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Financial technology: an alternative for financing small and medium-sized enterprises in Nigeria

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Abstract: This study examines the factors influencing small and medium size enterprises' (SMEs) decision to adopt Fintech as alternative source of finance. Data was gathered through a five-point Likert questionnaire and analysed via descriptive statistics, factor analysis, and multiple regression analysis. Except for changes in organisational characteristics which revealed a negative effect, changes in all the other three components of external system, innovation characteristics, and staff/individual characteristics revealed positive relationship with SMEs decision to adopt Fintech as alternative financing. Accordingly, this study concludes that Fintech is readily available, accessible, observable, and cost effective for SMEs in Nigeria. It is concluded that SMEs operators are satisfied that the Fintech industry in Nigeria is adequately regulated. Furthermore, the study concludes that Fintech adoption as alternative finance is consistent with SMEs beliefs, attitudes, and values. The study recommends further research on using longitudinal research design to cover SMEs long-term decision-making process.

Keywords: financial technology; alternative; financing; small and medium enterprises; SMEs; developing economy; Nigeria.

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1 Introduction

Globally, small and medium sized enterprises (SMEs) play a vital role in propelling economic activities and in the creation of jobs. Evidence has showed that SMEs account for about 70% of gross domestic product (GDP) of low, medium, and high-income countries (Edinburgh Group, 2012). SMEs account for 90% of the global businesses and provide over 50% of employment globally (World Bank, 2020). By the year 2030 about 600 million jobs will be required to take up the increasing global workforce (World Bank, 2020). Of this number, the SMEs will account for about 90% of the jobs worldwide (IFC, 2017).

Despite these significant contributions towards economic and social development, SMEs often find it difficult to obtain finance necessary to start and sustain their businesses. For example, in a study of 135 nations, Ayyagari et al. (2017) discovered that access to finance was the most serious bottleneck to the business of the SMEs. Unlike large firms, the amount of credit SMEs borrow from banks is grossly inadequate for their survival and growth. In addition, while larger firms can use international financial markets to raise capitals, SMEs depend mainly on local banks to raise funds. In some jurisdictions, the financial crisis of the last decades has made banks to be risk averse and hence declining to lend to SMEs (Lu, 2018). Accordingly, SMEs are now looking for alternative sources of finance other than the banking and capital market sectors to meet their financial needs. One such alternative is financial technology which is commonly referred to as 'Fintech'. Fintech utilises software and innovative technology to provide all kinds of financial services obtained across all financial sub-sectors. Fintech provides all traditional banking services that were previously the exclusively preserve of the traditional banks in a more easy and incredible customer satisfaction way (Chishti and Barberis, 2017).

Several theories support the use of Fintech as an alternative source of finance. These theories include capital structure theory as financing via Fintech makes it one of the capital structure components (Baker and Martin, 2011; Frydenberg et al., 2011). There is also the adoption theory that views Fintech as an innovation (Bruton et al., 2015). Of all the adoption theories, the Wisdom et al. (2013) framework is the most comprehensive being a product of a review of 20 theoretical frameworks with several key concepts

related to theories of adoption of innovation (Cohen and Levinthal, 1990; Greenhalgh et al., 2004). This underpins its adoption in this study.

Studies on Fintech as alternative for financing for SMEs is numerous (Frambach and Schillewaert, 2002; OECD, 2015; WEF, 2015; Benthem, 2016; Lu, 2018; Bradford, 2018; Klöhn et al., 2016). For example, Lu (2018) found peer-to-peer lending market as robustly solving the financing needs of SMEs relative to traditional banks. Similarly, OECD (2015) has discovered that Fintech, through online lending, has made it straightforward for SMEs to get credit without government support. In the same vein, WEF (2015) found Fintech providing fast funding with lowered costs of lending to clients due to their online presence.

As alternative finance sub-sector, Fintech provides a viable answer to the funding needs of the SMEs in at least three ways. First, unlike traditional bank, Fintech lack physical presence, they purely rely on digital distribution platforms. In this way Fintech needs very few personnel to perform main financial services like credit checks at a minimal cost which, in turn, decrease the cost of fund to the SMEs. Second, Fintech companies can lessen the problem of information disequilibrium in lending decisions. Unlike the traditional banks, Fintech are equipped with bigdata and artificial intelligence that enable them to obtain information about the creditworthiness of the SMEs. Third, Fintech can raise fund from both private and public investors leading to a large amount of credit open to SMEs borrowers.

The focus of this study is on Nigeria for two main reasons. First, literature on Fintech as alternative for financing SMEs is numerous but there is still a dearth of research on Nigeria (Frambach and Schillewaert, 2002; OECD, 2015; WEF, 2015; Benthem, 2016; Lu, 2018; Bradford, 2018; Klöhn et al., 2016). Second, the need to boost the financial access of youth and women that are into SMEs through new technologies also calls for an investigation as to how viable is Fintech as an alternative financing for them.

Given the objectives of the study and related constraints such as availability of time and resources (Patton, 2002) as well as the use of judgement in determining the sample size of a qualitative research (Sandelowski, 1995), a total 200 entrepreneurs who have adopted Fintech as alternative source of finance were judgementally chosen as sample for this study. The analysis of the data collected revealed several findings. First, the four components investigated taken together account for 95.9% of changes in SMEs decision to adopt Fintech as alternative finance. On individual basis, except for organisational characteristics, all the other three components investigated revealed positive effects as the study expects.

This study contributes to knowledge in several ways. First and foremost, the study contributes to the extant literature on Fintech as alternative finance for SMEs. With the rapid growth of Fintech companies as financial service providers, the adoption of Fintech as alternative finance by SMEs has propelled the debate on the viability of Fintech as an alternative for SMEs in developing countries. Second, the study will serve as a policy for both the SMEs and the Fintech companies. For the SMEs, it will them to develop all the necessary skills their employees required to identify digital financial products and services provided by Fintech. Finally, the findings of the study can help policy makers to enact rules and regulations protecting SMEs that employ Fintech as alternative source of finance.

2 Literature review

There are many theories that underpin the use of Fintech as an alternative financing for SMEs. One of such theories is the capital structure theory. Using Fintech as an alternative financing result in Fintech being one of the capital structure components of a firm because capital structure of a firm is defined as the various ‘sources of finance employed by the firm’ [Baker and Martin, (2011), p.1]. This links Fintech to the various capital structure theories (Frydenberg et al., 2011). Similarly, the adoption theory also explains Fintech as an alternative source of finance for SMEs. Scholars have agreed that alternative finance is an innovation (Bruton et al., 2015) and the extant literature focuses mainly on innovation diffusion theory (Wardrop et al., 2015), as innovation is viewed as a new idea which provides individuals and firms with diverse alternatives of solving problems (Rogers, 1983). Thus, this study uses a modified version of the Wisdom et al. (2013) innovation adoption theoretical framework.

The Wisdom et al (2013) theoretical framework views adoption as a process involving constructs relevant across differing contextual levels of organisational, external, innovation and individual. The framework is a product of a review of 20 theoretical frameworks with several key concepts related to theories of adoption of innovation cutting across very simplistic theories with single specific construct (Cohen and Levinthal, 1990) to more wide-ranging theories that integrate several constructs (Greenhalgh et al., 2004).

Literature on Fintech as an alternative source of finance is huge. For example, Lu (2018) found peer-to-peer (P2P) lending market and digital-based challenger banks as examples of Fintech companies that proved robust in solving the financing needs of SMEs than traditional banks. Similarly, Benthem (2016) found most Dutch SMEs finding alternative finance as a suitable option for their companies. Furthermore, the OECD (2015) has found that as banks decline from funding SMEs, powerful online lenders have made it straightforward for SMEs to obtain credit without the support of government. Moreover, the ability of Fintech to provide fast funding couple with lowered costs of lending to clients due to their online presence have enabled lenders to close the financing gap of SMEs in credit market (WEF, 2015).

2.1 Hypothesis development

Consistent with Wisdom et al. (2013) framework, the following sub-sections review the impact of the several constructs on the adoption of Fintech as an alternative financing for SMEs, and upon which the hypotheses for this study are developed.

2.1.1 External environment

An organisation’s external environment involves factors outside the environment that affects its operations causing it to respond and react to maintain its drive (Openstax, 2019). Studies on the association between an organisation’s external environment and adoption are huge. For instance, Damanpour and Schneider (2006) found that high population growth increases the tax base of local government which, in turn, provides the incentives for investment in innovation. Similarly, Frost (2020) discovered that the adoption of Fintech is associated to high cost of traditional banking services. On the other hand, Frambach and Schillewaert (2002) revealed that the competitiveness of business

environment has mixed impact on the adoption of Fintech. Accordingly, the following hypothesis is developed for this study.

- H1 There is a positive relationship between changes in external environment and SMEs adoption of Fintech as alternative finance.

2.1.2 Government policy and regulation

There are many scholars including Oldenburg and Glanz (2008) and Aarons et al. (2011) that asserted that government policies and regulations have positive relationship with the adoption of innovation. Other scholars went further to opined that during the adoption stage regulatory agencies are characterised with increased level of adoption (e.g., Feldstein and Glasgow, 2008; Mitchell et al., 2010). The emergence of Fintech around financial regulation has brought about significant financial development (Muganyi et al., 2022) and many countries have enacted regulations that affect the degree to which SMEs adopt Fintech. For example, in the USA, rules 506(b) and (c) on crowdfunding focus mainly on who invests on crowdfunding securities. While this investor's protection is commendable, the cost may be too high for many SMEs to invest in crowdfunding securities (Bradford, 2018). In Europe, to mitigate information disequilibrium, issuers of securities are required to disclose all information about a security in a document called 'prospectus' (Klöhn et al., 2016). This will enable investors (including SMEs) to be well informed before any investment decision. This study hypothesis as follows:

- H2 There is a positive relationship between changes in government policies and regulations and SMEs adoption of Fintech as alternative finance.

2.1.3 Social network

Social networks and connections with sister organisations are suggested to have positive relationships with adoption (Berta et al., 2005). Networking within organisations having the same type of business is most likely to promote the acceptance of behaviours of those organisations that are core within the network (Mendel et al., 2008). Consistent with this assertion, Gibbs et al. (2007) found that social network traits have direct consequence on the adoption of technology by small businesses. According to Gibbs et al. (2007) the adoption of technology, and indeed Fintech, by SMEs is essentially a social process influenced by related personal or business social networks of an individual entrepreneur. Thus, deriving from Burt's (1987) theory of social comparison, the adoption of Fintech by SMEs can be argued to be a result of pressure from close contacts rather than the value of the technology to the SMEs. Accordingly, this study hypothesis as follows:

- H3 There is a positive relationship between changes in social network and SMEs adoption of Fintech as alternative finance.

2.1.4 Absorptive capacity

An organisation's capability to employ innovation and current knowledge is found to have positive effect with the adoption of technology (Aarons et al., 2011). For example, Abu-Basar et al. (2022) found that the ability to identify digital financial products and services has significant positive influence on SMEs' decisions to adopt Islamic Fintech. On the other hand, EY (2022) found that despite 99% of businesses in the EU are SMEs,

only 25% of them adopted Fintech due to inadequate integration of technology into their businesses. Based on these findings, the following hypothesis is developed:

- H4 There is a positive relationship between changes innovative adoptive capacity and SMEs adoption of Fintech as alternative finance.

2.1.5 Leadership and champion of innovation

Leadership style and the desire for innovativeness are found to be important elements in the adoption of technology in organisation. For instance, Aarons et al. (2011) and Solomons and Spross (2011) found a positive relationship between adoption and leadership styles such as CEO's impact, senior management endorsement, and leadership promotion. On the other hand, a top-down leadership style, accordingly to Backer et al. (1986), is found to be related negatively to adoption. Furthermore, the desire by management to employ technology is evidenced to be a deciding factor in the recognition and use of novel technology particularly Fintech (Khechine et al., 2016). Accordingly, the following hypothesis is developed:

- H5 There is a positive relationship between changes in leadership desire for innovation and SMEs adoption of Fintech as alternative finance.

2.1.6 Norms, values, and cultures

Norms, values, and culture of organisation are important factors in the adoption of technology. Several scholars have found similarities in organisational culture as having positive relationship with technology adoption (Solomons and Spross, 2011). Similarly, Oldenburg and Glanz (2008) have discovered a positive association problem solving culture and adoption. Empirically, Abbasi et al. (2021) found masculine societies having positive moderating effect on the connection between Fintech and SMEs' efficiency. In addition, they found individualistic and long-term oriented cultures having negative influence on the correlation between Fintech and SME efficiency. Based on this discussion, the following hypothesis is developed:

- H6 There is a positive relationship between norms, values, and cultures and SMEs adoption of Fintech as alternative finance.

2.1.7 Training and retraining

As businesses continue to invest in technologies to the ever-changing competitive global environment, there is need for management to realise that training and retraining of employees on the effective use of technology are fundamental for successful implementation of new technologies. Evidence has shown that organisational and managerial support for training is positively connected to the adoption of technology (Greenhalgh et al., 2004; Mitchell et al., 2010).

In relation to SMEs, Catherine et al. (2021) have found new technologies requiring complementary investments in employees' skills acquisition and that firms consider both new technologies and training of their workforce prerequisite for productivity. Thus, this study hypothesis as follows:

- H7 There is a positive relationship between training and retraining and SMEs adoption of Fintech as alternative finance.

2.1.8 Traits and readiness for change

The resources available to an organisation are a fundamental factor in determining the success of any strategic change that an entity might adopt (Smith, 2005). When an individual member of an entity does not see the need for any change or does not believe that the organisation has the capacity to make change, then it is highly likely that the change initiative will not take place (Holt et al., 2007). Thus, individual traits such as receptiveness and efficacy are found to be positively associated with readiness for change (Smith, 2005; Aarons et al., 2011). Similarly, organisation's innovativeness and desire to reduce risk are found to be positively related with adoption (Aarons et al., 2011). This study hypothesis is as follows:

- H8 There is a positive relationship between traits and readiness for change and SMEs adoption of Fintech as alternative finance.

2.1.9 Complexity, relative advantage, and observability

Several theories have identified clarity of purpose, relative advantage, and observability as adoptable innovations (Simpson, 2002; Rogers, 2003; Glasgow et al., 2003; Oldenburg and Glanz, 2008). However, empirical studies have suggested mixed findings. For instance, Frambach and Schillewaert (2002) and Greenhalgh et al. (2004) have found observability, workability, and visibility of innovation as having no relationship with adoption. On the other hand, Guet al (2009) found that where users perceived technology as easy to understand, decision to is positive always. Thus, this study hypothesis is as follows:

- H9 There is a positive relationship between complexity, relative advantage, and observability and SMEs adoption of Fintech as alternative finance.

2.1.10 Cost efficacy and feasibility

Cost effectiveness is a major factor in the choice of Fintech as alternative source of finance for SMEs. Several scholars, including Mendel et al. (2008) and Mitchell et al. (2010) have suggested that cost efficacy and feasibility greater than expected costs of adoption are positively related to adoption of innovation. Other scholars opined those innovations with clear-cut cost effectiveness relative to existing practices is most likely to be adopted (Graham and Logan, 2004; Damanpour and Schneider, 2009). Consistent with these views, extant empirical literature has suggested that the adoption of Fintech by SMEs is found to be cost effective. For example, Gerben et al. (2016) found the costs of micro enterprises decreasing sequel to the adoption of Fintech. Similarly, Kuo et al. (2015) found the marginal cost of SMEs being lowered because of the adoption of Fintech. Based on this discussion, the following hypothesis is formulated:

- H10 There is a positive relationship between cost efficacy and feasibility and SMEs adoption of Fintech as alternative finance.

2.1.11 Evidence and compatibility

Evidence of practical usefulness and the ability to compare innovations with existing practice are important features for the adoption of innovation (Feldstein and Glasgow, 2008; Mitchell et al., 2010). Innovation's ability to suit the needs of an organisation and be compared with existing solutions are identified as having positive relationship with adoption (Rogers, 2003; Graham and Logan, 2004; Feldstein and Glasgow, 2008). SMEs opt for Fintech as alternative source of finance not just because incumbent banks are not willing to lend them (Lu, 2018) but most importantly because Fintechs provide all the traditional banking services that were previously the exclusively preserve of the traditional banks in a comparatively easier and more incredible customer acceptance (Chishti and Barberis, 2017). Thus, this study hypothesis as follows:

H11 There is a positive relationship between evidence and compatibility and SMEs adoption of Fintech as alternative finance

2.1.12 Trialability, relevance, and ease

The extent to which an innovation can be tested and they believe that using it would be free of effort are important criteria for adoption (Davis, 1989; Rogers, 2003). Several theories have found ease and relevance of use as well as limited level of trial are positively related to adoption (Greenhalgh et al., 2004; Oldenburg and Glanz, 2008; Aarons et al., 2011). Also, continuous ease of use, relevance of use, and limited trials during the adoption stage are found to have positive relationship with adoption (Greenhalgh et al., 2004; Oldenburg and Glanz, 2008; Damanpour and Schneider, 2009). Evidence has shown that Fintech is relevant to SMEs and has made it easier for the SMEs to access finance via alternative sources including online lending and peer-to-peer lending (Salva, 2023) suggesting the existence of positive relationship between these attributes and SMEs' adoption of Fintech. Accordingly, the following is hypothesis:

H12 There is a positive relationship between trialability, relevance, and ease and SMEs adoption of Fintech as alternative finance

2.1.13 Affiliation with organisational culture

Staff behaviour towards an organisation's beliefs, attitudes, and values has relationship with adoption. Several theories have identified agreement between an employee's behaviour towards an organisational culture as having positive relationship with adoption (Solomons and Spross, 2011; Aarons et al., 2011). Empirical evidence has suggested that organisational culture is habituated, and employees tend to embrace technology that are consistent with their culture and resist those that conflict their culture (Cooper, 1994). Based on this discussion, the following hypothesis is developed:

H13 There is a positive relationship between affiliation with organisational culture and SMEs adoption of Fintech as alternative finance.

2.1.14 Attitudes, motivations, and readiness towards quality improvement and reward

Individual member readiness and motivation for change and for all-inclusive quality improvement strategy and utilisation of reward systems are found to be correlated with adoption (Weinstein et al., 2008; Godin et al., 2008; Solomons and Spross, 2011). For example, Damanpour and Schneider (2009) and Aarons et al. (2011) found employees readiness and approval towards holistic quality improvement approach as having positive relationship with adoption. Meanwhile, Gfrerer et al. (2020) found, on one hand, similarities in individual attitudes towards change and quality improvement and, on the other hand, significant differences in terms of individual readiness, competences, and motivation towards adoption. Furthermore, Festa et al. (2022) found the readiness of an entrepreneur adopting a Fintech is influenced by his knowledge and the availability, and access of the technology. Based on this discussion, the following hypothesis is developed:

- H14 There is a positive relationship between attitudes, motivations, and readiness towards quality improvement and reward and SMEs adoption of Fintech as alternative finance.

2.1.15 Individual characteristics

The awareness, knowledge, skill, and competence of individual staff members influence the organisation's adoption of technology. These characteristics are found to be positively connected with adoption (Oldenburg and Glanz, 2008; Solomons and Spross, 2011; Aarons et al., 2011). Other theories, however, identified such individual characteristics as extended job tenure, understanding of research, and lack of skills (Gallivan, 2001; Solomons and Spross, 2011). Empirically, Festa et al. (2022) found the readiness of an entrepreneur to adopt Fintech is influenced greatly by his knowledge of the availability. Similarly, Ndubisi and Jantan (2003) have identified lack of skills and knowledge about the prospect of Fintech as factors influencing entrepreneurs' adoption of Fintech. Furthermore, Wainwright et al. (2005) have found significant impact of robust technological competency such as specific ICT skills of SMEs, on the adoption of FinTech services. Wainwright et al. (2005) added the possibility of adoption or rejection Fintech amongst SMEs is significantly influenced by managerial ICT skills, practices, and knowledge.

- H15 There is a positive relationship between individual characteristics and SMEs adoption of Fintech as alternative finance.

2.1.16 Managerial characteristics

Managerial characteristics were found to have direct influence on employees' morale, motivation, and reward for innovation and change (Damanpour and Schneider, 2009). Empirical evidence has shown the influence of several managerial characteristics on adoption. For example, Thong and Yap (1995) found CEO's innovativeness, attitude towards adoption, and information technology (IT) knowledge as important considerations in the adoption technology by SMEs regardless of the SMEs' size. On the other hand, Dorothy and Isabelle (1988) found that not all managerial characteristics that

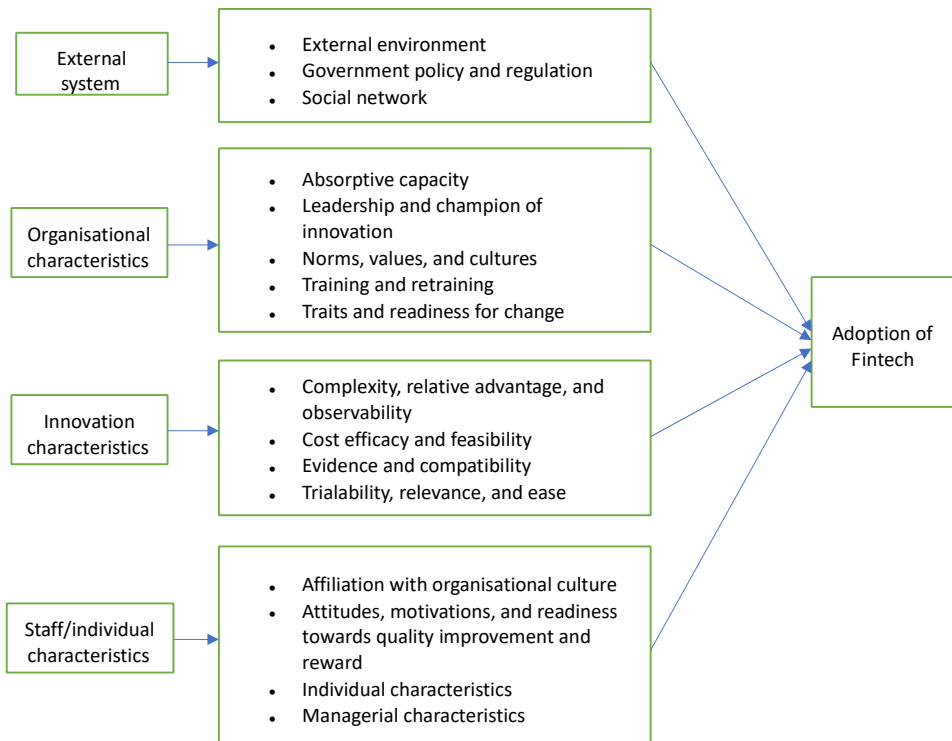
influence the extent of adoption and usage. Instead, only those employees who are low in personal innovativeness and whose task related skills are low that perceived managerial characteristics influencing their attitudes towards adoption. Based on this discussion, the following hypothesis is developed:

H16 There is a positive relationship between managerial characteristics and SMEs adoption of Fintech as alternative finance.

2.1.17 *Fintech as alternative financing*

There are many definitions given to the term adoption as it relates to technology. DeLone and McLean (2003), for example, defined adoption of technology in terms of its uses and outcomes and identify ‘user satisfaction’ as one of the success factors of adoption. On the other hand, Rogers (2003, p.177), defined adoption as a decision to fully use ‘an innovation as the best course of action available’. Consistent with Rogers (2003) and Tatnall and Burgess (2009) defined adoption as a decision by an organisation or individual to utilise and implement a technology. Therefore, this study adopts the Rogers (2003) definition of adoption as proxy for Fintech as alternative financing for SMEs.

Figure 1 Fintech as alternative financing for SMEs (see online version for colours)



2.2 Model specification

Figure 1 illustrates the relationship between the hypotheses developed in Section 2.1. The Figure emphasises 16 decisional factors as the independent variables for the study and Fintech as alternative financing as the dependent variable.

3 Research method

This study utilises qualitative method of research. Qualitative research is a kind of research that offers profound understanding of the problem by enquiring participants their experiences, awarenesses, and understanding relative to a particular problem (Tenny et al., 2022). Qualitative research deals with universality of meanings, opinions, motivations, ambitions, values, awarenesses and human feelings gained with research participants in their subjectivity and living contexts (Petty et al., 2012). The choice of qualitative method is informed by two main reasons. First, data was gathered via a questionnaire in which the perception of entrepreneur owners of SMEs were sought on the adoption of Fintech as alternative source of finance. Second, as the findings of a qualitative study cannot be generalised across all settings, the employment of qualitative method is suitable in this study as its findings cannot be generalised to other nations.

3.1 Sample and data

The population of this study covers all registered SMEs in Nigeria that use Fintech as an alternative finance. Given the objectives of the study and related constraints such as availability of time and resources (Patton, 2002) as well as the use of judgement in deciding the sample size of a qualitative research (Sandelowski, 1995), a total 200 entrepreneurs who have adopted Fintech as alternative source of finance were judgementally selected as sample for the study. Judgemental sampling is most suitable for this study for a number reason. First, it is a non-probability sampling technique in which participants for the study are chosen based on a researcher's previous knowledge and judgment (SurveyPoint, 2023). Second, judgemental sampling guarantees the establishment of appropriate sample size (Sandelowski, 1995) and ensures greater level of accuracy (Thietart, 2001). This is very essential because it guarantees the generation of reliable data and efficiency in the use of resources and conformity with ethical principles (Jorge and Lilian, 2014). Third, judgemental sampling takes less time in sampling judgement and also tremendously precise and random participants cannot enter responses as only the population in question is targeted (SurverPoint, 2023).

A five-point Likert scale questionnaire was utilised in the collection of data for the study. This gives five possible responses to each of the question or statement and enables the respondents to specify their strength of agreement or feelings to a particular question or statement (Saul, 2023). To uncover any possible weaknesses in the design and content of the instrument and to be acquainted with research procedure (Lancaster et al., 2004), the questionnaire was pilot tested with some of the respondents. Thereafter, the questionnaires were administered in person to the respondents. Of the 200 administered questionnaires, 162 were returned correctly completed. This represents 81% rate of return and a confirmation that the questionnaire was well constructed (Walonick, 2010). Finally,

the data so gathered was analysed using descriptive statistics, factor analysis and multiple regression analysis.

3.2 *Measurement of variables*

This study used multi-item scales in measuring the variables employed. The measurement items were adopted from instruments used in prior studies on Fintech as alternative source of finance for SMEs. The selection criteria for the measures were based on their match to each variable and their constancy with the objectives of the study. Tapping into the theoretical framework of each construct, a sample of five items was chosen for each construct to ensure content validity. Moreover, to guarantee the representativeness of the selected sample, pilot test was conducted by a panel of five researchers who are vast in the field of technology-based banking and finance. Based on the input the experts provided some of the items were dropped leaving three, five, four, and four items respectively for external system, organisational characteristics, innovation characteristics, and staff/individual characteristics contexts. To further validate the resultant items, a focus group of 30 SMEs operators were organised to assess the ambiguity and understandability of each of the items. Consequently, the items were retained with little modifications.

4 Findings

4.1 *Reliability test*

The study questionnaire was tested for internal consistency and construct reliability using Cronbach's alpha. All the items, except the demographics of the respondents, were tested for reliability and the results are presented in Table 1. As can be seen from Table 1, the Cronbach's alpha of the items ranged from 0.907 for external system to 0.985 for staff/client characteristics.

Consistent with Nunnally and Bernstein (1994) and Tan and Teo (2000) conclusion that alpha coefficient of 0.6 is reliable and internally consistent; all the alpha values for this study are judged internally consistent and reliable.

Table 1 Cronbach's alpha test of reliability

<i>Component</i>	<i>No. of items</i>	<i>Mean</i>	<i>Cronbach's alpha</i>
ES	3	3.496	0.907
OC	5	3.557	0.952
IC	4	3.745	0.973
SC	4	3.557	0.985
BO	2	3.801	0.967

4.2 *Descriptive statistics*

Table 2 presents the demographics of the respondents. First, 92% of the respondents were male entrepreneurs, indicating gender disparity amongst the sampled respondents. Second, in relation to age, the percentage distribution of the respondents was fair,

suggesting active participation in SMEs across all age brackets. Third, 87.7% of the respondents have educational level below first degree, indicating lack of interests in entrepreneurship amongst university graduates. Forth, about two-third of the respondents have either 6–15 or more year of entrepreneurial experience, indicating strong entrepreneurial commitment of the respondents.

Table 2 Demographic characteristics of the respondents

<i>Demographic</i>	<i>Category</i>	<i>Percentage</i>	<i>Number</i>
Gender	Male	92.00	149
	Female	08.00	13
Age	20–30	33.30	54
	31–40	45.70	74
	> 40	21.00	34
Education	Secondary level	48.80	79
	ND/NCE	38.90	63
	HND/first degree	09.30	15
	Second/third degree	03.10	5
Experience	1–5 years	37.70	61
	6–15 years	43.20	70
	> 15 years	19.10	31

4.3 Factor analysis

Consistent with earlier studies and in line with the modifications after the pilot-test and focus group input, a total of 16 items were chosen for the study as indicated in Section 3.2. To confirm the appropriateness of the use of factor analysis, the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity were run and based on the test results, as shown in Table 3, the items were subjected to factor analysis.

Table 3 KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		0.909
	Approx. Chi-Square	5,703.493
Bartlett's test of sphericity	df	120
	Sig.	0.000

A principal factor analysis stipulating four factors with varimax rotation was run to determine the items to be retained based their rotated factor loadings. The analysis produced a four-factor matrix with no cross-loading. Given that the factor loadings are significant and the fact that different researchers have suggested different threshold for a good factor loading (e.g., Hair et al., 1998; Matsunaga, 2010), it is, therefore, reasonable to conclude that there is no universally acceptable cut-off for what makes a good factor loading. The researcher is required to retain all items that clearly and strongly load to one factor while simultaneously showing little or no loading to other factors. However, where an item's load is high to more than one factor or its main loading is very low to be

qualified as clear load, then the researcher uses judgement. Thus, for this study, a cut-off threshold of 0.6 and above is set.

Table 4 presents the components and the factor loadings of all the items. From Table 4, all the items have met the minimum threshold of 0.6 set for the study. Accordingly, all the items are retained.

Table 4 Components and factor loadings

<i>Component</i>	<i>Item</i>	<i>Proxy</i>	<i>Factor loading</i>
External system	Changes in external environmental influence SMEs' decision to adopt Fintech as alternative finance.	ES1	0.908
	Changes in government policy and regulations influence SMEs' decision to adopt Fintech as alternative finance.	Es2	0.908
	Changes in social network influences SMEs' decision to adopt Fintech as alternative finance	ES3	0.695
Organisational characteristics	Organisational absorptive capacity influence SMEs' decision to adopt Fintech as alternative finance.	OC1	0.828
	Organisational leadership and innovative drive influence SMEs' decision to adopt Fintech as alternative finance.	OC2	0.851
	Organisational norms, values, and culture influence SMEs' decision to adopt Fintech as alternative finance.	OC3	0.763
	Organisational training and retraining efforts influence SMEs' decision to adopt Fintech as alternative finance	OC4	0.676
	Organisational traits and readiness for change influence SMEs' decision to adopt Fintech as alternative finance.	OC5	0.912
Innovation characteristics	Fintech's complexity, relative advantage, and observability influence SMEs' decision to adopt it as alternative finance.	IC1	0.863
	Fintech's cost efficacy and feasibility influence SMEs' decision to adopt it as alternative finance	IC2	0.848
	Fintech's evidence of practical usefulness and ability to compare with existing practice influence SMEs' decision to adopt it as alternative finance.	IC3	0.882
	Fintech's trialability, relevance and ease of usage influence SMEs' decision to adopt it as alternative finance.	IC4	0.901
Staff/client characteristics	Staff behaviours towards an organisation's beliefs, attitudes, and values influence SMEs decision to adopt Fintech as alternative finance	SC1	0.907
	Staff attitude, motivations, and readiness towards quality improvement and reward influence SMEs decision to adopt Fintech as alternative finance	SC2	0.891

Table 4 Components and factor loadings (continued)

<i>Component</i>	<i>Item</i>	<i>Proxy</i>	<i>Factor loading</i>
Staff/client characteristics	Entrepreneur's individual characteristics influence SMEs decision to adopt Fintech as alternative finance.	SC3	0.881
	Entrepreneur's managerial characteristics influence SMEs decision to adopt Fintech as alternative finance.	Sc4	0.915
Best option available	Fintech is the best possible alternative finance option for SMEs	BO1	0.963
	Fintech has made access to finance for SMEs much easier and more affordable	BO2	0.970

4.4 Regression results

A summary of the regression results for the study is presented in Table 5. It can be seen from Table 5 that the four components taken together account for 95.9% of the changes in SMEs decision to Fintech as alternative finance source. The regression model is significant at 1% level, (i.e., 0.000) except for organisational characteristics, with revealed a negative effect on the decision to adopt Fintech, all the other three components showed positive effects as expected.

Table 5 Regression results

<i>Components</i>	<i>Expectation</i>	<i>Std. error</i>	<i>B</i>	<i>Sig.</i>
ES	+	0.049	0.295	0.000
OC	+	0.097	-0.044	0.653
IC	+	0.064	0.417	0.000
SC	+	0.083	0.329	0.000

Note: Summary: $R^2 = 0.960$; Adjusted $R^2 = 0.959$; $F = 939.771$ and $Sig. = 0.000$.

5 Discussion of findings

The analysis of results in Section 4 has revealed several findings. The results, however, fell short of the study's expectation of all-through positive effect of SMEs decision on Fintech adoption. Instead, only three out of the four components revealed positive relationship.

The study revealed a positive relationship between SMEs decision to adopt Fintech and changes in external environment. This finding is consistent with many prior studies including Berta et al. (2005), Oldenburg and Glanz (2008), Aarons et al. (2011) and Frost (2020). Several reasons might account for this relationship. First is the fact that traditional banks need real estate and tens of thousands of employees to deliver their services while Fintech companies need just a small team to deliver their products and services. This improved business structure enables them to pass on their savings to their customers by offering products and services that are ten times cheaper than traditional banks (Damen, 2021). Another reason might be the trust the SMEs have on governments'

attempts to protect them by enacting regulations stipulating eligibility of investing in Fintech (Bradford, 2018) and the disclosure of all information about a security in a prospectus (Klöhn et al., 2016). This will enable the SMEs to be well informed before any decision to invest in Fintech. Overall, this finding suggests the important of external environment in SMEs' decision to invest in Fintech. While the use of technology is becoming the norm in the financial sub-sector of the global economy and in particular the Nigeria economy, it is apparent that factors external to the SMEs such as costs, social networking, and government regulations play key role in SMEs adoption of Fintech. Where the environment is not conducive, SMEs might not invest much on Fintech and this is likely to impact on their operational efficiencies.

Moreover, contrary to expectation, the study revealed a negative relationship between organisational characteristics and SMEs decision to adopt Fintech. Several possibilities might be deduced for this negative relationship. First, evidence has shown that organisation's absorptive capacity has a positive relationship with adoption (Aarons et al., 2011; Abu-Basar et al., 2022; EY, 2022). The fact that this study revealed a negative relationship is an indication that SMEs in Nigeria are either lacking the ability to identify digital financial products and services or have inadequate technology integrated in their business processes. Second, it is also likely that the result is an indication of lack of support and desire from management to employ the use of Fintech. This view is based on the premise that CEO's influence, top management support and desire for the deployment of technology are factors necessary for the adoption of technology particularly Fintech by SMEs (Backer et al., 1986; Khechine et al., 2016; Aaron et al., 2011). Third, as the adoption of new technology by SMEs requires complementary investments in employees' skills acquisition (Robinson et al., 2021) which is a prerequisite for productivity, the result suggests SMEs' unwillingness for training and retraining of staff post adoption. All these possibilities confirm the unwillingness of some SMEs in Nigeria to adopt Fintech as a financing source despite the numerous benefits of Fintech to small business (Coffie et al., 2021). As SMEs have holistic view to innovations (Hamdan et al., 2016), it can be inferred, from this finding, that the barriers for the adoption of Fintech by SMEs in Nigeria are the same as those of other innovations. The implication of this holistic view, if not changed, is likely to stagnate the Nigeria's SMEs sub-sector and makes it less competitive in the global market place.

Interestingly, the study revealed a positive relationship between changes in innovation characteristics and SMEs decision to adopt Fintech. Two to three reasons might account for this relationship. First, it is likely that the ability to access Fintech services at any time and at any location and immediately seeing the effect of transactions is one of the reasons that made the respondents to view Fintech as a viable alternative source of finance. Fintech, as an emerging technology, is found to be observable and easy to use. Second, evidence has shown that the products and services of Fintech are ten times cheaper than traditional banks (Damen, 2021) and thus, cost efficacy is a major factor for the positive relationship. Third, the respondents viewed Fintech as a suitable solution for SMEs needs. This view might be hinged on the ground that an innovation's ability to suit the needs of an organisation and be compared with existing solutions are identified as having positive relationship with adoption (Rogers, 2003; Graham and Logan, 2004; Feldstein and Glasgow, 2008). Various studies on innovation characteristics. The implication of this finding is that innovation characteristics still remain prime in SMEs adoption decision despite technological sophistications and the growing importance of innovations for business operations.

Finally, the study also revealed a positive association between staff/individual characteristics and SMEs decision to adopt Fintech. This finding confirms majority of prior studies on Fintech adoption (Cooper, 1994; Gallivan, 2001; Wainwright et al., 2005; Damanpour and Schneider, 2009; Solomons and Spross, 2011; Aarons et al., 2011; Gfrerer et al., 2020; Festa et al., 2022). The result indicates several suggestions. First, SMEs staff embraces Fintech as being consistent with their organisation's beliefs, attitudes, and values. Second, the respondents believed that SMEs readiness and approval for complete quality improvement are necessary conditions for the adopt of Fintech. Third, the respondents also viewed CEO's attributes such as innovativeness and IT knowledge as important factors in the adoption Fintech by SMEs. Overall, this finding underscores the importance of a workforce who understood the values and philosophy of the organisation and is ready to assist the organisation in achieving its objectives.

6 Conclusions

This study investigated factors influencing SMEs decision to adopt Fintech as a source of fiancé. Sequel to dearth of research on developing countries and the need to boost financial access of youth and women that are into SMEs through Fintech technologies, this study employed the Wisdom et al. (2013) theoretical framework which views adoption as a process involving constructs relevant across contextual levels of organisational, external, innovation and individual. Based on the literature reviewed and the discussion of findings, the study concludes that Fintech's financial products and services are more cost effective than the SMEs existing solutions. This conclusion is because Fintech companies have improved business structure that enables them to pass on their savings to their customers by offering products and services that are ten times cheaper than traditional banks. It is also the conclusion of this study that SMEs are satisfied that Nigeria is adequately regulating the Fintech industry by enacting regulations providing enough protection and information to investors. Furthermore, the study concludes that SMEs lack the internal capacity to adopt Fintech as alternative finance source. In other words, SMEs in Nigeria are either lacking in ability to identify digital financial products and services or having inadequate technology integrated in their business processes. Moreover, the study that Fintech is a suitable solution for SMEs in Nigeria because the respondents were of the view that Fintech, as an alternative source of finance, is readily available, accessible, observable, and cost effective. Finally, the study concludes that Fintech adoption as alternative finance is consistent with SMEs beliefs, attitudes, and values. This is based on the positive relationship between individuals' characteristics and the decision to adopt Fintech as alternative finance as revealed by the study.

Based on the conclusions above, some practical implications are identified. First, the adoption of Fintech as an alternative finance by SMEs is fundamental, to researchers, on one hand, and to both the financial services industry and the SMEs, on the other hand. This requires an in-depth understanding of factors influencing SMEs decision to adopt Fintech as alternative finance. Despite the rapid growth in technology, the study revealed that SMEs in Nigeria lack the ability to identify digital financial products and services. Thus, Fintech companies must intensify their customers' awareness campaign of the various products and services they offer.

Second, as the implementation of the Fintech solution requires well trained and skill workforce, there is the need for complementary investment in employees' skills acquisition. SMEs should train and retrain their staff before and during implementation of the funding decision. Digital skills are specialised training and are not easy to acquire on the job. Given that Fintech activities are constantly growing, it is highly necessary for SMEs to train their employees to learn new skills.

Third, while the study revealed that the SMEs have faith in government's efforts toward regulating the Fintech industry, it is very important that regulatory authorities should be mindful with the dynamic nature of the Fintech industry and come up with regulations that not only give protection to the SMEs but also propel the adoption of Fintech as alternative funding source by SMEs. For example, government should enact legislation that mandate all Fintech companies to disclose all information relevant for investors and SMEs to enable them take informed decisions on the type and amount of fund to access.

7 Further research

Despite its originality, there are some limitations of this study that call for further research. First and foremost, the study is gender biased. Almost 92% of the respondents were male. The propensity of SMEs owners to adopt Fintech as alternative Finance might be influenced by his or her gender. Thus, further research is suggested to examine gender difference in SMEs decision to adopt Fintech as alternative funding option. Second, this study employed a cross-sectional research design in which data was collected at a specific point in time. However, SMEs decision to adopt Fintech as alternative finance is likely to change over time due to increase in experience and advancement in Fintech technology. Thus, a longitudinal study covering longer periods of time should be conducted.

References

- Aarons, G.A. et al. (2011) 'Advancing a conceptual model of evidence based practice implementation in public service sectors', *Administration and Policy in Mental Health and Mental Health Services Research*, Vol. 38, No. 1, pp.4–23.
- Abbasi, K. et al. (2012) 'FinTech, SME efficiency and national culture: evidence from OECD countries', *Technological Forecasting and Social Change*, February 2021, Vol. 163, No. 4, p.120454.
- Abu-Basar, S. et al. (2022) 'How digital financial literacy affects i-FinTech adoption among Bumiputera SMEs in Selangor, Malaysia', *International Journal of Accounting, Finance and Business*, Vol. 7, No. 43, pp587–601.
- Ayyagari, M. et al. (2017) *SME Finance* [online] <http://documents1.worldbank.org> (accessed 24 March 2023).
- Backer, T.E., Liberman, R.P. and Kuehnelt, T.G. (1986) 'Dissemination and adoption of innovative psychosocial interventions', *Journal of Consulting and Clinical Psychology*, Vol. 54, No. 1, pp.111–118.
- Baker, H.K. and Martin, G.S. (2011) *Capital Structure and Corporate Financing Decisions: Theory, Evidence, and Practice*, John Wiley & Sons, London, UK.

- Benthem, F. (2016) *Alternative Finance: The Determinants of Alternative Finance Adoption for Dutch SMEs and the Implications for Capital Structure Theory*, Unpublished Masters theses, University of Twente, Netherlands.
- Berta, W. et al. (2005) 'The contingencies of organizational in long-term care: factors that affect innovation adoption', *Health Care Management Review*, Vol. 30, No. 4, pp.282–292.
- Bradford, C.S. (2018) 'The regulation of crowdfunding in the United States', in Cumming, D. et al (Eds.): *The Economics of Crowdfunding*, pp.185–218, Palgrave Macmillan, Switzerland.
- Bruton, G., Khavul, S., Siegel, D. and Wright, M. (2015) 'New financial alternatives in seeding entrepreneurship: microfinance, crowdfunding, and peer-to-peer innovations', *Entrepreneurship Theory and Practice*, Vol. 39, No. 1, pp.9–26.
- Burt, R.A. (1987) 'Social contagion and innovation, cohesion, versus structural equivalence', *American Journal of Sociology*, Vol. 92, No. 6, pp.1287–1335.
- Catherine, R., Christian, S. and Sisi, L. (2021) *Technology Adoption and Skills A Pilot Study of Kent SMEs*, School of Economics Discussion Papers, University of Kent.
- Chishti, S. and Barberis, J. (2017) *The FinTech Book: The Financial Technology Handbook for Investors, Entrepreneurs and Visionaries*, Wiley, Chichester, West Sussex.
- Coffie, C.P.K. et al. (2021) Determinants of FinTech payment services diffusion by SMEs in Sub-Saharan Africa: evidence from Ghana', *Information Technology Development*, Vol. 27, No. 3, pp.539–560.
- Cohen, W.M. and Levinthal, D.A. (1990) 'Absorptive capacity: a new perspective on learning and innovation', *Administrative Science Quarterly*, Vol. 35, No. 1, pp.128–152.
- Cooper, R. (1994) 'The inertial impact of culture on IT implementation', *Information Management*, Vol. 27, No. 1, pp.17–31.
- Damanpour, F. and Schneider, M. (2006) 'Phases of the adoption of innovation in organizations: effects of environment, organization, and top managers', *British Journal of Management*, Vol. 17, No. 3, pp.215–36.
- Damen, A. (2021) *Fintech vs. Traditional Banks: Competition or Collaboration?* [online] <https://monei.com/blog/fintech-vs-traditional-banks> (accessed 12 February 2023).
- Davis, F. (1989) 'Perceived usefulness, perceived ease of use, and user acceptance of information technology', *MIS Quarterly*, Vol. 13, No. 3, pp.318–339.
- DeLone, W.H. and McLean, E.R. (2003) 'The DeLone and McLean model of information systems success: a ten-year update', *Journal of Management Information System*, Vol. 19, No. 4, pp.9–30.
- Dorothy, L.B. and Isabelle, D. (1988) 'Managerial influence in the implementation of new technology', *Management Science*, Vol. 34, No. 10, pp.1252–1265.
- Edinburgh Group (2012) *Growing Global Economy through SMEs* [online] <http://www.edinburghgroup.org/media> (accessed 14 January 2023).
- EY (2022) *The Untapped Potential for Fintech Companies to Serve Small and Medium-Sized Enterprises* [online] https://www.ey.com/en_dk/financial-services/the-untappedpotential-for-fintech-companies (accessed 26 September 2022).
- Feldstein, A.C. and Glasgow, R.E. (2008) 'A practical, robust implementation and sustainability model (PRISM) for integrating research findings into practice', *Joint Commission Journal on Quality and Patient Safety*, Vol. 34, No. 4, pp.228–243.
- Festa, G. et al. (2022) 'FinTech ecosystem as influencer of young entrepreneurial intentions: empirical findings from Tunisia', *Journal of Intellectual Capital*, Vol. 24, No. 1, pp.205–222.
- Frambach, R.T. and Schillewaert, N. (2002) 'Organizational innovation adoption: a multi-level framework of determinants and opportunities for future research', *Journal of Business Research*, Vol. 55, No. 2, pp. 163–176.
- Frost, J. (2020) 'The economic forces driving fintech adoption across countries', in King, M.R. and Nesbitt, R.W. (Eds.): *The Technological Revolution in Financial Services: How Banks, FinTechs, and Customers Win Together*, University of Toronto Press, pp.70–89.

- Frydenberg, S., Baker, H.K. and Martin, G.S. (2011) 'Capital structure theories and empirical tests: an overview', in Gerald, M. and Baker, H.K. (Eds.): *Capital Structure and Corporate Financing Decisions: Theory, Evidence, and Practice*, pp.129–150, John Wiley & Sons, Hoboken.
- Gallivan, M.J. (2001) 'Organizational adoption and assimilation of complex technological innovations: development and application of a new framework', *Data Base for Advances in Information Systems*, Vol. 32, No. 3, pp.51–85.
- Gerben, H. et al. (2016) *FinTech for Micro, Small and Medium Sized Enterprises: Creating Jobs at the Bottom of the Pyramid through Financial and Digital Innovation* [online] <https://www.findevgateway.org> (accessed 21 February 2023).
- Gfrerer, A. et al. (2020) 'Ready or not: managers' and employees' different perceptions of digital readiness', *California Management Review*, Vol. 63, No. 2, pp.23–48.
- Gibbs, S., Sequeira, J. and White, M.M. (2007) 'Social networks and technology adoption in small business', *Int. J. Globalisation and Small Business*, Vol. 2, No. 1, pp.66–87.
- Glasgow, R.E., Lichtenstein, E. and Marcus, A.C. (2003) 'Why don't we see more translation of health promotion research to practice? Rethinking the efficacy-to-effectiveness transition', *American Journal of Public Health*, Vol. 93, No. 8, pp.1261–1267.
- Godin, G., Belanger-Gravel, A., Eccles, M. and Grimshaw, J. (2008) 'Healthcare professionals' intentions and behaviours: a systematic review of studies based on social cognitive theories', *Implementation Science*, Vol.3, No. 1, pp.36–48.
- Graham, I.D. and Logan, J. (2004) 'Innovations in knowledge transfer and continuity of care', *The Canadian Journal of Nursing Research*, Vol. 36, No. 2, pp.89–103.
- Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., and Kyriakidou, O. (2004) 'Diffusion of innovations in service organizations: systematic review and recommendations', *Milbank Quarterly*, Vol. 82, No. 4, pp.581–629.
- Hair Jr., J.F., Anderson, R.E., Tatham, R.L. and Black, W.C. (1998) *Multivariate Data Analysis*, 5th ed., Prentice Hall, Englewood Cliffs, New Jersey.
- Hamdan, A.R. et al. (2016) 'The success factors and barriers of information technology implementation in small and medium enterprises: an empirical study in Malaysia', *International Journal of Business Information Systems*, Vol. 21, No. 1, pp.477–495.
- Holt, D.T., Armenakis, A.A., Feild, H.S. and Harris, S.G. (2007) 'Readiness for organizational change, the systematic development of scale', *Journal of Applied Behavioral Science*, Vol. 43, No. 2, pp.232–255.
- IFC (2017) *MSME Finance Gap: Assessment of the Shortfalls and Opportunities in Financing Micro, Small and Medium Enterprises in Emerging Markets* [online] <https://www.smefinanceforum.org> (accessed 12 November 2022).
- Jorge, F. and Lilian, M.F. (2014) 'How sample size influences research outcomes', *Dental Press Journal of Orthodontics*, Vol. 19, No. 4, pp.27–29.
- Khechine, H.; Lakhal, S. and Ndjambou, P. (2016) 'A meta-analysis of the UTAUT model: eleven years later', *Canadian Journal of Administrative Science*, Vol. 33, No. 2, pp.138–152.
- Klöhn, L., Hornuf, L. and Schilling, T. (2016) 'The regulation of crowdfunding in the German small investor protection act: content, consequences, critique, suggestions', *European Company Law*, Vol. 13, No. 2, pp.56–66.
- Kuo, C., David L. and Teo, E.G.S. (2015) 'Emergence of FinTech and the LASIC principles', *Journal of Financial Perspectives*, Vol. 3, No. 3, pp.24–36.
- Lancaster, G.A., Dodd, S. and Williamson, P.R. (2004) 'Design and analysis of pilot studies: recommendations for good practice', *Journal of Evaluation in Clinical Practice*, Vol. 10, No. 2, pp.307–312.
- Lu, L. (2018) 'Promoting SME finance in the context of the Fintech revolution: a case study of the UK's practice and regulation', *Banking and Finance Law Review*, Vol. 33, No. 3, pp.317–343.
- Matsunaga, M. (2010) 'How to factor-analyze your data right: do's, don'ts, and how-to's', *International Journal of Psychological Research*, Vol. 3, No. 1, pp.97–110.

- Mendel, P., Meredith, L., Schoenbaum, M., Sherbourne, C. and Wells, K. (2008) 'Interventions in organizational and community context: a framework for building evidence on dissemination and implementation in health services research', *Administration and Policy in Mental Health and Mental Health Services Research*, Vol. 35, No. 1, pp.21–37.
- Mitchell, S.A., Fisher, C.A., Hastings, C.E., Silverman, L.B. and Wallen, G.R. (2010) 'A thematic analysis of theoretical models for translational science in nursing: mapping the field', *Nursing Outlook*, Vol. 58, No. 6, pp.287–300.
- Muganyi, T., Yan, L., Yin, Y. et al. (2022) 'Fintech, regtech, and financial development: evidence from China', *Financial Innovation*, Vol. 8, No. 1, pp.1–20.
- Ndubisi, N. and Jantan, M. (2003) 'Evaluating IS usage in Malaysian small and medium-sized firms using the technology acceptance model', *Logistics Information Management*, Vol. 16, No. 6, pp.440–450.
- Nunnally, J.C. and Bernstein, I.H. (1994) *Psychometric Theory*, McGraw-Hill, New York.
- OECD (2015) *New Approaches to SME and Entrepreneurship Financing* [online] <https://www.oecd.org/cfe/smes> (accessed 14 December 2022).
- Oldenburg, B., and Glanz, K. (2008) 'Diffusion of innovations', in Glanz, K., Rimer, B.K. and Viswanath, K. (Eds.): *Health Behavior and Health Education*, p.313333, Jossey-Bass, San Francisco.
- Openstax (2019) *Principles of Management*, [online] <http://cnx.org/contents> (accessed 2 January 2023).
- Patton, M.Q. (2002) *Qualitative Research and Evaluation Methods*, 3rd ed., Sage Publishers, California, USA.
- Petty, N.J. et al. (2012) 'Ready for a paradigm shift? Part 1: introducing the philosophy of qualitative research', *Manual Therapy*, Vol. 17, No. 4, pp.267–274.
- Rogers, E.M. (1983) *Diffusion of Innovations*, Free Press, New York.
- Rogers, E.M. (2003) *Diffusion of Innovations*, Free Press, New York.
- Salva, D.M. (2023) *What is the Impact of Fintech on SMEs?* [online] <https://www.linkedin.com/pulse/what-impact-fintech-smes> (accessed 16 August 2022).
- Sandelowski, M. (1995) 'Rigor or rigor mortis: the problem of rigor in qualitative research revisited', *Advance in Nursing Sciences*, Vol. 16, No. 2, pp.1–8.
- Saul, M. (2023) *Likert Scale Questionnaire: Examples & Analysis* [online] <https://www.simplypsychology.org/likert-scale.html> (access 15 December 2023).
- Simpson, D.D. (2002) 'A conceptual framework for transferring research to practice', *Journal of Substance Abuse Treatment*, Vol. 22, No. 4, pp.171–182.
- Smith, I. (2005) 'Achieving readiness for organizational change', *Library Management*, Vol. 26, Nos. 6/7, pp.408–412.
- Solomons, N.M. and Spross, J.A. (2011) 'Evidence-based practice barriers and facilitators from a continuous quality improvement perspective: an integrative review', *Journal of Nursing Management*, Vol. 19, No. 1, pp.109–120.
- SurveyPoint (2023) *Judgemental Sampling: An Effective but Less-talked Method* [online] <https://surveypoint.ai/blog/2023/01/30/judgmental-sampling-an-effective-but-less-talked-method> (accessed 14 December 2023).
- Tan, M. and Teo, T. (2000) 'Factors influencing the adoption of Internet banking', *Journal of the Association for Information Systems*, Vol. 1, No. 5, pp.1–42.
- Tatnall, A. and Burgess, S. (2009) *Adoption of E-Commerce in SMEs Encyclopaedia of Information Science and Technology*, 2nd ed., IGI Global Publishers, USA.
- Tenny, S. et al. (2022) *Qualitative Study*, Stat Pearls publishing [online] <https://pubmed.ncbi.nlm.nih.gov/29262162/> from: (accessed 14 December 2023).
- Thietart, R.A. (2001) *Doing Management Research: A Comprehensive Guide*, Sage Publications, London, England.

- Thong, J.Y.L. and Yap, C.S. (1995) ‘CEO characteristics, organizational characteristics and information technology adoption in small businesses’, *Omega*, Vol. 23, No. 4, pp.429–442.
- Wainwright, D. et al. (2005) ‘Towards a framework for benchmarking ICT practice, competence, and performance in small firms. Performance measurement and metrics’, *The International Journal for Library and Information Services*, Vol. 6, No. 1, pp.39–52.
- Walonick, D.S. (2010) *Survival Statistics*, 6th ed., StatPac, Bloomington, USA.
- Wardrop, R., Zhang, B., Rau, R. and Gray, M. (2015) *Moving Mainstream*, The European Alternative Finance Benchmarking Report.
- WEF (2015) *The Future of FinTech: A Paradigm Shift in Small Business Finance* [online] <https://www3.weforum.org/docs> (accessed 23 November 2022).
- Weinstein, N.D., Sandman, P.M. and Blalock, S J. (2008) ‘The precaution adoption process model’, in Glanz, K., Rimer, B.K. and Viswanath, K. (Eds.): *Health Behaviour and Health Education*, 4th ed., pp.123–147, Jossey-Bass, San Francisco.
- Wisdom, J.P., Chor, K.H.B., Hoagwood, K.E., and Horwitz, S.M. (2013) ‘Innovation adoption: a review of theories and constructs’, *Administration and Policy in Mental Health and Mental Health Services Research*, Vol. 41, No. 4, pp.480–502.
- World Bank (2020) *Small and Medium Enterprises (SMEs) Finance: Improving SMEs access to Finance and Finding Innovative Solutions Unluck Sources of Capital* [online] <https://www.worldbank.org/en/topic/smefinance> (accessed 11 January 2023).