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Social Media Adoption and Financial Sustainability: Learned Lessons from Developing Countries

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Abstract: Social Media (SM) is considered one of the most discussed topics in today's business environment, mostly because of the recent developments and improvements in computer and ICT (Information and Communications Technology) technologies. However, very little is known about Social Media's (SM) role in creating Small and Medium-sized Enterprises' (SMEs') financial sustainability. Drawing upon the Technology Organisational and Environmental (TOE) framework, the authors constructed a comprehensive model that examined the role of different factors in the adoption of SM by SMEs in developing countries (using Pakistan as an example). Using a questionnaire survey of 383 owners/managers of SMEs in Pakistan, the research findings determined the different factors (i.e., organisational, technological, and environmental), which can impact the adoption of SM by SMEs. In line with previous research studies, the results of structural equation modelling show that technological factors such as perceived benefits of SM, compatibility of SM, cost, and trust have a substantial effect on SMEs' SM adoption. Similarly, both organisational factors: top management support and technological competence, are strong predictors of SM adoption in SMEs. Finally, environmental factors (i.e., competitor pressure, customer pressure, and information intensity) positively impacted SM adoption by SMEs. The effect of SM adoption on SMEs' financial sustainability was also tested and found to be positive and significant. Several theoretical and practical implications for owners/managers and other stakeholders regarding SM's successful implementation by SMEs are highlighted within the paper.

Keywords: financial sustainability; social media adoption; social media sustainable practices; SMEs; developing countries; social media sustainability; Pakistan

1. Introduction

Social media (SM) has reshaped the enterprise environment worldwide, where businesses attempt to seek competitive advantages through their SM presence [1,2]. In the modern era, firms need to develop their skills in using SM to create better marketing campaigns and advertisement strategies, build profitable customer long-lasting relationships, and obtain an accessible tool for information sharing with SM connected customers [3].

Although SM tools are relatively cheap and provide access to a diverse consumer base, firms have been slow to adopt these technologies. Large firms have generally recognised the need for SM and have rapidly adopted these technologies to improve both their performance and their financial sustainability

of their practices [4–6]. In contrast, Small and Medium-sized Enterprises (SMEs) with limited resources and technical knowledge are reluctant to use such technologies [7], particularly in a strategic manner to help them pursue their sustainability goals [8]. SMEs' sustainability practices consist of attaining a balance between financial resources on the one hand and their social and economic environment on the other hand. Limited financial resources and time constraints are frequently cited factors that hinder SMEs' ability to improve their financial sustainability [9].

The working environment for large firms is highly competitive. For SMEs, operating in such a competitive business environment is both a challenge and an opportunity. Organisational resources (i.e., physical, financial, informational, and human resources) are often limited in the SME sector; thus, it is difficult for these businesses to conduct activities that increase their sustainability [10]. However, achieving financial sustainability may increase SMEs' opportunities to obtain a competitive advantage [8].

Small and Medium-sized Enterprises (SMEs) play a significant role in enhancing the economy [11]. Their considerable role is recognised worldwide in job creation and in providing stability to a country's economy. In fact, many researchers have viewed SMEs as an essential element of modern industrialised societies. Today, in the age of globalisation, enterprises are exposed to an evolving technological environment [3], which has diverse effects on their competitiveness [12]. To respond to such changes, businesses need to integrate ICTs into their business operations, and SM tools can play a significant role in achieving this by obtaining a competitive advantage [13].

Prior studies considered SM usage as an integral part of doing business in today's technologically turbulent market place [14]. A recent study conducted by Digital Market Outlook (2020) shows an annual forecast increase of 7.6% in spending on SM by businesses, resulting in an SM market volume of US \$132,245 million by 2024. This shows that firms now increasingly see SM as an essential ingredient of business operations. Additionally, evidence has been found, which indicates that SMEs need to adopt ICT innovations at the right market level and the right time to gain a competitive advantage and to remain sustainable [15–17]. Evidence also suggests that SMEs are still reluctant and cautious towards adopting new technologies [17], partially because they have limited financial and technical resources [18]. However, Durkin et al. [19] suggested that SMEs can create a competitive edge by using SM tools, as they are comparatively cheap.

The research emphasis on SM and SMEs' financial sustainability is essential because most SMEs struggle to implement SM platforms for the reasons mentioned above. As in many other economies, SMEs in Pakistan play a significant role in providing income and employment to a large number of people [20]. SMEs account for 99% of the 3.17 million businesses established in Pakistan and play a significant role in the country's industrial development [21]. SMEs are spread all over Pakistan in rural and urban areas and represent a large portion of the country's services, trade, agriculture, retail, and manufacturing sectors. Due to SMEs' importance for the economic growth of Pakistan, there is a need to support the role of SM in enhancing the performance of this sector.

There is scarce literature regarding the drivers of SM adoption by SMEs, particularly in the context of developing countries such as Pakistan and Egypt (some examples include: [11,15,20]). Additionally, the previous literature investigating this topic supports the notion that technology's adoption improves business processes and financial sustainability (see, for example: [21,22]). In this context, while some researchers found a significant positive impact of SM adoption on corporate processes, researchers also argued that SM adoption improves firms' ability to reduce costs compared to traditional methods [23]. Therefore, research in this area should provide in-depth information regarding how to increase SM adoption in SMEs and its sustainability implications [1]. Considering this, the current study aims to develop and test a comprehensive model of factors that affect SM adoption by SMEs in Pakistan and its implications on sustainability (i.e., financial sustainability) in a developing country context.

The contribution of the current study to the literature is threefold. Firstly, based on the Technological, Organisational, and Environmental (TOE) framework, this study develops and tests a conceptual multiperspective framework of the different factors that affect SM adoption by SMEs.

It will help SMEs' owner/managers and other stakeholders understand this issue from a developing country perspective. Secondly, the current study attempts to expand the current knowledge of SMEs' sustainability by investigating the relationship between SM adoption and SMEs' financial sustainability. Thirdly, this study empirically tests the framework based on a sample of SMEs from a developing country (i.e., Pakistan). Considering that the majority of research on SM adoption up until now comes from developed countries [8,24–26], it is important to conduct more research studies to investigate developing countries' context. Moreover, the literature suggests that such studies on developed countries cannot be generalisable to the context of developing countries [1], because of a different contextual setting [27].

2. Literature Review and Theoretical Background

2.1. Adoption and Benefits of Internet Technologies for SMEs

SMEs are very much dynamic in their operation, and, therefore, they are expected to adopt new technology easily and quickly [28]. SMEs are suitable adopters of change, are more flexible in their operations, and better adapt and accept recent technological changes than large firms [29]. Moreover, because of their small size and more straightforward structure, SMEs seek new ways of adopting the evolution and advancement in technology within the marketplace [26].

The use and role of new technological tools, for instance SM, and the rapid advancement in this area is becoming prominent for the development of the SMEs sector [30]. Tarutė and Gatautis [31] concluded that new technological tools are becoming critical if firms are to compete in the international market. SMEs are continually recognising the central role of and the significance of these technologies. Numerous research studies highlighted the relevance and importance of new technology adoption by SMEs [32,33]. They stated that the failure of new technology adoption would negatively affect gaining access to global markets, insufficient intelligence about the market place, and the ill management of organisational resources [33].

There is sufficient empirical evidence available that shows SMEs' engagement in new technological innovations, particularly concerning specific new technologies adoption such as the Internet by SMEs. This was explored by Mehrtens, Cragg, and Mills [34] in order to construct a comprehensive model of new technology adoption. Alraja et al. [35] further explored the role of SM (i.e., Facebook) in enhancing the performance of Omani's SMEs, which reflects the significance of SM for SMEs in understanding the role of SM in a country specific context. As demonstrated by numerous examples, new technologies are developing at a rapid speed, therefore, adopting technology and its uses within SMEs are also very significant.

It is significant for SMEs to find out opportunities in regional, national, and international markets. However, getting competitive and remaining sustainable are the top priorities of SMEs, particularly in intense global competition [36]. With limitations such as insufficient resources [37], SMEs lag behind their larger counterparts, which have more extensive resources and capabilities [38]. In this context, new technological tools such as SM become more significant for the survival of SMEs [30], for seeking competitive advantage [39], and to keep pace with the current technologically turbulent market environment [40]. Additionally, it has been observed that SMEs that consider technology adoption as a critical business operations strategy gained significant competitive advantage [41], improved relationship with customers and partners [42], enhanced brand reputation [43], increased business performance [35], and improved financial sustainability [6,42,44].

2.2. Social Media and SMEs

The academic literature proposed several definitions of SM [11] because researchers viewed SM from different perspectives as a communication and marketing tool. However, this study adopts the definition of Kaplan and Haenlein [45] because of its simplicity and comprehensiveness. The authors defined SM as "a group of internet-based applications that build on the ideological and

technological foundations of Web 2.0 and that allow the creation and exchange of user-generated content". SM brings numerous improvements to several organisational activities when it is used successfully. In an organisational context, these benefits include increasing customer awareness [46]; as a tool for advertisement and promotion [47]; enhancing customer engagement [48]; enhancing real-time intelligence about products [49]; positive eWOM [50]; improved performance [35]; and enhanced brand image [15].

Although SM involved customers can generate numerous benefits for firms, SMEs face some challenges in this regards. To tempt SMEs to be actively involved in SM, firms needed resources to develop and implement SM platforms [14]. This situation creates challenges for SMEs to be more actively engaged in SM, given that these firms have limited resources that restrict innovative activities [11]. Furthermore, although SMEs can obtain new information using SM platforms [51], most firms have inadequate competencies to develop social networks and transform them into innovative capabilities [52]. Maes and Sels [53] argue that SMEs with limited access to financial resources and inadequate capabilities to deployed innovation knowledge is lacking behind to build innovation strategies. As such, generalizing the findings from large firms regarding SM implementation to SMEs is questionable, such that SMEs need a different approach to effectively use SM platforms.

Besides this, SM is considered by SMEs as the only way to compete with their larger counterparts when it comes to a flexible form of collaboration [54]. In an exploratory study by Barnes et al. [54] about the potential benefits of SM adoption by SMEs, the authors highlighted five areas where SMEs owners/managers collaborate these are: lifestyle benefits, improved capability, improved service offerings, enhanced internal operational competence, and enhanced external communications.

2.3. Major New Technology Adoption Model and Its Relevance to SMEs

2.3.1. Diffusion of Innovation Theory (DoI) by Roger

DoI theory is the most dominant and comprehensive model in the field investigating the adoption and diffusion processes of new technology Roger's (1995, 2005). Additionally, the DoI theory has been empirically tested in several fields, such as education, economics, history, and technology. In his model, Roger [55] identifies the internal and external features that affect the adoption and diffusion decision regarding new technology within an organisation. In his theory, Roger identified five perceived features of new technology adoption: relative advantage, compatibility, complexity, tri-ability, and observability. The factors mentioned above can potentially explain how organisations, in the current study case SMEs, adopt, and diffuse new technology. Furthermore, in SMEs' context, DoI has widely been used to examine the role of the adoption of new technology [15,20,39]).

Although DoI has been widely used and tested, there are some criticisms about its use. In this regard, Amin and Hussin [56] argued that within the technological features of new technology adoption studied in DoI, other characteristics (both internal and external) that may affect an organisation's innovation process are not considered. Additionally, other factors, such as those related to organisation and environment, are outside DoI's scope [57]. Furthermore, owner/manager characteristics, which are considered one of the most significant features in SMEs' context, are also missing [58].

Considering the above argument regarding the absence of organisational and environmental factors in the theory of DoI, the researchers in the current study argue that DoI is not a comprehensive model for critically examining the different factors, which can affect SME's new technology adoption. Although the researchers consider it as an excellent framework to study the technological aspect of SM adoption; however, in this study and also consistent with the argument of [13], the researcher will consider it as one dimension of the Technology, Organisation, and Environment framework (TOE), which is discussed later in this section.

2.3.2. The Technology Acceptance Model (TAM)

TAM is also one of the well-cited, robust, well established, and empirically tested models used to explain new technology adoption [59]. Davis first introduced the TAM in 1989 to show the impact of behavioural intentions on adopting new technology. According to Davis [60], two behaviour intention variables mostly predict the acceptance of new technology. These variables are perceived usefulness (PU) and perceived ease of use (PEU). Because of its simple structure and few variables, TAM was extensively used in studies concerned with adopting new technologies [61]. Furthermore, this widespread application of the TAM in the acceptance of new technology led to other factors that may help understand the adoption of new technology. In this regard, other influential factors such as social influence, effort expectancy, facilitating conditions, and performance expectancy were suggested by Venkatesh et al. [62] as directly affecting the user's intention to adopt new technology. This led to other derivatives of TAM, which include extended TAM, UTAUT, and TAM II.

Based on the above discussion, TAM as a model is being extensively used by studies examining the individual adoption of new technology. Although few efforts were made to use TAM as a theoretical lens to examine the adoption of new technology by organisations, these efforts had been quite fragmented in nature [63]. Therefore, the researcher argues that TAM is not an appropriate model to study new technology adoption at the organisational level. Additionally, Chuttur [61] discussed a plethora of studies on TAM, which led to the model's saturation and, therefore, limits its practical usefulness. Furthermore, comparing TAM with TOE, the latter has more explanatory and predictive power than TAM, which concludes that TAM is not an appropriate theoretical approach for examining SM adoption within SMEs. In the subsequent section, the literature regarding the TOE framework and the reasons TOE has been selected as the main theoretical lens to study SM's adoption by SMEs are given.

2.3.3. The Theoretical Lens of the Current Study (TOE Framework)

Considering the limitations of Roger's DoI and Davis' TAM models as well as the quest for a comprehensive framework for investigating new technology adoption within the SMEs sector, it is considered more appropriate to have a pool of multidimensional factors that affect the adoption of SM in the context of SMEs, since adoption in such a context is mostly defined by the multidimensional nature of such factors [63,64]. Namankani et al. [59] define these factors as external environmental factors and internal organisational factors. These factors are considered very important for organisations to examine the adoption of new technology [13]. Since the above two theories (DoI and TAM) lack the explanation of how environmental and organisational factors affect SM adoption in SMEs, there is the need to consult a theory that encapsulates all the three dimensions (i.e., technological, organisational, and environmental) to explain new technology adoption in SMEs.

The TOE framework is the most suitable model that explains the applicability and wider exploratory dimensions necessary for studying how organisations in general and SMEs adopt technology [7,18,65]. Additionally, Dwivedi, Kapoor, and Chen [66] suggested using TOE for new technologies adoption, which is capable of developing an understanding both for practitioners and academia. Besides this, Oliveira and Martins [13] stated that the TOE framework has both higher explanatory and analytical power, particularly when examining factors that may affect the adoption of new technology in an organisation.

2.4. Factors Affecting SM Adoption in SMEs (TOE Context)

In this study, factors are grouped in the three dimensions of the TOE framework. These dimensions are technology, organisational, and environmental. The purpose of this section is to critically evaluate the existing literature to identify the factors relevant to the three contexts of the TOE framework that are affecting the adoption process of SM in SMEs. Each of these dimensions and their respective factors are presented in the following section.

2.4.1. Technological Factors

The TOE framework's technological context stated that an organisation could make use of a pool of technologies available in the marketplace. In this regard, a number of studies examined the role of technological factors on the adoption of new technology using the TOE framework [1,22,67]. These factors are discussed below.

Perceived Benefits of Social Media

Perceived benefits (which are also referred to as relative advantages) are key technological factors that can stimulate the process of new technology adoption within an organisation [53]. Ghobakhloo and Tang [68] argued that technology adoption is considerably higher among firms with higher levels of acknowledgment of the perceived benefits for new technology. Furthermore, Ramdani and Kawalek [69] argued about the significance of perceived benefits associated with new technology as it can further facilitate the technology adoption process. SM is considered to provide various benefits to SMEs, such as obtaining intelligence regarding SM users like customers and even competitors [67]. Additionally, SM adoption offers benefits such as strong customer relationships, cost reduction in terms of promotion and advertisement [46], real-time feedback related to products and services [49], and building strong brands [70]. Therefore, it is hypothesised that the perceived benefits of SM usage can be expected to positively affect the adoption decision of SM by SMEs in Pakistan:

Hypothesis 1 (H1). *Perceived Benefits has a significant positive effect on SM adoption by SMEs.*

Perceived Compatibility

Compatibility can be grouped into operational (existing practices) and normative (values or norms) compatibility [71]. However, Premkumar et al. [72] proposed an organisation's compatibility with existing new technology as technical compatibility, while compatibility with existing work procedures and value systems as organisational compatibility. In this regard, it was suggested by Al-Qirim [73] that when work procedures and values are being perceived as compatible with new technology and technological infrastructure, the adoption of new technology becomes easier. Additionally, DoI also suggested compatibility as the main technological factors that may affect the adoption and diffusion of new technology. Many research studies have also argued the positive impact of compatibility on adopting new technology within an organisation (see for example [28,69–71,74–76]). It has also been stated that the adoption of new technology may cause some changes in the existing organisational values and working procedures. Furthermore, it also brings changes in the current technological infrastructure of the firm. Within this perspective, SMEs need to evaluate and consider whether the potential changes are compatible with the organisation's existing work procedures and technological infrastructure. Therefore, it is essential from the perspective of SMEs' owners/managers that new technology must have a high level of perceived compatibility with the existing norms, work procedures, and technological infrastructure to be adopted. It is, therefore, proposed that:

Hypothesis 2 (H2). *Compatibility has a significant positive effect on SM adoption by SMEs.*

Perceived Cost

Apart from the technological factors proposed by Rogers [50], the perceived cost associated with new technology adoption also plays a significant role in new technology adoption. Perceived cost in the current study is conceptualised as the associated cost of SMEs' social media adoption. Ramayah et al. [77] argued that the cost involved in adopting new technology becomes highly important when deciding about the potential adoption of technology. Implementing new technology in an organisation is usually accompanied by a high cost in terms of software/hardware, technical consultants, and the installation of online packages. This further restricted SMEs to be cautious about spending capital, particularly when it comes to investing in new technology, as SMEs' owners/managers consider

this investment unaffordable [75]. At the organisational level, the perceived cost associated with new technology adoption is negatively related to the intention to adopt new technology [78]. Based on this, the following hypothesis is proposed:

Hypothesis 3 (H3). *Perceived cost has a significant negative effect on SM adoption by SMEs.*

Trust

As defined by Lu, Fan, and Zhou [79], trust is "the belief of a group of people about their perception of certain attributes." It is also an essential factor that may affect the adoption of new technology. In fact, in the context of new technology adoption, trust becomes more important as these technologies are related to a high degree of uncertainty. Mainly, concerns associated with the latest technologies' security and reliability is the main debate on whether the user will trust these technologies. However, trust has been widely investigated in previous research studies, and authors conceptualised trust as a multidimensional construct [20,75,76,80]. Among different conceptualisations of trust, the most relevant to the current study is institution-based trust. According to McKnight et al. [81], institution-based trust has two types: (1) structural assurance, and (2) situational normality. The authors further describe situational normality as the belief of an organisation that success is expected because of the situation's normality. At the same time, structural assurance describes an organisation's belief that satisfactory outcomes are the result of contextual structures, for example guarantees, regulations, and contracts.

A further extension of the McKnight et al. [82] model by Choudhury and Karahanna [80] reveals that institution-based trust has another dimension known as informational trust. The authors define informational trust as the users' perception of the credibility, reliability, and accuracy of SM's information, which strongly affects SM's adoption decision, particularly by SMEs. One of the most critical success factors for SMEs is a good relationship with customers that is possible by the use of SM. Experts can share their experience, opinions, ideas, and knowledge-based of their customers' quires through SM. A lot of information is posted in SMEs regarding firms' services, products, and other promotional activities [22]. Therefore, SMEs need to look into the institution-based trust to examine the adoption of SM. Based on this argument, it is proposed that:

Hypothesis 4 (H4). *Trust has a significant positive effect on SM adoption by SMEs.*

2.4.2. Organisational Factors

The second dimension of the TOE framework characterises the organisational determinants of new technology adoption. Numerous studies have been identified from the previous literature that examines the organisation's related factors of new technology adoption. In SMEs' case, business-related features were investigated for exploring their probable effect on technology adoption. Among these, the most critical organisational factors are discussed in the following section.

Owner/Manager Support

Like other management disciplines, the field of new technology adoption also highlights the critical role of top management in supporting the process of new technology initiation, implementation, and adoption. Within an organisational context, particularly in SMEs, previous research shows the strong, positive, and significant relationship between technology adoption and managers' role (see, for example, [74,76,83]). According to Premkumar and Roberts [84], owners/managers are the key decision-makers in SMEs' context. They can create an environment that accelerates the adoption of new technologies by highlighting the potential benefits of new technologies. Lin et al. [85] argued that top management's support positively affects a firm's propensity to adopt e-SCM systems. Simultaneously, Soliman and Janz [86] noted that the support of owners/managers is positively related to the adoption of new technologies.

Furthermore, the attitude of owners/managers towards possible changes articulates SMEs' vision by sending a strong message about the possible significance of new technologies adoption [74]. The support of owners/managers becomes highly significant for creating an organisational environment, which accelerates SM adoption within SMEs [76]. Owner/manager involvement and commitment in new technologies adoption is essential in two ways: firstly, it ensures the allocation of needed resources, and secondly, it propagates a positive signal to internal stakeholders. Considering these arguments, the current study proposed that:

Hypothesis 5 (H5). *Top management support has a significant positive effect on SM adoption by SMEs.*

SMEs' Technological Competence

Technological competence defines the internal technological resources of an organisation [87]. The authors conceptualise technological competence as the internal IT infrastructure and the existing IT skills. In this regard, technological competence is a critical success factor for SMEs' adoption of new technology [88]. The authors further argue that adopter SMEs have a higher level of technological competence than SMEs who do not adopt new technologies. Additionally, organisations with a higher level of technological competence tend to adopt new technology adoption [89]. Having employees well equipped with IT skills to manage new technological innovation is equally important in the adoption process. In this context, existing literature regarding new technology adoption indicates that firms, particularly SMEs, suffer from a lack of internal IT infrastructure and IT skills and, therefore, need to hire external consultants at a much higher cost [75]. Furthermore, unqualified human resources lacking proper IT skills have severe repercussions for SMEs' adoption of new technology [90]. Keeping these points in view, it is expected that SMEs are more likely to adopt SM if they have high levels of IT infrastructure and skills (i.e., technological competence). Therefore, the study hypothesised that:

Hypothesis 6 (H6). *SMEs' technological competence has a significant positive effect on SM adoption by SMEs.*

2.4.3. Environmental Context

The literature regarding new technology adoption argues that considering the environment in which SMEs operate helps to apprehend these firms' commitment towards information and computer technologies (for example: [28,91]). It is believed that the environment in which firms operate can trigger new technologies adoption when responding to the change in the external environment [28]. While exploring the literature regarding environmental factors that may affect the adoption process, very little have been identified; however, several factors have been identified as influential in the adoption process. In this regard, the following section will illustrate these factors in the context of SM adoption by SMEs.

Competitive Pressure

In the new technology adoption context, competitive pressure is considered as an incentive for organisations. From an organisation perspective, the majority of the new technology adoption literature argues that competitive pressure is highly significant for adopting new technology. In a strong competitive market, organisations are more persuaded towards new technology adoption to improve their performance and survival [37]. It is more important to get a competitive edge over competitors as organisations are more exposed to internal competition. There is a plethora of evidence in SMEs suggesting that the adoption of new technologies is positively predicted by competitive pressure (see, for example, [87,88]). According to Al-Qirim [92], SMEs need to adopt new technology, for instance, technology based on the Internet, to remain competitive in the growing knowledge-based economy. In this regard, an increase in new technology adopters hastens nonadopters to adopt new technology, which further suggests that competitive pressure plays a vital role in adopting new technology [93]. Based on the above arguments, the authors argue that competition becomes a vital factor for SMEs, which triggers the adopting of SM, and, therefore, propose that:

Hypothesis 7 (H7). *Competitive pressure has a significant positive effect on SM adoption by SMEs.*

Customer Pressure

Customer pressure, being a vital factor of an environment, also influences the adoption of new technology in the organisational context. The literature demonstrates that satisfying customer needs and expectations through new technologies that facilitate better interactions and communications with customers is a significant driver of new technology adoption [28,89,90]. Additionally, the previous literature also suggests that SMEs consider customer pressure when deciding about adopting the latest technologies (for example: [28,88]). In fact, because of SMEs' structures, these firms are more susceptible to pressure from customers than their larger counterparts [84]. This is because of SMEs' heavy reliance economically on large customers to survive in today's competitive marketplace.

Additionally, other studies also suggest that customer pressure plays a significant role in the adoption decision by SMEs regarding new technologies [19,90,91,94–96]. However, other studies did not find any meaningful relationship between customer pressure and new technology adoption. For example, Ifinedo [97] findings suggest that the relationship between customer pressure and e-business adoption is nonsignificant. However, the extensive use of SM by customers is likely to reassure SMEs' owners/managers to adopt new technologies such as SM. This research, therefore, proposed that:

Hypothesis 8 (H8). *Customers' pressure has a significant positive effect on SM adoption by SMEs.*

Information Intensity

Information technology is a crucial factor characterised by superior service and product information intensity [98]. Thong [90] suggests that information intensity is the "extent to which products and services information is available to businesses" [90] (p. 196). Considering the current needs of information processing for a business, firms with an information-intensive nature are more likely to adopt new technologies [97]. According to Al-Qirim [73], dealing with information intensity helps firms adopt new technology more quickly in the context of SMEs. As information needs are divergent among different industries, firms characterised by an information-intensive environment are pushing harder to adopt new technologies such as SM. According to Anandarajan and Arinze [99], information processing needs stem from internal and external environmental uncertainty. Melville and Ramirez [100] describe these environmental uncertainties as unrest in the supply chain, production methods, industry clock speed, and broader competitive environment. Additionally, investments in new technology usage such as SM will enhance information-processing capacity, enabling SMEs to effectively manage environmental uncertainties and improve firms' ability to make efficient decisions. Considering the above arguments, SMEs with high needs for information processing, particularly in today's information-intensive market place, are more inclined to adopt SM.

Hypothesis 9 (H9). *Information intensity has a significant positive effect on SM adoption by SMEs.*

2.5. Financial Sustainability of SMEs

The term "sustainability" has been widely used with many scholars' diverse definitions depending on user requirements. For example, Marwa and Aziakpono [101] describe sustainability as a consistent behaviour exhibit by an entity over a long time. Njiku and Nyamsogoro [102] define sustainability as the firm's ability to achieve its goals and maintain consistency over a long period. In a similar vein, financial sustainability is a firm's ability to smoothly run the operations with maximum profitability while at the same time having enough liquidity to face the challenges of bankruptcy [102]. Financial sustainability is considered an integral part of institutional strategy to sustain its financing for a longer time. For SMEs, financial sustainability is profit-making and links with SMEs' survival without dependence on government subsidies or donor funds [103]. SMEs can cover their operational costs from income provided that they have sufficient capitals for recapitalisation. SMEs' financial sustainability is

defined in the current study as SMEs' ability to cover all their expenses through their profit and to create enough finances to support its growth by reducing its expenses or improving its revenues.

However, achieving financial sustainability in a globalised economy has become a challenge for firms regardless of size [104]. The significance of financial sustainability is because of its impact on the overall financial system. The repercussion of financial crises and recent COVID-19 has made firms realise that financial sustainability is the central pillar to manage business operations in such crisis situations [104,105]. The current study, while exploring the role of SM in financial sustainability of SMEs, will help these firms to devise strategies for sustainable development and thus getting competitive advantage.

2.6. Social Media Adoption and SMEs' Financial Sustainability

SMEs' financial sustainability is defined in the current study as the ability of SMEs to cover all their expenses through their profit and create enough finances to support their growth by reducing their expenses or improving their revenues. Although SM tools are cheap, easy to use, and have accessibility to a diverse and large number of consumers, firms are slower to adopt these technologies. However, large firms have potentially recognised SM's need and have rapidly adopted these technologies to improve their performance and sustainability [4–6]. In contrast, SMEs with limited resources and technical knowledge are reluctant to use such technologies, Ahmad et al. [7] particularly, in a strategic manner to pursue their sustainability goals [8]. In this regard, SMEs' sustainability consists of attaining a balance between financial resources on the one hand and the social and economic environment on the other hand.

Using SM as a platform for communication and marketing enhances firms' ability to reduce costs compared to the cost of traditional tools [106]. SM helps stakeholders' communication and engagement [107], whereas cost reduction of operation and communication among stakeholders becomes essential for improving co-creation efficiency [108]. Baird and Parasnis [109] argue that SM provides the massive potential to SMEs to reduce their spending on internal operations, thus, providing them enough margins to enhance their profitability. Additionally, the use of new technology helps firms to keep profitable customers; in so doing, they enhance their customer based profit performance [14]. Similarly, SMEs are likely to use SM to reduce their expenses and improve their financial sustainability. Therefore, this study hypothesised that:

Hypothesis 10 (H10). *Social Media adoption has a significant positive effect on the financial sustainability of SMEs.*

To summarise the theoretical research framework (Figure 1), the authors hypothesised the below model:



Figure 1. The research hypothesised model.

3. Method

3.1. Participants and Data Collection

A survey questionnaire was sent to the owners/managers of 465 SMEs working in the capital cities of four provinces (i.e., Punjab, Sindh, Khyber Puhtoonkhwa, and Baluchistan). These SMEs were randomly selected from the list provided by the Small and Medium-sized Enterprise Development Authority (SMEDA). The data was collected in the period from August 2019 to January 2020. The respondents who completed the survey were 383 (overall response rate = 82.4%). Only 362 questionnaires were usable due to missing data and outliers. The respondents' average age was 26.6 years old (SD = 8.35), their average experience was 4.46 years (SD = 2.97), and 11.3% were female. Similarly, out of the total respondents, 2.8% have completed 12 years of education, 15.2% have completed 14 years of education, 54.9% have completed 16 years of education, 25.9% have completed 18 years of education, and 1.1% held a Doctoral Degrees.

3.2. Measures

The survey instrument used in the current study consists of three parts, including necessary information about the survey SME (part 1), responses to the measurement items associated with factors affecting SM adoption, SM adoption, and financial sustainability (part 2), and lastly, the demographic information of the respondents. All the constructs' items were measured using a response format of a five-point Likert scale where 1 represents "Strongly Disagree," and 5 represent "Strongly Agree." In the technology-themed questions, the focus was on asking questions regarding four technological factors (i.e., perceived benefits, perceived compatibility, perceived cost, and trust). The authors measured perceived benefits using a 4 items-scale and perceived compatibility using a 3 items-scale based on the study of Alshamaila et al. [26]. While the perceived cost was measured with 4 items using the scale developed by Lian, Yen, and Wang [110], trust was measured with a 3 items-scale adopted from [22]. For the organisational-theme, the authors asked questions regarding two factors (i.e., owners/managers' support and SMEs' technological competence). Owners'/managers' support was measured using a 2 item scale adopted from Yap, Thong, and Raman [111], and SMEs' technological competence was measured with a 3 items-scale adopted from [112]. Lastly, the authors asked questions about three factors (i.e., competitors' pressure, customer pressure, and information intensity). The authors measured competitor pressure using a 4 items-scale and information intensity using a 3 items-scale from the scale adopted from Wang [113]. In contrast, customer pressure was measured with a 2 item-scale adopted from [28].

The two endogenous variables: SM adoption by SMEs and SMEs' financial sustainability, were also measured with scales adopted from previous research studies. Financial sustainability was measured with a 5 item-scale adopted from the studies of [87,114,115]. The SM adoption scale consisted of 6 items adapted from Shin et al. [116]. The details of all manifest variables, along with their codes, are presented in Appendix A.

Prior studies suggest that young and male workers adopt technology earlier than older and female workers [116]. In the current study, it may be possible that certain workers, for instance, old and female workers, are particularly sensitive to Social Media Adoption. Therefore, it may be possible that certain respondents in the current study are less excited about Social Media Adoption because of their gender and age. Furthermore, it may also be possible that adopting social media will present inconsistency among workers based on their level of experience and education. This can be a problem during analysis and may skew the findings of the current study. Therefore, to mitigate the findings' potential deviation, the authors chose to control the effects of age, gender, experience, and education to the current study exogenous variables.

4. Analysis and Results

4.1. Assessing the Measurement Model

Using SmartPLS 3.0, the authors chose Consistent Partial Least Square method (PLSc) over normal Partial Least Square method to assess the current study framework. Prior studies recommend using PLSc to assess measurement models when dealing with reflective models, as PLSc results are highly consistent [109]. The authors followed the recommended measurement model assessment, which is extensively explained in existing studies ([109–111]). These studies recommend indicator reliability analysis through item loadings, construct reliability analysis through Cronbach's Alpha, rho_A, composite reliability, and convergent validity through Average Variance Extracted (AVE).

The authors found statistically significant support for the measurement model. As evident from Table 1, all indicator item loadings are higher than the recommended threshold level of 0.708 [111], except one item (fsus3 = 0.634); thus, it was deleted from the current study model. Prior studies recommend AVE > 0.5 for establishing convergent validity and construct reliability values between 0.7–0.9; however, values lower than 0.95 are also acceptable [111]. The reliability of all constructs in the research model were significant, for instance Competitor Pressure exhibited a convergent validity of (AVE = 0.771) and internal consistency reliability was (Cronbach's alpha = 0.930; rho_A = 0.936; composite reliability CR = 0.931).

Table 1. Loadings, reliability, and validity statistics.

Constructs	Items	Loadings	Cronbach's Alpha	rho_A	Composite Reliability (CR)	Average Variance Extracted (AVE)
Competitor Pressure	copr1	0.793	0.930	0.936	0.931	0.771
	copr2	0.905				
	copr3	0.844				
	copr4	0.962				
Customer Pressure	cupr1	0.870	0.878	0.879	0.878	0.783
	cupr2	0.899				
Financial Sustainability	fsus1	0.721	0.847	0.848	0.846	0.579
	fsus2	0.746				
	fsus4	0.751				
	fsus5	0.821				
Information Intensity	inin1	0.957	0.917	0.928	0.919	0.792
	inin2	0.777				
	inin3	0.924				
Owner/Manager Support	omsu1	0.901	0.859	0.863	0.86	0.755
	omsu2	0.836				
Perceived Benefits of SM	pbsm1	0.861	0.939	0.939	0.939	0.793
	pbsm2	0.919				
	pbsm3	0.894				
	pbsm4	0.886				
Perceived Compatibility	pcom1	0.913	0.904	0.91	0.906	0.762
	pcom2	0.796				
	pcom3	0.906				
Perceived Cost	pcos1	0.820	0.884	0.885	0.883	0.654
	pcos2	0.743				
	pcos3	0.836				
	pcos4	0.832				
SM Adoption by SMEs	smas1	0.871	0.954	0.954	0.954	0.776
	smas2	0.854				
	smas3	0.916				
	smas4	0.878				
	smas5	0.869				
	smas6	0.897				
SME's Technological Competence	stc1	0.934	0.905	0.911	0.906	0.763
	stc2	0.788				
	stc3	0.892				
Trust	trst1	0.872	0.912	0.913	0.912	0.776
	trst2	0.895				
	trst3	0.876				

Note: Item fsus3 was deleted due to low loading (0.634) (see Appendix B).

The authors also looked into the heterotrait–monotrait (HTMT) criterion for establishing discriminant validity. This was recommended by Baird and Parasnis [109] where the HTMT value less than 0.90 [112] or a more conservative value of 0.85 suggest that the corresponding constructs are discriminant of each other.

The authors found support for the current study model’s discriminant validity (Table 2), where the HTMT values for Competitor Pressure, Customer Pressure, Financial Sustainability, Information Intensity, Owner/Manager Support, Perceived Benefits of SM, Perceived Cost, SM Adoption by SMEs, SME’s Technological Competence, and trust were less than 0.85, therefore, meeting the conservative threshold value of the $HTMT_{0.85}$ [109].

Table 2. Discriminant validity assessment using the heterotrait–monotrait (HTMT) criterion.

	1	2	3	4	5	6	7	8	9	10	11
1. Competitor Pressure											
2. Customer Pressure	0.378										
3. Financial Sustainability	0.522	0.511									
4. Information Intensity	0.445	0.284	0.426								
5. Owner/ Manager Support	0.410	0.306	0.338	0.229							
6. Perceived Benefits of SM	0.245	0.422	0.488	0.311	0.267						
7. Perceived Compatibility	0.393	0.444	0.424	0.385	0.242	0.339					
8. Perceived Cost	0.329	0.338	0.687	0.356	0.248	0.401	0.212				
9. SM Adoption by SMEs	0.543	0.567	0.366	0.493	0.484	0.522	0.525	0.301			
10. Technological Competence	0.381	0.300	0.537	0.272	0.341	0.339	0.269	0.476	0.501		
11. Trust	0.332	0.457	0.460	0.352	0.477	0.472	0.382	0.301	0.580	0.367	

4.2. Assessing the Structural Model

To assess the current study structural model, the authors looked into the path significance and confidence intervals for the hypothesised relationships (see Figure 2). Considering the research constructs being reflective, the authors bootstrapped (5000 resamples) by running a consistent PLS bootstrapping procedure. The Variance Inflation Factor (VIF) (Appendix C) of all constructs was less than the conservative threshold value of 3 [111]. The authors then examined the R^2 value of Social Media Adoption by SMEs ($R^2 = 0.661$) and Financial Sustainability ($R^2 = 0.135$) (endogenous constructs) to assess in-sample predictive power. The constructs of the research model depict weak to moderate predictive power.

According to [111], the effect sizes (f^2) of 0.02, 0.15, and 0.35 reflect a small, medium, and large effect, respectively. As shown in Table 3, all predictor constructs had a small effect on SMEs’ Social Media Adoption. Using a blindfolding procedure, the authors analysed Q^2 values to establish the model’s predictive accuracy. The Q^2 value higher than 0, 0.25, and 0.50 suggests a small, medium, and large predictive relevance model [111]. The current study predictor constructs Q^2 values were higher than zero, resulting in a small predictive accuracy.

Prior studies also recommend assessing $PLS_{predict}$ to analyse out-of-sample predictive power. The authors assessed out-of-sample predictive power by following the procedure recommended by [114]. The authors found that all endogenous constructs’ manifest items had a $q^2_{predict} > 0$ (Appendix D). The Linear Regression Model’s (LM) values, in most cases, were greater than the PLS Path Model (PLS) when the authors compared their mean absolute error (MAE) values, thus, suggesting a moderate out-of-sample predictive power [111].

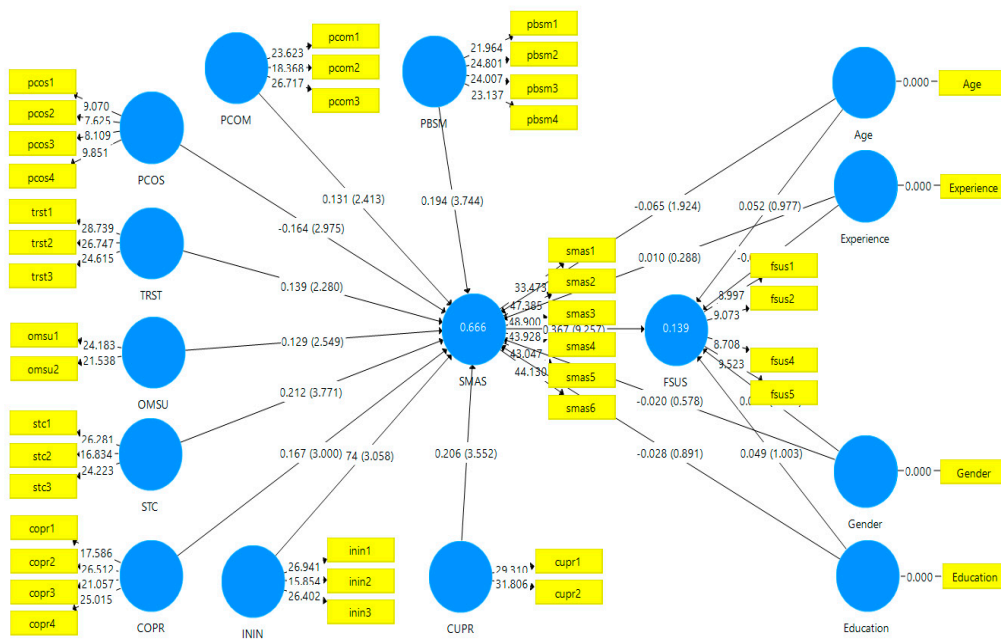


Figure 2. Assessing the structural model.

As shown in Table 3, the authors found support for all hypothesised relationships (i.e., H1, H2, H3, H4, H5, H6, H7, H8, H9, and H10). Social Media Adoption by SMEs is positively predicted by Competitor Pressure, Customer Pressure, Information Intensity, Owner/Manager Support, Perceived Benefits of SM, SME’s Technological Competence, and Trust, and negatively predicted by Perceived Cost. Similarly, the authors found that Financial Sustainability being predicted by ‘Social Media Adoption by SMEs’ was statistically significant. There was no zero value between the lower and upper level of the confidence interval for all of the current study hypothesised relationships, thus, exhibiting statically significant results.

Table 3. Summary of direct effects.

Hypothesis	Relationship	Std. Beta	Std. Error	t-Value	Decision	f2	q2	95% CI LL	95% CI UL
H1	Perceived Benefits of SM → SM Adoption by SMEs	0.195	0.052	3.744 **	Supported	0.073	0.036	0.094	0.296
H2	Perceived Compatibility → SM Adoption by SMEs	0.131	0.054	2.413 *	Supported	0.035	0.021	0.020	0.236
H3	Perceived Cost → SM Adoption by SMEs	−0.161	0.055	2.975 **	Supported	0.053	0.017	−0.273	−0.054
H4	Trust → SM Adoption by SMEs	0.139	0.061	2.280 *	Supported	0.032	0.021	0.020	0.257
H5	Owner/ Manager Support → SM Adoption by SMEs	0.129	0.051	2.549 *	Supported	0.034	0.017	0.028	0.227
H6	SME's Technological Competence → SM Adoption by SMEs	0.211	0.056	3.771 **	Supported	0.089	0.040	0.102	0.322
H7	Competitor Pressure → SM Adoption by SMEs	0.167	0.056	3.000 **	Supported	0.051	0.029	0.059	0.277
H8	Customer Pressure → SM Adoption by SMEs	0.207	0.058	3.552 **	Supported	0.080	0.036	0.094	0.319
H9	Information Intensity → SM Adoption by SMEs	0.173	0.057	3.058 **	Supported	0.062	0.029	0.060	0.282
H10	SM Adoption by SMEs → Financial Sustainability	0.367	0.040	9.257 **	Supported			0.286	0.443

* $p < 0.05$ (two-tailed), ** $p < 0.01$, R2 (Social Media Adoption by SMEs = 0.666, Financial Sustainability = 0.139).

5. Discussion and Conclusions

Although a lot of research was conducted to examine technology adoption (e.g., [114–125]), the findings enrich literature regarding factors affecting SM adoption and its benefits (i.e., financial sustainability). The research findings also present a holistic view of SM adoption in organisations from different contexts (i.e., SMEs and developing countries), thus, creating an opportunity for academicians and practitioners to apply these findings to different contexts.

The findings regarding the technological aspect of SM adoption revealed that perceived benefit is positively related to SMEs' adoption of SM ($p < 0.01$). This is expected as SM adoption by SMEs is considered beneficial, which results in many positive outcomes. The research results remained consistent with past studies' findings suggesting that perceived benefits of new technology positively affect the adoption of such technology [53,62–64]. Similarly, the authors found that SM's perceived compatibility significantly predicts SM adoption by SMEs ($p < 0.05$). Since anybody having an Internet connection use SM platforms such as Twitter and Facebook. Therefore, owners/managers perceive that SM is attuned to the existing values, norms, and technological infrastructure, as SM is easy to use and simple to adopt by SMEs. This finding aligns with prior research studies [28,70,71], suggesting that perceived compatibility positively predicts SM adoption. Similarly, the findings suggest that within the SMEs sector of Pakistan, SM adoption negatively regress on perceived cost. This further indicates that if SMEs' owners/managers perceived SM adoption expensive, there are fewer chances that they will adopt it. The current study's result aligns with the prior studies [70,73], suggesting that the adoption of new technology negatively regresses on perceived cost. This challenge can be significantly reduced if SMEs owner/managers focus on new technological innovation, which is essential for productive marketing activities. Evidently, SM adoption benefits are significantly higher compared to its cost; therefore, with this realisation, the perceived cost may no longer be considered a barrier. Finally, as expected, trust act as a facilitator of SM adoption in SMEs. This study revealed that SM's adoption by SMEs in Pakistan positively regress on trust, which also aligns with the prior studies [84,108].

The current study also presents the significance of organisational factors that affect SM adoption in SMEs. Among these, the support from top management was proposed as a critical driver for adopting SM. The result shows a strong positive relationship ($p < 0.05$) between top management support and the adoption SM. The result advocates that a strong commitment from owners/managers can create an environment that accelerates the adoption process of new technologies by highlighting the potential benefits of new technologies. This result is in line with the studies of [71,78] who proposed that the new technology positively regress on management support. Similarly, as expected, the results suggest a positive impact of SMEs' technological competence on SM adoption of SMEs in Pakistan, which also aligns with the prior studies [82,83]. Finally, three environmental factors (i.e., competitors pressure, customers pressure, and information intensity) affecting SM adoption by SMEs were investigated. The impact of competitive pressure on SM adoption by SMEs was positive and significant ($p < 0.01$). This implies that in a strong competitive market, organisations are more inclined towards adopting new technology for improving their performance and survival. This finding of the current study aligns with the prior literature where new technologies adoption is positively predicted by the competitive pressure (see for example, [87,88,103]). The authors also found that customer pressure has a statistically significant and positive affect on the SM adoption by SMEs in Pakistan. This result also aligns with the previous studies suggesting that customer pressure is a significant driver of new technology adoption in SMEs [28,88]. A firm's ability to delight their customers is the main reason for success. In doing so, firms seek innovative ways for conducting their business, which also includes the adoption of SM platforms. The third environmental factor investigated in the current study is information intensity. The findings revealed that SM adoption by SMEs in Pakistan positively affects information intensity ($p < 0.01$). This implies that firms characterised by an information intensive environment are pushing harder for adopting new technologies (for instance, SM) and aligns with the previous literature [4,68] suggesting a statistically significant and positive relationship between information intensity and the adoption of new technologies.

While analysing the relationship between SM adoption and financial sustainability, this study reports a strong positive impact ($p < 0.05$). It suggests that SM, as a platform for communication and marketing, enhances SMEs' ability to reduce costs compared to the cost of traditional tools. This implies that SM provides a massive potential to SMEs to reduce their spending on internal operations, thus, providing them enough margins to enhance their financial sustainability. This aligns with prior studies of Piller, Vossen, and Ihl [108] and Baird and Parasnis [109]. They suggested that SM platforms allow SMEs to reduce their cost and, thus, improve their financial sustainability. Considering the current COVID-19 situation, SM is a communication tool capable of assisting businesses in performing critical functions such as public relationships, market research, customer services, and marketing [118]. With their capability to provide real-time communication, SM platforms give SMEs the ability to help customers, spot trouble, and speedy customer inquiry [119]. SM adoption by SMEs will help them reach customers at a low cost with high efficiency in contrast to traditional marketing channels and, therefore, help SMEs reduce cost and sustain their financial growth [120].

5.1. Theoretical Contributions

The current study's work is based on previous research for adopting SM and offers distinctions in several ways. The current study attempted to investigate the key factors that may potentially affect SM's adoption and, consequently, the significance of this adoption on SMEs' financial sustainability in a less developed country by utilising the TOE framework.

Little empirical evidence is present in previous literature examining technological, organisational, and environmental determinants of new technology adoption and firm financial sustainability in an integrated model. In the recent past, studies examine the antecedents and consequences of new technology [12,71,78]. However, in SM, there is a lack of such an integrated model that comprehensively investigates the adoption of SM and its impact on firms' financial sustainability. This study adds to the existing body of knowledge by extending the TOE framework and linking it to the DoI model's factors, then using it to investigate SM adoption in SMEs. In doing so, this study progresses the theory by providing empirical support to an integrated model of SM adoption by SMEs with good explanatory power.

Contrary to previous research, the use of an integrated model that combined the TOE framework with DoI theory to examine the influence of different factors on SM's adoption by SMEs has established the vigour and significance of the TOE framework. In this context, the results become highly significant because future new technologies may be similar, with SMEs adopting different new technology tools for the same purpose. In SMEs' context, there is a lack of studies that examine SM adoption in an integrated framework. Early research has either examined the construct in isolation or different contexts [36,67,116] stress the importance of further investigation for testing and theory building. As such, this study attempts to critically examine the relevancy and the comprehensive nature of the TOE framework for the emerging SM adoption field.

Additionally, SMEs act as a tool for poverty alleviation and creating a financially sustainable SME sector, which is highly debated among scholars and practitioners, thus, allowing the sector's development and reducing poverty. This research presents a comprehensive examination of how SMEs improve their financial sustainability by efficiently adopting SM tools. This study's findings indicate the significance of SM platforms for the financially sustainable development of SMEs through their effect on these firms' financial sustainability. Therefore, from a theoretical point of view, this research expands the current understanding of financial sustainability from the perspective of SMEs' sustainable development. Furthermore, the current study results align with prior studies both in developing and developed countries that indicate that SM adoption and its impact on financial sustainability are common by providing similar results across different contexts.

5.2. Practical Implications

In addition to theoretical implications, this study provides useful insight for SMEs' owners/managers and practitioners in the field. The literature argues that SM tools provide numerous opportunities for SMEs to attract and reach more customers, enhance customer satisfaction, efficiently communicate with stakeholders, and generate relevant market information. However, this study contributes to the understanding of owners/managers on who to strategically integrate SM platforms into their business activities to gain financial sustainability. This study's findings offer the SME sector, policymakers, and owners/managers insight to comprehend SM platforms' role for achieving sustainable performance. Thus, the current study findings will enhance the understanding of SM platforms' significance for SMEs' owners/managers.

Another most apparent implication arising from the findings of this study lies in its comprehensive framework, which could be utilised for examining the role of technological, organisational, and environmental factors necessary for the adoption of SM platforms, especially from the context of the Pakistani SMEs sector. Owners/managers to evaluate favourable conditions for SM adoption and increase awareness among SMEs' owners/managers of the different conditions that influence the adoption decision could use the model developed in this study. The findings of this study alert owners/managers about the significance of SM platforms. Since the use of SM platforms are popping up universally and reconstructing how ideas are shared, how people experience products/services, and how communication can be enhanced [1]. Therefore, this study's findings can potentially inspire SMEs' owners/managers to make an SM profile to widen their business scope by bringing their current and potential customers closer.

5.3. Limitations and Future Research

The current study has few limitations, which can provide a basis for future research. One fundamental limitation of the current study lies in collecting data from a single source, i.e., owners/managers in each SME, thus, limiting its generalisability to other stockholders. The authors encourage future studies to capture the views of customers, suppliers, government officials, and employees that might, which may offer useful insights into the adoption of SM by SMEs. This study considers SM as a broad term, investigating and treating all platforms of SM equally; however, SMEs from different sectors may adopt and practice SM platforms differently based on their products, scope of the business, and operational needs. Future research is encouraged to examine the adoption of individual SM platforms such as Facebook or Twitter and their role in creating SMEs' financial sustainability. Since the factors used in this study are derived from the TOE framework, which may restrict the findings of this study (as context-specific). Therefore, future research should address the need for more complex models of SM adoption by triangulating different models such as TAM and DoI to better understand the adoption process of SM by SMEs. For SMEs, gaining financial sustainability from SM platforms is quite complex, contingent on specific SMEs' business model, unique strategy, and stakeholders [1]. The authors encourage future research that could identify SM use's success factors and derive concrete performance implications regarding the implementation of SM by SMEs.

Author Contributions: All authors contributed equally to the research study. Conceptualisation, R.U.R., and S.M.A.S.; Methodology, H.E.-G., F.S., S.H.K., and M.A.; Validation, S.H.K. and S.A.A.; Formal Analysis, S.H.K., H.E.-G., and S.A.A.; Investigation, M.A., R.U.R., H.E.-G., and S.M.A.S.; Resources, R.U.R., and S.M.A.S.; Data Curation, R.U.R., and S.H.K.; Writing and original draft preparation, M.A., R.U.R. and S.M.A.S.; Writing-review and editing, H.E.-G., F.S., S.H.K., R.U.R. and S.M.A.S.; Visualization, R.U.R., S.M.A.S., and H.E.-G., supervision, S.M.A.S., and H.E.-G.; Project Administration, F.S.; H.E.-G. All authors have read and agreed to the published version of the manuscript.

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Abbreviations

Abbreviation	Abbreviation Terminology
SM	Social Media
TOE	Technology Organisational and Environmental
SMEs	Small and Medium-Sized Enterprises
ICT	Information and Communications Technology
DoI	Diffusion of Innovation Theory
TAM	The Technology Acceptance Model
PEU	Perceived Ease of Use
PU	Perceived Usefulness
UTAUT	The Unified Theory of Acceptance and Use of Technology
TAM II	The Technology Acceptance Model II
PLSc	Least Square Method
FS	Financial Sustainability

Appendix A

Table A1. Manifest items used in the questionnaire.

Code	Measures
copr1	Our main competitors that have adopted social media benefited greatly.
copr2	Our main competitors that have adopted social media are perceived favourably by customers.
copr3	I believe I will lose my customers to competitors if I do not adopt social media.
copr4	I feel it is a strategic necessity to use social media to compete in the marketplace.
cupr1	Our customers are demanding the use of social media in doing business with them.
cupr2	We know our customers are ready to do business over the social media platform.
fsus1	Increased cost.
fsus2	Operational cost decreased.
fsus3	Reduced marketing cost.
fsus4	Inventory costs decreased.
fsus5	Total cost decreased.
inin1	The high intensity of competition among SMEs drives SM adoption and diffusion.
inin2	The product/service in SMEs generally requires a lot of information to sell.
inin3	The product/service in SME is complicated or complex to understand or use.
omsu1	Top management support during the implementation of SM adoption drives the success of SM adoption and diffusion.
omsu2	Top management show willingness to take the risk (financial and organizational) in adopting SM.
pbsm1	SM adoption enhances the effectiveness of the business.
pbsm2	SM adoption enhances the efficiency of the business.
pbsm3	SM adoption gives the business owner greater control.
pbsm4	SM adoption improves company image.
pcom1	Using SM is compatible with all aspects of my work.
pcom2	I think that SM Adoption fits well with the way I like to work.
pcom3	Using a SM adoption fits into my work style.
pcos1	Social media is more cost-effective than other types of marketing or customer service technologies.
pcos2	Organisation can avoid unnecessary costs and time by using social media.
pcos3	Social media saves costs related to time and effort in marketing, branding, and customer service.
pcos4	Adopting social media is costly.
smas1	Picture and video broadcasting websites.
smas2	Social networking website.
smas3	Product review system website.
smas4	Microblogging.
smas5	Blogs.
smas6	Others (Skype, Viber, WhatsApp).
stc1	The technology infrastructure of my company is available to support SM adoption.
stc2	My company ensures that employees are familiar with SM adoption.
stc3	My company contains a high level of SM knowledge.
trst1	SM adoption provides adequate measures to safeguard information posted.
trst2	SM adoption provides a robust and safe environment to transact information.
trst3	SM adoption provides adequate legal and technological measures to overcome usage problems.

Appendix B

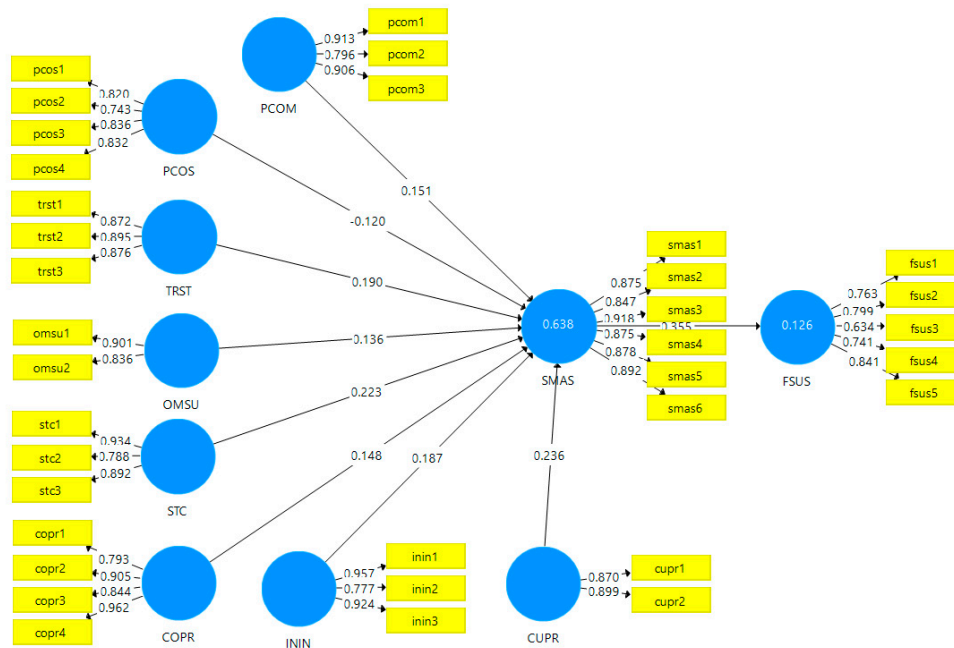


Figure A1. Measurement model loadings. Note: Item fsus3 (0.634) was deleted due to low loading.

Appendix C

Table A2. Assessment for collinearity issues through the Variance Inflation Factor (VIF).

SM Adoption by SMEs	
Competitor Pressure	1.629
Customer Pressure	1.590
Financial Sustainability	
Information Intensity	1.452
Owner/ Manager Support	1.477
Perceived Benefits of SM	1.535
Perceived Compatibility	1.475
Perceived Cost	1.529
SM Adoption by SMEs	
SME's Technological Competence	1.510
Trust	1.781

Note: ALL VIF values of constructs are < 3.

Appendix D

Table A3. Partial Least Square (PLS) Predict Results.

Endogenous Constructs	Items	PLS MAE	Q ² _Predict	LM MAE	LM-PLS
Financial Sustainability	fsus1	0.625	0.140	0.625	0.000
	fsus2	0.633	0.133	0.607	-0.026
	fsus3	0.704	0.162	0.675	-0.029
	fsus4	0.725	0.145	0.707	-0.018
SM Adoption by SMEs	smas1	0.788	0.443	0.817	0.029
	smas2	0.796	0.417	0.817	0.021
	smas3	0.818	0.475	0.839	0.021
	smas4	0.842	0.443	0.848	0.006
	smas5	0.871	0.450	0.893	0.022
	smas6	0.877	0.468	0.885	0.008

q²_predict > 0, the majority of items have LM > PLS (Hair et al., 2019, [126]).

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