepreneurship remains limited. This study seeks to explore the factors that influence and drive digital entrepreneurship while assessing the impact of digital technologies on digital entrepreneurship and entrepreneurial performance. This would be achieved through the conceptualization of the digital entrepreneurship with the development of a conceptual framework based on the Task-Technology-Fit (TTF) model. An exploratory research with a qualitative research design and multiple case study will be conducted, using selected digital enterprises. This research is expected to contribute to the conceptualisation, knowledge and understanding of digital entrepreneurship in developing economies.

Key words: Digital Technology, Innovation Digital Entrepreneurship, Business Enterprise, Developing Country.

1. INTRODUCTION

Contemporary digital technologies are transforming entrepreneurial processes and the outcomes of entrepreneurship (Nambisan, 2017). The involvement of digital technologies in facilitating entrepreneurship or as part of the goods and services of entrepreneurship is referred to as *digital entrepreneurship* (Davidson & Vaast, 2010; Huang, Henfridsson, Liu & Newell, 2017; Lyytinen, Yoo, & Boland, 2016).Digital entrepreneurship is becoming very important in practice, and also attracting some research attention (Nambisan, 2017; Porter & Heppelmann, 2014; Yoo, Henfridsson & Lyytinen, 2010). However, despite the growing importance of digital technologies for entrepreneurship, our understanding and conceptualisation of the drivers of digital entrepreneurship and the impact of the technology on the entrepreneurship outcomes remains limited (Leong, Pan & Liu, 2016).

This is as a result of the increasing complexity of entrepreneurial activities due to the digitalization of entrepreneurship and the rapid changes in the digital technologies. This implies that the processes and outcomes of entrepreneurial activities are becoming less bounded while the basis of entrepreneurial agency is less predefined, in respect of digital technologies (Nambisan, 2017). This raises issues about how digital technology intersects with entrepreneurship, and the implications of such intersection, in terms of influence and impact (Nambisan, 2017). Though some studies suggest potential positive impact of digital technologies in emerging markets (Quinones, Nicholson, & Heeks, 2015), however, there seem not to be enough studies with respect to the impact on entrepreneurial performance. Impact of ICT on firm performance have been discussed severally (Chae, Koh, & Prybutok, 2014; Cleary & Quinn, 2016), but there are usually no entrepreneurial dimensions to it.

The impact of digital technologies on market intelligence, networking in entrepreneurship and strategic orientation has been well discussed (Beicher, 2016; Dutot & Bergeron, 2016). However, the impact of the digital technologies on digital entrepreneurship and its performance has not yet been thoroughly measured and remains open for research (Nambisan, 2017). Meanwhile, studies that have examined the impact of digital technologies on entrepreneurs' decision making and entrepreneurial activities for venture development are very few (Allison, Davis, Short, & Webb,

2014; Fischer & Reuber, 2014; Nambisan & Baron, 2013; Sigfusson & Chetty, 2013; Zhao & Collier, 2016). Other studies only considered the effect of websites or social media sites on growth (Foroudi et al., 2017; Thompson, Williams & Thomas, (2013). Most of these studies were limited to websites and social media technology only, and the performance measurements were limited to growth only. However, growth is only a sub-construct of the financial dimension of performance, together with profitability, ratios and others (Venkatraman & Ramanujam, 1987). The assessment of digital technology's impact on entrepreneurial performance should cut across different technology types to make it comprehensive. Moreover, if the performance measurement is holistic with multiple dimensions, it could offer better assessment. The dimensions of performance that could be considered may include financial, operational, marketing, survival, economic and stakeholder measures, each with its own sub-constructs (Brealey, Myers, Marcus, 2001).

The understanding of digital entrepreneurship requires clear theorization and conceptualization of its relationship with the digital technologies and the factors that drive it. In order to advance the theorization of the nature of digital entrepreneurship, Davidson & Vaast, 2010, suggested an analytic model as a first step in research, based on the type of opportunities pursued, which could be business-related, knowledge-based, and institutional. Further to this, and in an effort to advance an agenda of research, Nambisan (2017) calls for the unambiguous theorizing of the concepts that relate to digital entrepreneurship. This is expected to enhance the theories existing in entrepreneurship with respect to the digital technology perspective. Furthermore, entrepreneurial behaviour, innovation, performance and the contextual interactions within digital entrepreneurship have also not been well addressed (Autio, Kenney, Mustar, Siegel, & Wright, 2014). As a result, an outline for future research on the relationships between entrepreneurial innovation and contexts have been proposed by Autio, et al, (2014). Moreover, the proposition that non-incubated digital enterprises are not as innovative as the incubated digital enterprises, should be tested empirically in future research (Quinones, Nicholson, & Heeks, 2015).

2. STATEMENT OF PROBLEM

It has been recognised that the digital ecosystems and lifecycle of digital enterprises have been widely researched and seem to work well in the context of developing economies (Quinones, Nicholson, & Heeks, 2015; Scaringella & Radziwon, 2017). Moreover, though some empirical researches have been done in developed countries about the growth process of digital enterprises on the consequences and applicability of a lean start-up method, none of these studies has been found within a developing economy context (Quinones, Nicholson, & Heeks, 2015). Very few of the entrepreneurship studies which considered the growth process of digital enterprises have been done in the context of emerging economies compared to advanced economies, and even none has been done in Africa (Quinones, Nicholson, & Heeks, 2015; Xiao, Califf, Sarker & Sarker, 2013).

In addition to the gaps and dearth in knowledge on digital technologies and digital entrepreneurship, there are also a number of fundamental questions that remain largely unanswered. For instance, what categories and types of digital technologies and digital enterprises are involved in digital entrepreneurship in developing economies? What factors or digital technologies influence and drive digital entrepreneurship especially in developing economies? How do the digital technologies impact on the digital entrepreneurship to enhance the performance and productivity of digital enterprises in developing economies? These are some of the relevant issues that also need to be addressed in order to broaden the frontiers of knowledge in ICT innovation and digital entrepreneurship.

The variety of issues and questions asked show that digital entrepreneurship is a capable area of research. This doctoral research is supported by the above need and the empirical research gap that currently exist. On the basis of the findings of this doctoral research, the researcher hopes to establish a research agenda that will guide digital entrepreneurship.

3. OBJECTIVE

This study seeks to explore the factors that drive digital entrepreneurship and also assess the impact of digital technologies on digital entrepreneurship and entrepreneurial performance in developing economies.

To achieve this, the following questions are raised:
   a. What factors influence and drive digital entrepreneurship in developing economies?
   b. How do digital technologies impact on the entrepreneurial performance of digital enterprises in developing economies? organization.

4. RESEARCH THEORY AND CONCEPTUAL FRAMEWORK

Due to the fact that digital entrepreneurship is an emerging concept, that is considerably different from the traditional and general entrepreneurship concept, the conceptual foundation and framework for this study will equally differ from previous frameworks that have been used in entrepreneurship research. This research must therefore involve a framework that would factor the technology and its attributes as well as the entrepreneurial activities. The argument above is supported by the findings of empirical studies, including Baas Baas (2010) and D'Ambra, Wilson. & Akter (2013) who find that the emergence of digital entrepreneurship is influenced by the availability of information and communication technologies (ICT) that fit the task of digital entrepreneurs.

The Task-Technology fit (TTF) model, contends that a technology will be adopted if it fits completely with tasks that it supports. This was proposed by Goodhue and Thompson 1995 to appreciate the relationships between information systems and individual performance. Task refers to the sequences of actions undertaken by users in converting inputs to outputs or the users behavior of using tools to turn investment into performance. Technology on the other hand refers to the ICT tools utilized by users while performing the tasks, and also the process of enabling users to finish the tasks, which may include user support and training [17].

Technology and task therefore are very important factors that can influence attitude, satisfaction and performance of firms. However, Goodhue and Thompson (1995) argue that a better technology cannot always improve productivity and performance, unless it shows a 'good fit' with the individuals' and/or organizations' task portfolio. Extant literature shows various task and technology characteristics as constructs and variables for the task-technology fit model. The technology constructs include: personalization, collaboration, identifiability, affordability, mobility, ubiquity, uniqueness, and access etc. While the task constructs include: interdependence, non-routineness, difficulty, variety, time criticality, location relevance, planning, documentation, information acquisition, interaction and analysis, etc., (D'Ambra, et al., 2013; Zhang, Guo, Wang, Chen & Wei, 2011).

The constructs adopted for this study are task variety, task difficulty, task non-routineness and task interdependence as task characteristics. Whereas personalization, collaboration, affordability, access and mobility are adopted as technology characteristics. The constructs for performance measurement would involve the performance dimensions of financial, operational, marketing, economic and stakeholder.

Interdependence is the requirements of information and the dependence on other organizational units. *Collaboration* is the ability of the digital technology or applications to support communication and collaboration among colleagues, stakeholders and suppliers. *Mobility* is the degree to which digital technology or applications allow users to work anytime and anywhere. *Personalization* is "the process of changing functionality, interface, information content, or distinctiveness of a system to increase personal relevance" (Yadegaridehkordi, Iahad & Ahmad, 2014).

The most obvious gap in the TTF theoretical framework is its inability to account for contextual factors. It is very important that researchers using TTF pay attention to their research context, since the theoretical foundation of the TTF emphasizes the need for a fit between technologies and the particular tasks that must be performed. Though the TTF theory has mostly been applied on its own, in a broad range of research contexts, some researchers that have applied the TTF model, however, attempt to control for contextual factors (Furneaux, 2012). Context can have important implications for both the task characteristics and digital technologies, as well as the fit (Autio, et al., 2014; Dwivedi, Wade, & Schneberger, 2011). The contextual factors would, therefore, be considered in this research to ascertain its moderating or controlling influence on the technology, the task and/or the fit.

The contextual factors could be individual characteristics, industry characteristics, or even regional characteristics (Autio et al., 2014; D'Ambra, et al., 2013; Furneaux, 2012). The Technology Task Fit Theory and its conceptual model in Figure 1, helps to explain how task and technology characteristics as well as contextual factors influence digital opportunity identification and utilization of innovative digital technologies' usage in digital entrepreneurship and its performance.
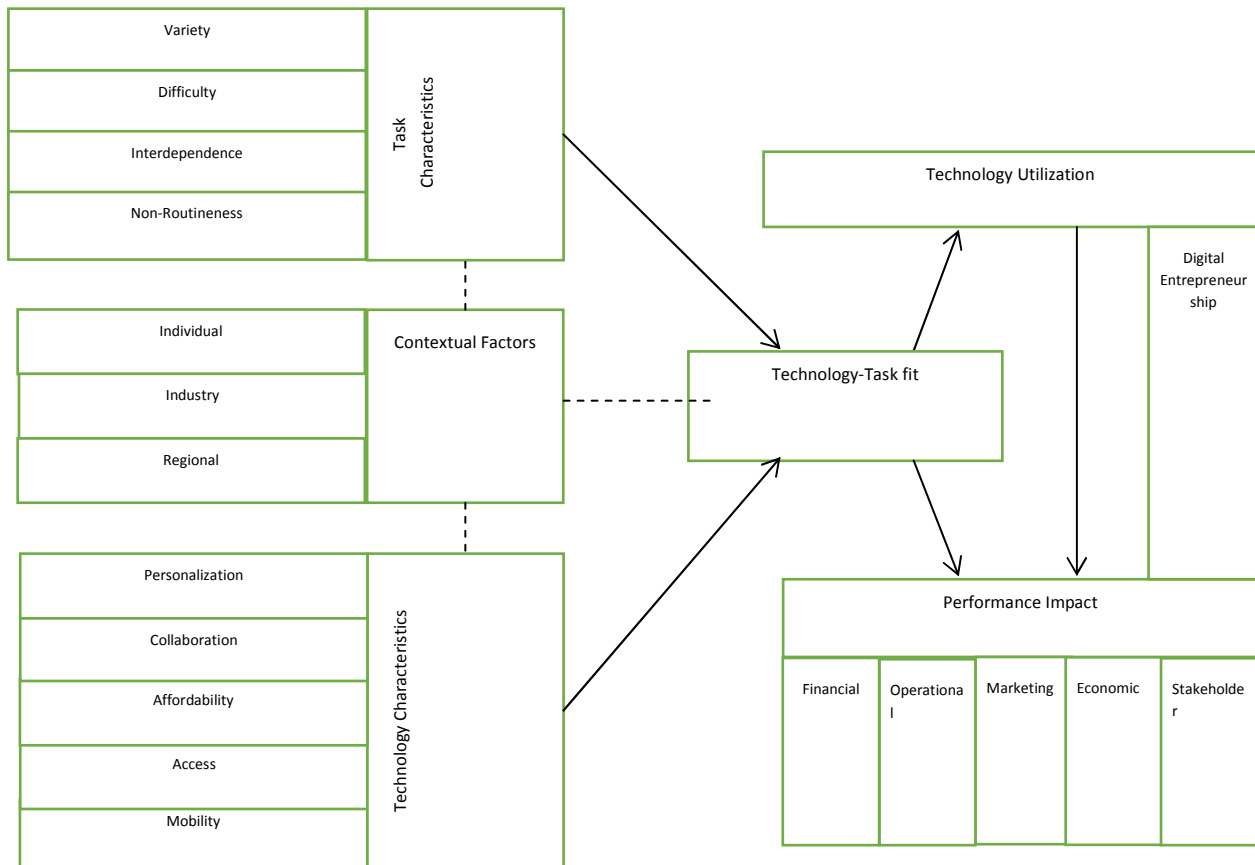
Figure1: Conceptual framework for digital technology usage in digital entrepreneurship
Source: Goodhue & Thompson (1995) with researcher's constructs

The model will allow the researcher to investigate and explore the factors that drive digital entrepreneurship and assess the impact of digital technology on digital entrepreneurship and entrepreneurial performance in developing economies. It will also help determine the conceptual relationships and influence of contextual factors on the digital technology and digital entrepreneurship in developing economies.

4. METHODOLOGY

4.1 The Research Design

The study will be conducted as an exploratory research using a qualitative research design with multiple case studies. Exploratory researches are conducted when there is the need to gain insights or discover ideas about a certain phenomenon and to provide reasonable degree of flexibility (Burgess, 2010; Kothari, 2004). Qualitative research design is appropriately used when there is the need to understand the meaning people give to a phenomenon under investigation within a specific social setting (Bruton, Khavul, & Chavez, 2011; Snape, D. and Spencer, 2003. Case studies are, most appropriately, used when the purpose of a study is to gain in-depth understanding of the context of an activity or phenomenon at specific geographical or organizational boundaries (Saunders, 2011).

This research will focus on enterprises in Ghana, where many of the local context factors that influence, or shape digital technologies and digital entrepreneurship are comparable to those in other developing economies. Digital entrepreneurship as empowered by digital technologies is still emerging in Ghana, as such, the firms (cases) will be identified and purposively selected for the study. The criteria for selecting the cases will be to include organizations and firms that are sufficiently involved in digital entrepreneurship with the application of contemporary innovative digital technologies in their operations.

4.2. Data collection methods and instruments

The tools and methods of data collection will be selected and designed based on the research questions and literature review and will be guided by the need it to relate to the local context of Ghana in order to provide opportunities to collect relevant context-specific data (Mills & Pawson, 2012). The research will employ in-depth semi-structured interviews and documents review in the collection of data for the study. The interviews will be conducted with owners or managers of the selected companies or their appointed representatives. The interviews will be conducted at the participants' place of business or other places of convenience and structured to last between one and two hours. During the process of the interview, the conversations will be recorded with the permission of the participants.

Besides the interview, the researcher will seek for relevant secondary data from the firms' websites and other websites in which the selected firms are referenced. Also, informal discussions with customers and other stakeholders of the firms would be done. The additional information gathered will be relevant for triangulation purposes. To further enhance the triangulation, the owners or managers would also be required to respond to questionnaire with structured and semi structured, open and close ended questions, to ascertain the responses in the interviews.

3.3. Data analysis techniques and methods

After the data collection, all the recorded interviews will be transcribed, coded and together with the questionnaire responses and other relevant information gathered, entered into the Nvivo data analysis program. The Nvivo package has the advantage of being able to reduce manual tasks and offers the researcher the opportunity to discover tendencies, recognize trends and themes, and then derive conclusions (Wong, Ho & Autio, 2005). The data will be content-analyzed to identify key ideas and isolate trends, themes and patterns that could be utilized to address the objectives of the study and the research questions.

The analysis, interpretation and discussion of the findings will be done using inductive analysis strategy. This will allow for derivation of patterns, themes, and categorisation of responses provided by respondents (Bernard, Wutich & Ryan, 2016). In the process of the analyses, the researcher will be guided by the research questions, the overall research design and the nature of the data collected. The researcher will ensure that the analysis is done with thoughtful balance between generating themes from within the data and applying preconceived themes to data generated. The results from the analysis will be presented in descriptive and narrative forms. Validation of the data analysis will be done by experts, including business and ICT consultant, entrepreneurship lecturer, information technology lecturer and owner/manager of an ICT firm in Ghana.

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