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**Article**

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## OPERATIONS, INFORMATION & TECHNOLOGY | RESEARCH ARTICLE

# Prioritisation of critical factors affecting the adoption of social media using best-worst method: Evidence from SMEs in Egypt

Moustafa Elnadi<sup>1\*</sup>

**Abstract:** This study aims to identify, analyse, and rank the critical factors affecting social media usage in Egyptian SMEs. This study proposed Technology-Organisation-Environment-Individual (TOEI) framework that integrates the individual dimension into the TOE framework to identify the key factors that drive SMEs in Egypt to use social media in their businesses. The identified factors were collected through a comprehensive review of literature, as well as participants' opinions. The Best-Worst Method (BWM) was employed to evaluate and prioritise the factors according to their relative importance using data collected from twenty participants. The research findings indicate that relative advantage, cost-effectiveness, customer pressure, competitive pressure, complexity, owner attitude, owner support, owner innovativeness, interactivity, and observability are the highest ranked factors driving the usage of social media among SMEs in Egypt. This research has important implications for practitioners and researchers interested in investigating SMEs' adoption of social media and how to promote the usage of social media among SMEs in developing countries. The findings of this study also help Egyptian SMEs' owners recognise the major aspects that influence their decisions to use social media.

**Subjects:** Research Methods in Management; Entrepreneurship; Small Business Management

**Keywords:** Social media adoption; SMEs; Best-Worst Method (BWM); Egypt; TOE framework; Critical factors

### 1. Introduction

Over the past few years, the use of social media or web-based platforms has been rapidly disseminated throughout the world. Social media provide individuals with the opportunity to keep up with recent news, create and share digital content in real-time, develop social networking and online communities, interact with others, express thoughts and ideas, and gather information about products or services (Al-adaileh et al., 2022; Kwon et al., 2021; Li et al., 2020; Mądra-Sawicka et al., 2020). There are several possible definitions of social media proposed in the literature, but the most comprehensive and the commonly used one is "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" (Kaplan & Haenlein, 2010). The latest global social media statistics in October 2022 show that the total number of social media users has grown by 190 million over the past 12 months, where there are about 4.74 billion people using social media worldwide, equivalent to 59.3% of the world's population. Additionally, the figures reveal that

people around the world spent approximately 2 hours and 29 minutes daily on social media activities (Data Reportal, 2022). The utilisation of social media in Egypt is no different, social media has become one of the daily routines for people in Egypt. In Egypt, recent data show that the total number of social media users is approximately 51.45 million, representing 48.9% of the Egyptian population in January 2022 (Data Reportal, 2022). Social media users in Egypt spend over 3 hours and 6 minutes daily on social media activities, which is longer than the global average (Miniesy et al., 2022). These statistics indicate the extent to which social media play a significant role among Egyptians, and how social media platforms can enable business owners to reach a massive number of potential consumers. There are many different social media platforms available, the most popular platforms include Facebook, Instagram, Twitter, YouTube, WhatsApp, and LinkedIn (Etim, 2020; Hassan et al., 2021; Jaman et al., 2020; Li et al., 2020). All these platforms provide people with the opportunity to engage with one another to build and maintain relationships (Mqdra-Sawicka et al., 2020). Recent statistics reveal that the top four social media platforms in the world in October 2022 are Facebook with 2,934 million users, followed by YouTube with 2,515 million users, then WhatsApp and Instagram with 2,000 million users and 1,386 million users, respectively. The growth of these figures each day is astounding (Data Reportal, 2022).

Al-adaileh et al. (2022) stated that about 27.5% of social media users are utilising social media platforms to obtain updated information and learn more about products or services they wish to purchase, which triggers consumers' buying intentions (Nguyen et al., 2022). Consequently, 90% of marketers in the United States assert that incorporating social media in their marketing activities is imperative to boost their website traffic, increase the visibility, as well as the awareness of their products and services (Ali Abbasi et al., 2022). Additionally, it is predicted that "advertisement spending in the Social Media Advertising market to reach \$226.00 billion" in 2022 (Ruby, 2022). Thus, it is not surprising that the massive acceptance of social media around the world have attracted the attention of many researchers and practitioners in the past few years (Eid et al., 2020; Mqdra-Sawicka et al., 2020). This growing interest among researchers and practitioners in investigating the concept of social media is related to the fact that it has a significant impact on the daily activities of individuals and businesses (Martín-Rojas et al., 2020; Ngai et al., 2015; Olanrewaju et al., 2020). This global use of social media has generated a promising context for a new business paradigm and significantly motivated enterprises of all sizes (especially SMEs) to exploit social media and integrate it into their business (Al-adaileh et al., 2022).

To overcome lack of resources, stay close to customers, and remain competitive in the market SMEs were oriented towards integrating social media in selling their products and services (Zeng et al., 2022). Moreover, Fang et al. (2021) suggested that for SMEs to be successful in their businesses, it is crucial for them to utilise social media in their activities. Through the proper adoption of social media, SME owners can realise various goals, including "marketing, public relations, advertising, branding, customer service, human resources, and issue resolution" (Nguyen et al., 2022). Accordingly, the popularity of social media usage among SMEs has rapidly increased as an effective and efficient approach that enhances business performance (AlSharji et al., 2018; Fan et al., 2021; Freixanet et al., 2021; Li et al., 2020; Qalati et al., 2021).

The benefits that SMEs can generate from using social media have been revealed by many researchers. For example, Fan et al. (2021) confirmed the significant positive impact of social media utilisation on SMEs' performance in terms of "customer relationship, service quality, customer engagement, brand visibility, company reputation, and customer loyalty and customer services". Freixanet et al. (2021) demonstrated that implementing social media enhance innovation performance among SMEs. Moreover, Chatterjee and Kumar Kar (2020) found that the proper utilisation of social media by SMEs will lead to increased customer numbers, increased employees creativity, increased sales, increased enquiries, positive feedback, and better customer relationship. By employing social media, SMEs will be able to better understand customers' views and preferences, expand brand awareness, increase international business contacts, as well as better realising of competition in different markets (Eid et al., 2020). Similar results were highlighted by

Qalati et al. (2021), who found a positive association between the utilisation of social media and SMEs' performance with regard to "interactivity, reputation, relationships, visibility, and customer service." Rahman et al. (2020) argued that social media adoption has a significant positive impact on SMEs' financial sustainability. Furthermore, the positive correlation between social media adoption and SMEs' performance has been demonstrated by Qalati, Ostic, Shuibin et al. (2022), Li et al. (2020), Ahmad et al. (2019), and Qalati et al. (2020). Overall, by the successful implementation of social media, SMEs can gain various benefits that include: increasing sales, reducing costs, developing customer awareness, loyalty, and retention, promoting brand awareness and image, building reputation, and enhancing relationships with suppliers (AlBar & Hoque, 2019; Alzougool, 2019; Eid et al., 2020; Fan et al., 2021; Gavino et al., 2019; Qalati et al., 2021; Rahman et al., 2020).

Despite the numerous advantages offered by social media to SMEs, not all SMEs realise the positive effect of it on their businesses (Ahmad et al., 2018; Eid et al., 2020; Mack et al., 2017). Some former studies (e.g., Bartoloni et al., 2019; Eggers et al., 2017; Pentina et al., 2012; Wamba & Carter, 2014) have mentioned that the successful utilisation of social media is relevant to big organisations that have the required capabilities, resources, and experience to implement social media in their businesses compared with SMEs.

A critical review of preceding studies of social media usage by SMEs indicated that most of these studies have examined numerous factors influencing social media usage in SMEs. However, these studies have focused mainly on examining some specific common factors, and they did not provide a comprehensive set of the significant factors that SMEs should consider when they implement social media. As well as the existing studies did not prioritise and rank the factors affecting SMEs' usage of social media according to their relative importance (most significant and least significant factors). For the successful deployment of social media, it is crucial to identify a thorough ranking list of all the variables that influence SME usage of social media. Additionally, most of the prior studies have mainly considered the context of developed countries such as Germany (Hassan et al., 2021), USA (Gavino et al., 2019; He et al., 2017; Kwon et al., 2021), UK (Eid et al., 2020), Wales (Morris & James, 2017), Finland (Taiminen & Karjaluo, 2015), Australia (Augar & Zeleznikow, 2014) and Spain (Schaupp & Bélanger, 2014). Other developing countries' contexts, particularly in the Middle East have received fewer considerations. In Middle East countries, the usage of social media in SMEs has been tested only in Saudi Arabia (Abed, 2020), UAE (Abu Bakar et al., 2019; Ahmad et al., 2019; Alsharji et al., 2019), Kuwait (Alzougool, 2019), and Jordan (Shaltoni, 2017).

Prioritising the factors impacting SMEs' usage of social media has not yet been discovered in any of the earlier studies, particularly in a developing country like Egypt, where SMEs struggle with a shortage of resources and encounter many obstacles while adopting modern technology. Therefore, it becomes necessary to validate earlier results in a different context like Egypt. Previous studies concentrated on identifying the factors influencing SMEs' adoption of social media but neglected to figure out the relative importance of these factors. Contrary to prior studies, the current study appears to be the first to rank numerous factors impacting SMEs' utilisation of social media according to their relative importance using the Best-Worst Method (BWM). Based on the aforementioned discussions, this study's objectives are listed as follows:

- (1) To determine the key factors affecting the usage of social media in the context of SMEs in Egypt through a comprehensive review of literature and participants' opinions.
- (2) To develop a model (TOEI) for the critical factors impacting SMEs' usage of social media in Egypt, based on the Technological dimension, Organisational dimension, Environmental dimension, and the Individual dimension.
- (3) To specify the relative importance (weights) of the determined factors for the Egyptian SMEs using the Best-Worst Method (BWM).
- (4) To present the theoretical, practical, and managerial implications of the study.

To realise the above-mentioned objectives, an extensive review of literature was undertaken to specify the most frequently used factors in previous studies. Next, by using participants' opinions and views, these factors were finalised, resulting in 20 related factors driving the usage of social media among SMEs in Egypt. Then, an extended TOE model was applied to group these factors under four main dimensions (Technological dimension, Organisational dimension, Environmental dimension, and Individual dimension). After that, the BWM was applied using inputs from twenty participants (seventeen owners/managers of SMEs, and three academic participants) to rank and prioritise the main dimensions and their relevant factors.

Thus, this study provides the following contributions. First, it proposed a comprehensive framework that extended the TOE model and linked it to the individual dimension of the SMEs' owners or managers. The individual dimension plays a significant role in the adoption of social media since the decision-making in SMEs is usually centralised and taken by one person (owner/manager). In the proposed framework, twenty relevant factors that shape the usage of social media in SMEs were collected from previous studies and inputs from SMEs' business owners. According to the literature, most earlier studies did not consider the entire range of factors. They have focused on specific factors. Second, to the best of our knowledge, this study is one of the first to employ the BWM technique to rank the various determinants of social media usage and identify the relative importance of each determinant. Previous studies have employed different methods to test social media adoption, such as survey methods and case studies. Finally, despite the popularity of social media utilisation in SMEs, most of the previous studies have been conducted in developed countries, and little is known about the factors impacting SMEs' adoption of social media in developing countries in general and Middle Eastern countries such as Egypt in particular. Because the implementation of social media is affected by different contexts, it is difficult to generalise the findings of previous investigations on Egyptian SMEs. Hence, exploring the key factors affecting the usage of social media in the context of SMEs in Egypt is an important contribution of this study. The rest of the paper is organised as follows. In Section 2, the theoretical background regarding social media adoption frameworks and the main factors affecting SMEs' utilisation of social media is presented. Section 3 highlights the study's research methodology. Then, the application of the BWM is elaborated in Section 4. The results and the implications of the study are presented in Sections 5 and 6, respectively. Lastly, Section 7 highlights the conclusion of the study.

### **1.1. Small-and-medium enterprises (SMEs) in Egypt**

There is no unified definition for Small- and medium-sized enterprises (SMEs). The definition of SMEs differs from country to country according to each country's standards such as the number of employees, annual revenues, and industry sector (AlSharji et al., 2018; Eze et al., 2021). Generally, SMEs can refer to an enterprise with a small number of employees and limited profit (Gümüs & Kütahyalı, 2017). SMEs in all countries (developed and developing) play a direct role in their economic growth through creating job opportunities, contributing to the growth of GDP, enhancing technological development, reinforcing social cohesion and stability, improving employees' managerial and technical skills (AlBar & Hoque, 2019; Chatterjee & Kumar Kar, 2020; Qalati et al., 2021). According to WorldBank (2022), SMEs "represent about 90% of businesses and more than 50% of employment worldwide. Formal SMEs contribute up to 40% of national income (GDP) in emerging economies. These numbers are significantly higher when informal SMEs are included." Despite the significant role that SMEs play in reforming the economies of developing countries, SMEs in these countries are burdened by a lack of financial resources, and limited opportunities for technology deployment and greater expansion, in comparison with SMEs in developed countries (Fang et al., 2021; Qalati, Ostic, Sulaiman et al., 2022).

In Egypt, according to "the Egyptian Small Enterprise Law No. 141 of 2004" and "the Egyptian Central Agency for Public Mobilization and Statistics (CAPMAS)", Small size enterprise can be defined as any facility with less than 50 employees, while Medium size enterprise is any facility with between 51 and 99 employees (Aboelmaged et al., 2018; Agag, 2019). SMEs in Egypt is an



important economic player and one of the most prevalent business forms in the last few years (Kandil & Abd El Aziz, 2021; Zaazou & Salman Abdou, 2021). Key facts about SMEs in Egypt are demonstrated as follows:

- SMEs in Egypt account for 80% of the gross domestic product (GDP; Aboelmaged et al., 2018; Adel et al., 2020; Agag, 2019).
- In the Egyptian labour market, SMEs are one of the most important factors in job creation. About 6.3 million workers are employed by SMEs representing 75% of the overall labour force in Egypt (Aboelmaged et al., 2018; Ahmed & Kim, 2020; Hamad et al., 2018; Zaazou & Salman Abdou, 2021).
- Approximately there are 2.46 million existing SMEs in Egypt operating in various sectors (Aboelmaged et al., 2018; Kandil & Abd El Aziz, 2021).
- The share of SMEs in the private sector is about 95% (Aboelmaged et al., 2018).
- Around 60% of SMEs in Egypt are in the form of sole proprietorship where SMEs are owned by one person only. Therefore, most of the decisions are centralised and taken by the owners of SMEs (Aboelmaged et al., 2018).
- The level of technology utilisation by SMEs in Egypt is insufficient. About 68% of SMEs are using traditional technology, 30% of SMEs are adopting contemporary modern technology, and finally, advanced technology is employed by only 2% of SMEs (Hamad et al., 2018).

In spite of the effort of the Egyptian government to expand the SMEs sector to increase its contribution to economic growth, SMEs in Egypt remains an under-researched area, and further investigations are required (Adel et al., 2020). Therefore, it can be said that the Egyptian SMEs were considered as a suitable context for this study.

## 2. Literature review

The current review of the literature is primarily separated into two parts; the first part discusses the various technology adoption frameworks used in previous studies and the second part highlights the main elements influencing SMEs' use of social media.

### 2.1. Technology adoption frameworks

Previous studies that have investigated the factors affecting social media utilisation among SMEs have applied various frameworks and theories to explore the antecedents of social media implementation in SMEs. The most frequently used theories and models in earlier studies are “the technology acceptance model (TAM)” (Davis, 1989), “the diffusion of innovation theory (DOI)” (Rogers, 1962), and “the technology-organization-environment framework (TOE)” (Tornatzky et al., 1990). Some studies have used other theories like “the theory of reasoned action (TRA)”, “the theory of planned behaviour (TPB)” (Ajzen, 1991), and “the unified theory of acceptance and use of technology (UTAUT)” (Venkatesh et al., 2003). Finally, another research stream has integrated one or more of these theories to investigate the factors affecting SMEs' usage of social media. Based on all these theories and models, various perspectives have been provided for interpreting the usage of social media among SMEs.

For example, Ahamat et al. (2017), Gavino et al. (2019), Hussein et al. (2021), and Salam et al. (2021) have used TAM to understand the factors influencing the attitude toward social media adoption. The main constructs used in this theory are “perceived usefulness” and “perceived ease of use”. Other studies (e.g., Adam et al., 2016; N. B. C. Nawi et al., 2017; N. C. Nawi et al., 2019; Oppong et al., 2020; Puriwat & Tripopsakul, 2021; Vatanasakdakul et al., 2020) have applied the UTAUT.

The use of UTAUT supposes that attitude towards the usage of social media is influenced by “performance expectancy, effort expectancy, facilitating conditions, and social influence”. Additionally, DOI has been applied by many researchers (e.g., Ainin et al., 2015; Bouargan et al., 2020; Odoom et al., 2017; Shaltoni et al., 2018) to identify the factors that influence social media usage among SMEs. They have explored how factors such as relative advantage, compatibility, complexity, interactivity, and cost-effectiveness can impact social media implementation.

To avoid the limitations of using a single specific model, many researchers have integrated two theories. For example, TAM was applied with other theories such as TRA (Do et al., 2020), DOI (Eid et al., 2020), TPB (Alzougool, 2019), UTAUT2 (Chatterjee & Kumar Kar, 2020) to understand the elements influencing SMEs' adoption of social media. Moreover, Kwon et al. (2021) have utilised both TRA and DOI to examine factors affecting social media usage intention. However, the most widely accepted framework used to investigate the antecedents of social media adoption among SMEs was the TOE framework.

The TOE framework proposes that social media implementation is affected by three main contexts including "technological context, organisational context, and environmental context". This framework provides researchers with the freedom to select from a vast array of determinants that can be used to examine social media adoption. The TOE framework was integrated also with several theories for exploring social media usage among SMEs.

One of the theories that extensively merged with the TOE framework was DOI. This combination has been applied by many researchers (e.g., Abu Bakar et al., 2019; Ahani et al., 2017; Ahmad et al., 2019; Alsharji et al., 2019; Effendi et al., 2020; PatePateli et al., 2020; Qalati et al., 2021; Rahman et al., 2020) in explaining how social media is used among SMEs. Furthermore, other studies (e.g., Abed, 2020; Jaman et al., 2020; Sugandini et al., 2019; Tripopsakul, 2018) have combined the TOE framework with TAM. Moreover, Schaupp and Bélanger (2014) have applied TOE with resource-based view theory to determine social media usage key antecedents. Finally, a limited number of studies have used other theories such as RBV (Fan et al., 2021) and the contextualism theory (Shemi & Procter, 2018), but these theories have not yet been employed by many researchers to analyse social media usage among SMEs.

## **2.2. Key factors affecting social media utilisation among SMEs**

According to the discussion presented in the preceding section, the main factors influencing social media usage among SMEs are presented in this section. The identified factors were grouped into four dimensions, namely technological dimension, organisational dimension, environmental dimension, and individual dimension. The main dimensions and their respective sub-dimensions will be discussed in the following section.

### **2.2.1. Technological dimension**

The technological dimension represents the attributes of new technologies that may accelerate or inhibit their adoption in organisations (Abed, 2020; Asiaei & Nor, 2019). The attributes of the modern technology have a high impact on determining how the new technology will be implemented and to what extent it will be beneficial or disadvantageous for the organisation. This is also relevant in social media (Abu Bakar et al., 2019; Chau et al., 2020; Samsudeen et al., 2021). Seven factors were identified to critically affect SMEs' usage of social media including the following:

**2.2.1.1. Relative advantage.** "Relative advantage" is one of the most investigated and cited qualities of new technologies that can significantly speed up their adoption among organisations (Alsharji et al., 2019; Rahman et al., 2020). In previous studies (e.g., Ahani et al., 2017; Eid et al., 2020; Olanrewaju et al., 2020; Rahman et al., 2020), the term relative advantage is commonly used interchangeably with perceived benefit and perceived usefulness. Relative advantage can be defined as the extent to which a particular technology is expected to offer more advantages and benefits than its predecessors (Effendi et al., 2020; PatePateli et al., 2020; Shaltoni et al., 2018). Organisations are more likely to use new technology if they believe that this technology will offer more benefits than conventional methods (Ahani et al., 2017; Effendi et al., 2020; Shaltoni et al., 2018). This also applies to social media. Using social media will provide SMEs with various benefits including, cost reduction, improving customer services and relationships, gaining competitive advantages, entering new markets, generating more revenues, enhancing brand visibility,



awareness, and reputation (Ahmad et al., 2018; Alsharji et al., 2019; Eid et al., 2020; Jaman et al., 2020; Rahman et al., 2020; Shaltoni, 2017).

Therefore, social media relative advantage is a fundamental factor for SMEs in considering whether or not to use it. This means that the more benefits gained from employing social media, the greater the implementation of social media among SMEs. This significant relationship was reported in various previous studies (e.g., Alsharji et al., 2019; Effendi et al., 2020; Eid et al., 2020; Qalati et al., 2021; Rahman et al., 2020; Samsudeen et al., 2021).

**2.2.1.2. Complexity.** Another key determinant that significantly impacts SMEs' adoption of social media is complexity. This factor was evolved from the ease of use in TAM (Eid et al., 2020; Vatanasakdakul et al., 2020). Complexity describes the extent to which a particular technology is challenging to be understood and implemented (Abu Bakar et al., 2019; Effendi et al., 2020; Shaltoni et al., 2018).

There is a negative correlation between the degree of complexity and organisations usage of a specific technology, i.e., the more complicated the technology, the less the probability to be used by organisations and vice versa (Abu Bakar et al., 2019; Ahani et al., 2017; Chatterjee & Kumar Kar, 2020).

Regarding SMEs' usage of social media, several studies (e.g., Adam et al., 2016; Ahamat et al., 2017; Chatterjee & Kumar Kar, 2020; Eid et al., 2020; Gavino et al., 2019; Jaman et al., 2020; Samsudeen et al., 2021) have found that complexity posed a substantial obstacle to SMEs using social media. As a result, one of the key variables influencing social media adoption among SMEs is its usability.

**2.2.1.3. Compatibility.** The third vital determinant in the implementation of social media is compatibility. The extent to which a specific technology fits with the needs, experiences, values, processes, and infrastructure of the present organisation is referred to as technology compatibility (Al-Omouh et al., 2021; Eze et al., 2021; Qalati et al., 2021). The higher the level of perceived technology compatibility, the more motivated organisations to implement a particular technology and the easier the adoption process (Abu Bakar et al., 2019; Qalati et al., 2021).

In the context of SMEs, SMEs' owners or managers assess technology compatibility before deciding to use a particular technology, as SMEs lack the required resources to make modifications to their existing processes (Al-Omouh et al., 2021; Chatterjee & Kumar Kar, 2020; Ramdani et al., 2021). Therefore, compatibility is one of the most critical predictors of social media implementation among SMEs and have been cited in earlier studies (e.g., Abu Bakar et al., 2019; Alsharji et al., 2019; Chatterjee & Kumar Kar, 2020; Eze et al., 2021; Rahman et al., 2020; Samsudeen et al., 2021; Shaltoni et al., 2018). SMEs find it challenging to use social media if it is incompatible with their current requirements and practices.

**2.2.1.4. Cost-effectiveness.** Cost-effectiveness is one of the important determinants considered by organisations when implementing new technology (Bouargan et al., 2020; Chatterjee & Kumar Kar, 2020; Qalati et al., 2021; Rahman et al., 2020). Cost-effectiveness can be described as a cost-benefit analysis, where organisations make a comparison between the expected benefits from implementing new technology and the associated adoption costs (Chatterjee & Kumar Kar, 2020; Qalati et al., 2021).

For SMEs, cost is a critical factor in owners' decisions, as they run their business with limited resources. Implementing a relatively high-cost technology will reduce SMEs' expected gains (Amoah & Jibril, 2020). Earlier researchers have shown that the cost of social media significantly influences its adoption among SMEs. SMEs considered social media as a cost-effective technology available to use (Ainin et al., 2015; Amoah & Jibril, 2020; Chatterjee & Kumar Kar, 2020; Odoom et al., 2017; Rahman et al., 2020; Vatanasakdakul et al., 2020). Thus, SMEs will most likely be drawn to social media as it has the potential to offer them numerous advantages at a low cost.

2.2.1.5. *Trust*. Another essential factor that can impact the acceptance of new technologies is trust, as new technologies are associated with a high degree of uncertainty (Rahman et al., 2020). Trust has been demonstrated in earlier research as a multifaceted construct (Ainin et al., 2015; Bouargan et al., 2020; Rahman et al., 2020) including structure assurance and information trust. Structure assurance represents an organisation's belief that valuable and sufficient results are possible as a consequence of contextual structure, like contracts, regulations, and guarantees (Ainin et al., 2015; Bouargan et al., 2020; Rahman et al., 2020). While information trust refers to an organisation's belief about the quality of the obtained information in terms of reliability, credibility, and accuracy (Ainin et al., 2015; Bouargan et al., 2020; Rahman et al., 2020). Generally, organisations are reluctant to be engaged with technologies that are not acknowledged as trustworthy (Ramdani et al., 2021). Social media platforms depend extensively on social interaction; thus, trust is observed as a critical factor affecting SMEs usage of these platforms (Ahamat et al., 2017; N. B. C. Nawi et al., 2017; Bouargan et al., 2020; N. C. Nawi et al., 2019; Rahman et al., 2020; Ramdani et al., 2021).

2.2.1.6. *Observability*. The term observability describes how the outcomes of implementing new technology are obvious to others (Abu Bakar et al., 2019; Eid et al., 2020). Previous studies (e.g., Abu Bakar et al., 2019; Eid et al., 2020; Kwon et al., 2021; Samsudeen et al., 2021) mentioned that, as the observability of new technology increases, the risk associated with that technology will decrease, therefore the possibility of implementing the technology will increase. Several studies (e.g., Abu Bakar et al., 2019; Eid et al., 2020; Kwon et al., 2021; PatePateli et al., 2020; Samsudeen et al., 2021) have examined the impact of observability on using social media among SMEs. They have demonstrated the significant impact of observability on social media usage among SMEs.

2.2.1.7. *Interactivity*. The interactivity of technology is related to the degree to which that technology allows two or more parties to be engaged and communicated with each other (Odoom et al., 2017; Qalati et al., 2020). Interactive technologies providing two-way communications rather than one-way communications are preferred to be adopted by organisations. Interactivity will help organisations to respond quickly to their customers, collect more information about them, as well as building strong customers relationships (Ainin et al., 2015; Bouargan et al., 2020; Odoom et al., 2017). Considering the interactive nature of social media, the interactivity construct has been examined by several scholars (e.g., Ainin et al., 2015; Odoom et al., 2017; Qalati et al., 2020, 2021), and they have demonstrated its strong influence on social media usage among SMEs.

## 2.2.2. *Organisational dimension*

The organisational dimension refers to the existing organisational attributes and conditions that support the usage of new technology. These attributes form the internal environment of organisations that may facilitate or hinder the acceptance of new technology (Abed, 2020; Al-Omouh et al., 2021; Hassan et al., 2021; Jaman et al., 2020; Kwon et al., 2021).

Previous studies (e.g., Abed, 2020; Abu Bakar et al., 2019; Al-Omouh et al., 2021; Asiaei & Nor, 2019; Eze et al., 2021; Jaman et al., 2020; Kwon et al., 2021; Qalati et al., 2021; Ramdani et al., 2021) that have examined the elements affecting SMEs' use of social media, documented the vital role that organisational attributes have in affecting SMEs' choice to implement social media. The organisational dimension involves the following factors:

2.2.2.1. *Owner or management support*. Management support represents the extent to which top management creates a positive environment in terms of (involvement, encouragement, resources, motivation, training, etc.) that is essential for the successful implementation of new technology. Based on the TOE framework, previous researchers (e.g., Abed, 2020; Abu Bakar et al., 2019; Al-Omouh et al., 2021; Chau et al., 2020; Samsudeen et al., 2021) have highlighted that the implementation of new technology is notably affected by the level of management support.

Regarding SMEs, most of the decisions are centralised and are very likely to be taken by one person who is usually the owner (Ahani et al., 2017; Chau et al., 2020; Rahman et al., 2020). Thus, previous scholars (e.g., Abed, 2020; Ahani et al., 2017; AlSharji et al., 2018; Effendi et al., 2020; Eze et al., 2021; Qalati et al., 2021; Rahman et al., 2020) have confirmed the strong positive correlation between owner support and SMEs' implementation of social media, and rank it as one of the most crucial elements.

**2.2.2.2. Technological competence.** One of the facilitating conditions that have been well documented in literature as a strong determinant of new technology adoption is technological competence (Oppong et al., 2020; Vatanasakdakul et al., 2020). Technological competencies refer to the IT knowledge, skills, and expertise that employees should possess to successfully apply new technology (Al-Omouh et al., 2021; Schaupp & Bélanger, 2014). Lack of the required skills has been mentioned as one of the critical problems faced by organisations when implementing new technology (Effendi et al., 2020; Vatanasakdakul et al., 2020). Therefore, organisations having well-qualified employees tend to successfully adopt new technologies compared to other organisations with a lower level of technological competencies (Soto-Acosta et al., 2014).

In this context, earlier studies (e.g., Rahman et al., 2020; Taiminen & Karjaluo, 2015) have emphasised that SMEs often lack the necessary qualified employees and expertise that have a direct impact on the usage of social media. The significance of the technological competencies' availability has been determined as a major factor that may facilitate or hinder the usage of social media in SMEs by many authors (e.g., Ahani et al., 2017; Hassan et al., 2021; Rahman et al., 2020; Schaupp & Bélanger, 2014; Taiminen & Karjaluo, 2015).

**2.2.2.3. Size.** One organisational factor that has been looked at in previous technology adoption research is firm size. Firm size is usually measured by the total number of employees working in an organisation (Asiaei & Nor, 2019). In the extant literature, the effect of firm size on new technology utilisation is controversial (Hazarika et al., 2016).

Some studies (e.g., Al-Omouh et al., 2021; Asiaei & Nor, 2019; Hazarika et al., 2016) have demonstrated that organisations' size is a good predictor for the usage of new technology. They have argued that large organisations have all the necessary resources to implement new technology, and this will facilitate and accelerate the implementation process. On the other side, other studies have demonstrated the insignificant correlation between the size of organisations and new technology utilisation.

Social media is not exceptional (Toker et al., 2016), several studies (e.g., Amoah & Jibril, 2020; Hazarika et al., 2016; Pradhan et al., ; Wamba & Carter, 2014) have highlighted the direct impact of firm size on the usage of social media in SMEs. On the contrary, some studies (e.g., Jaman et al., 2020; Toker et al., 2016) have proved that there is no causal connection between SME firm size and social media usage.

**2.2.2.4. Innovative culture.** In the existing literature, several researchers have revealed that the implementation of new technologies is commonly linked to innovative culture. An organisational culture that encourages risk-taking, creativity, acceptance of novel ideas, and experimentation will promote the adoption of new technologies (Al-Omouh et al., 2021; Eggers et al., 2017; Hassan et al., 2021; Kwon et al., 2021).

For SMEs, innovative culture was identified as a serious indicator for social media adoption. Where, innovative-oriented SMEs, are more likely to utilise social media (Hassan et al., 2021; Kwon et al., 2021; PatePateli et al., 2020; Wamba & Carter, 2014). Therefore, innovative culture is considered as one of the key SMEs' organisational attributes that enable them to implement social media.

2.2.2.5. *Financial resources availability.* A final organisational attribute that has been outlined in previous studies to affect SMEs' adoption of social media is the availability of financial resources. SMEs usually have limited financial resources that constrain their investment decisions regarding the implementation of new technologies (Amoah & Jibril, 2020). Accordingly, SMEs are more motivated to utilise technologies that do not add to their financial burden. Previous studies (e.g., Abed, 2020; Amoah & Jibril, 2020; Ramdani et al., 2021; Taiminen & Karjaluoto, 2015) have argued that the availability of financial resources affects how social media are used by SMEs.

### 2.2.3. *Environmental dimension*

The external dimension refers to the elements and conditions outside organisations, stemmed from the surrounding context in which organisations operate (Abu Bakar et al., 2019; Qalati et al., 2021; Shaltoni, 2017). As stated in the literature, the environmental dimension significantly impacts SMEs' decision to utilise social media (Abed, 2020; Kwon et al., 2021; Qalati et al., 2021; Ramdani et al., 2021). Several external factors as presented in this section, have been recognised in previous studies to impact social media adoption by SMEs.

2.2.3.1. *Competitive pressure.* "Competitive pressure" refers to the degree to which there is intense competition among organisations in the sector (Abu Bakar et al., 2019; Qalati et al., 2021). Tough and intense competition in the marketplace, stimulate organisations to be innovative and implement new technologies to gain competitive advantage (Abu Bakar et al., 2019; Ahani et al., 2017; Shaltoni, 2017). Therefore, according to earlier studies, the use of new technologies and competitive pressure are significantly correlated. (Al-Omouh et al., 2021).

Many researchers (e.g., Ahani et al., 2017; AlSharji et al., 2018; Kwon et al., 2021; Qalati et al., 2021; Samsudeen et al., 2021) have mentioned that competitive pressure is a good predictor of social media usage by SMEs. Social media is used by SMEs to compete in the marketplace and outperform their competitors. Thus, the more competition that SMEs face in the marketplace, the more likely SMEs adopt social media (Jaman et al., 2020; Schaupp & Bélanger, 2014).

2.2.3.2. *Customer pressure.* Pressure from customers has been revealed in previous studies as a critical factor affecting new technology adoption (Jaman et al., 2020; Rahman et al., 2020). Many organisations try to meet their customers' expectations by utilising new technologies that facilitate interactions with their customers (Rahman et al., 2020).

Social media is used by many SMEs to satisfy their customers' demands, where many customers nowadays have turned to social customers, who are dedicated to using various social media platforms to collect information about SMEs' products and services (Ahani et al., 2017; Jaman et al., 2020). Consequently, SMEs are driven to use social media to fit with their customers. Therefore, the more pressure from customers, the more likely SMEs is to implement social media. This positive relationship has been confirmed in various studies (e.g., Abed, 2020; Ahani et al., 2017; AlSharji et al., 2018; Kwon et al., 2021; Qalati et al., 2021; Shaltoni et al., 2018).

2.2.3.3. *Social influence.* "Social influence" describes the degree to which an individual's actions are directly or indirectly affected by the advice and recommendations received from important persons (e.g., peers, family members, friends) surrounding him/her (N. C. Nawi et al., 2019; Oppong et al., 2020). Social influence is based on "the theory of reasoned action", where an individual's behaviour is shaped by his/her perception of social pressure (Eid et al., 2020; Oppong et al., 2020; Vatanasakdakul et al., 2020). In the context of technology adoption, social influence refers to the power of key persons' advice and opinion on an individual decision to implement the technology (Oppong et al., 2020; Vatanasakdakul et al., 2020). If the advice is perceived as important, the person will be inclined to use the new technology.

Some researchers (e.g., Adam et al., 2016; Eid et al., 2020) have argued that social influence plays a significant role in forming individuals' decisions to use new technologies. The same is true regarding the usage of social media by SMEs. It has been highlighted in previous studies (e.g., Adam et al., 2016; Eid et al., 2020; Oppong et al., 2020; Puriwat & Tripopsakul, 2021; Tripopsakul, 2018) that SME owners' decision to adopt social media may be influenced by the recommendations they receive from key persons around them. Thus, social influence positively impacts SMEs' usage of social media.

**2.2.3.4. Bandwagon effect.** The bandwagon effect can be described as a psychological drive to imitate others' actions even if these actions do not fit with the imitators (Ahmad et al., 2019; Qalati et al., 2021). In the context of technology adoption, it was observed that some organisations implement a particular technology just because their competitors have done so (Abu Bakar et al., 2019; Al-Omouh et al., 2021). Therefore, if a particular technology becomes popular among many organisations in a specific industry, non-adopter organisations may imitate those adopter organisations and implement that technology, even if the technology will not fit with their strategy (Qalati et al., 2021).

The bandwagon effect has been affirmed by numerous academics (e.g., Abu Bakar et al., 2019; Ahmad et al., 2019; AlSharji et al., 2018; Kwon et al., 2021; Qalati et al., 2021; Samsudeen et al., 2021) as a factor that influence SMEs' usage of social media. The effect of the bandwagon effect is strong in an environment characterised by uncertainty and volatility (Ahmad et al., 2019).

#### **2.2.4. Individual dimension**

One of the dimensions that appears critical when investigating the deployment of new technologies is the individual dimension. Previous studies that have used the TOE framework to examine new technologies adoption, did not pay the required consideration to this dimension. Therefore, some researchers have argued that the TOE framework could be expanded to incorporate the individual dimension as an essential dimension that strongly influences the utilisation of new technologies (AlBar & Hoque, 2019; Chau et al., 2020; Ramdani et al., 2021). The individual dimension is related to the characteristics of the owner/manager of the organisation who takes decisions that affect the usage of new technologies (Vatanasakdakul et al., 2020). Decisionmaker's characteristics such as attitude, age, gender, education, background, and experience play key roles in the adoption of new technologies (Hazarika et al., 2016; Mack et al., 2017; Ramdani et al., 2021).

Concerning SMEs, previous studies (e.g., Olanrewaju et al., 2020; Ramdani et al., 2021) have revealed strong correlation between the individual dimension and the utilisation of social media. The SMEs' owner or manager is the dominant person who generally makes most of the decisions that affect the organisation's activities (AlBar & Hoque, 2019; Chau et al., 2020; Ramdani et al., 2021). Consequently, it is vital to investigate how SMEs owners' characteristics can affect the usage of social media.

Based on previous studies, four distinct individual factors have been identified as having a key impact on how social media is used by SMEs. These factors include the following:

**2.2.4.1. Owner attitude toward social media.** In the literature, it has been asserted that individuals' attitudes toward new technology have an impact on how widely they adopted it (Hussein et al., 2021; Kwon et al., 2021). Generally, an attitude describes the favourable or unfavourable beliefs, feelings, or opinion that an individual hold toward something or someone. Consequently, an individual's decisions are usually determined by his/her attitudes (Hassan et al., 2021; Kwon et al., 2021).

Concerning the adoption of new technology, an attitude toward a new technology refers to a decision maker's internal evaluation (positive belief or negative belief) of the new technology (Vatanasakdakul et al., 2020). Consequently, a favourable assessment will be associated with a favourable attitude, and this, in turn, will increase the probability of adopting that technology (Hussein et al., 2021). Similarly, the same applies to the usage of social media among SMEs. Preceding studies (e.g., Adam et al., 2016; Eze et al., 2021; Puriwat & Tripopsakul, 2021; Salam et al., 2021; Sugandini et al., 2019; Turan & Kara, 2018; Vatanasakdakul et al., 2020) have revealed that SMEs owners having positive attitudes toward social media will not hesitate to implement it. Thus, it is important to understand how SME owners' attitudes toward social media can affect its usage.

**2.2.4.2. Demographic attributes.** Demographic attributes describe the demographic characteristics of SMEs' owners such as age, sex, and education. Earlier studies (e.g., Mack et al., 2017; Taiminen & Karjaluoto, 2015; Wamba & Carter, 2014) have demonstrated that SME owners' demographic attributes may influence their decision to implement social media. Age, for example, has been mentioned by some researchers as a demographic attribute that can influence the adoption of new technology. Younger business owners are more motivated to apply new technologies than older business owners. Thus, there is a negative relationship between the business owner's age and the usage of new technology (Mack et al., 2017; Ramdani et al., 2021; Wamba & Carter, 2014). The second demographic characteristic that has been demonstrated in the literature is gender. The findings of former studies (e.g., Mack et al., 2017; Wamba & Carter, 2014) have mentioned that there is a variation between males and females concerning the usage of new technology. Finally, previous studies have argued that the adoption of new technology may be impacted by the education level of the business owner. Researchers such as Mack et al. (2017), Ramdani et al. (2021), and Wamba and Carter (2014) have argued that a higher level of education will change the business owner's way of thinking, make him/her more open to accepting new ideas, enable him/her to collect more information about the new technology. Therefore, this will increase the business owner's awareness of the expected benefits gained from implementing the new technology and consequently, he/she will be more inclined to adopt the new technology.

With respect to SMEs' adoption of social media, some researchers (e.g., Hazarika et al., 2016; He et al., 2017; Mack et al., 2017; Puriwat & Tripopsakul, 2021; Wamba & Carter, 2014) found that there is a positive association between the age of the SMEs' owners and the utilisation of social media. Other findings (e.g., Hazarika et al., 2016; Mack et al., 2017) have mentioned that SME owners' gender can impact social media usage. Finally, He et al. (2017), Salam et al. (2021), and Sai Manideep et al. (2019) have argued that the implementation of social media in SMEs can be facilitated by a higher level of education.

**2.2.4.3. Owner innovativeness.** The owner's innovativeness represents the ability of the business owner to take risks, accept and implement new ideas (Hassan et al., 2021; Samsudeen et al., 2021). It is a fundamental attribute for successful business owners and is strongly associated with the adoption of new technology (AlBar & Hoque, 2019; Sugandini et al., 2019). Innovative business owners increase the possibility of more positive decisions regarding the implementation of new technology.

Similarly, numerous research findings (e.g., Dalvi-Esfahani et al., 2018; Hussein et al., 2021; Shemi & Procter, 2018; Sugandini et al., 2019) have demonstrated the importance of the owner's innovativeness to the successful adoption of social media in SMEs. Innovative SME business owners stimulate the probability of implementing social media in their businesses. Thus, SME owners' innovativeness is considered to impact the utilisation of social media in SMEs.

**2.2.4.4. Social media knowledge.** Social media knowledge refers to the level of knowledge, skills, and experience that the SME business owner has in using social media (Jaman et al., 2020). One of



the challenges that organisations face during the implementation of new technology, is the lack of knowledgeable managers (Ramdani et al., 2021). Business owners who have the required skills, knowledge, and experience to deal with new technology, will be energised to adopt that technology in comparison with other owners lacking the knowledge and experience. Knowledgeable business owners will have the capabilities to implement and deploy new technologies effectively and efficiently (Taiminen & Karjaluo, 2015). Accordingly, it has been confirmed in previous studies (e.g., AlBar & Hoque, 2019; Alsharji et al., 2019; Taiminen & Karjaluo, 2015) that the business owners' knowledge positively impacts the utilisation of new technologies.

The use of social media by SMEs serves as an example of the relationship between business owners' knowledge and the acceptance of new technology. Several studies (e.g., Alsharji et al., 2019; Hazarika et al., 2016; He et al., 2017; Taiminen & Karjaluo, 2015) have highlighted the critical role that owners' social media expertise plays in SMEs' adoption of social media. One of the major reasons that drive SMEs business owners to stop using social media in their businesses is the lack of social media knowledge (Jaman et al., 2020). As a result, social media knowledgeable SMEs business owners who are familiar with it increase the opportunity for social media implementation by SMEs.

### 3. Research methodology

The research methodology followed in this study for prioritising the factors affecting social media usage among Egyptian SMEs according to their relative importance is structured in six steps, as demonstrated in Figure 1. The first step aims to identify the key factors that have been highlighted in previous studies influencing the usage of social media in SMEs. This aim was achieved through conducting an in-depth literature review, as presented in Section 2. This step resulted in determining twenty-four factors impacting SMEs' utilisation of social media.

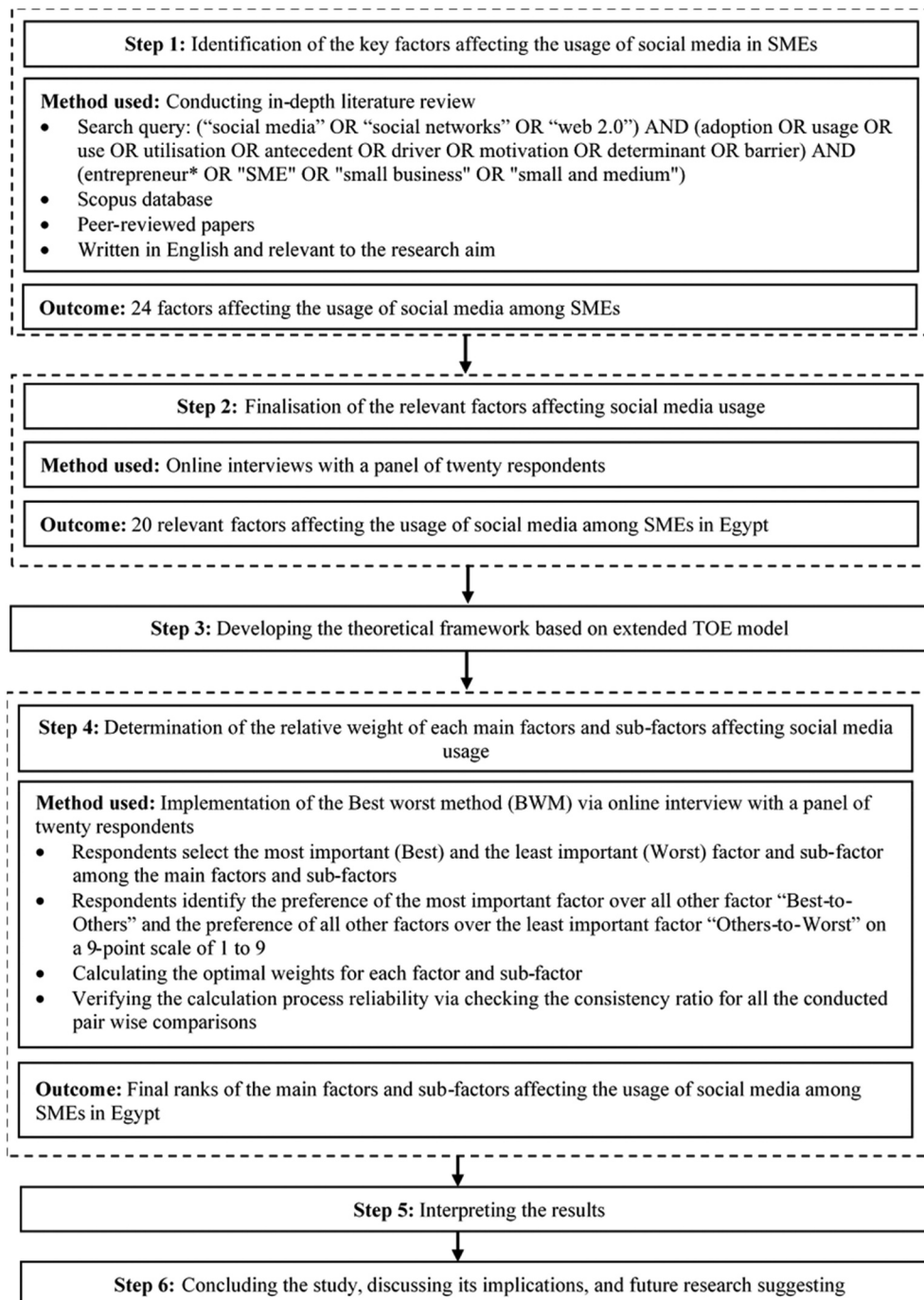
In the second step, factors collected in the previous step were finalised to determine the most relevant factors impacting social media usage among Egyptian SMEs. The shortlisting process was completed via conducting personal online interviews with twenty participants. Seventeen participants were owners or managers of SMEs in Egypt employing social media in their businesses. The remaining three participants were academic researchers holding doctorate degree with strong experience in entrepreneurship and information technology. Respondents from academia were chosen because they have a strong industry background in providing consultancy and training services to SMEs. The details of the participants are shown in Table 1, where (R) refers to respondent number.

Respondents' selection was performed using a combination of purposive sampling and self-selection sampling techniques rather than statistical sampling techniques (Moktadir et al., 2018; Suhi et al., 2019). Therefore, participants using social media in their business, having information and knowledge about the subject of the study, as well as having the desire and willingness to participate in the study were selected.

At the beginning of each interview, the aim and the procedures of the study were presented to each respondent. After that, each participant was asked to answer a simple "Yes" or "No" short questionnaire (Ahmadi et al., 2017; Kusi-Sarpong et al., 2019) to determine whether each factor is relevant or not relevant to the usage of social media in Egyptian SMEs. Also, each participant has the option to add any new factor. Factors received less than four "Yeses" were discarded from the list. No further factors were added. At the end of this step, twenty factors were finally recognised as important and relevant for this study. The final factors generated from literature review and participants' opinions, are presented in Table 2.

In the fourth step, the relative weight/importance of the main factors and sub-factors affecting social media usage among SMEs in Egypt was calculated by applying the Best-Worst method (BWM). The aim of this step is to specify the final ranks of the main factors and sub-factors, as presented in the following sections. Finally, the results of the study were interpreted, and conclusions were presented in the last two steps.

**Figure 1. Research methodology (source: prepared by the author).**



### 3.1. Best-worst method (BWM)

When a wide range of factors affect the application of a particular technology, it becomes critical to understand the significant importance of each factor by ordering and prioritising these factors according to their impact on the utilisation of that technology. This prioritisation process can be conducted by using one of “the multi-criteria decision-making techniques (MCDM)” (Gupta & Barua, 2016; Malek & Desai, 2019; Van de Kaa et al., 2019). MCDM techniques can assist researchers and decision-makers to identify the relative importance of each factor from various factors according to their weights.

**Table 1. Participants details**

<b>Code</b>	<b>Industry</b>	<b>No. of employees</b>	<b>Platforms used</b>	<b>Educational level</b>	<b>Position</b>	<b>Age category</b>	<b>Gender</b>
<b>R1</b>	IT services	40	Facebook, Instagram, LinkedIn	Postgraduate degree	Marketing manager	35-44	M
<b>R2</b>	Real estate services	16	Facebook, Instagram, WhatsApp	Postgraduate degree	Sales manager	25-34	M
<b>R3</b>	Clothing	8	Facebook, Instagram, WhatsApp	Bachelor's degree	Owner	45-54	M
<b>R4</b>	Consulting	6	Facebook, LinkedIn	Postgraduate degree	Owner	35-44	F
<b>R5</b>	Clothing and fashion accessories	2	Facebook, WhatsApp	Bachelor's degree	Owner	35-44	F
<b>R6</b>	IT services	20	Facebook, Instagram, LinkedIn	Postgraduate degree	Co-founder	25-34	M
<b>R7</b>	Cafe and restaurant	13	Facebook, Instagram	Bachelor's degree	Co-founder	35-44	M
<b>R8</b>	IT services	57	Facebook, Instagram, LinkedIn	Bachelor's degree	Project manager	25-34	M
<b>R9</b>	Fashion accessories	5	Instagram, WhatsApp	Bachelor's degree	Owner	35-44	F
<b>R10</b>	Consulting	32	Facebook, Instagram, LinkedIn	Bachelor's degree	Project manager	25-34	F
<b>R11</b>	Medical services	15	Facebook, Instagram	Postgraduate degree	Co-founder	35-44	F
<b>R12</b>	Clothing	45	Facebook, Instagram, WhatsApp	Bachelor's degree	Owner	35-44	M
<b>R13</b>	Construction	58	Facebook, Instagram, LinkedIn	Bachelor's degree	Owner	45-54	M
<b>R14</b>	Car services	23	Facebook, WhatsApp	Diploma	Owner	45-54	M
<b>R15</b>	Engineering services	53	LinkedIn	Bachelor's degree	Owner	45-54	M
<b>R16</b>	Clothing	4	Facebook, WhatsApp	Bachelor's degree	Owner	35-44	M
<b>R17</b>	Real estate services	11	Facebook, Instagram, WhatsApp	Bachelor's degree	Sales manager	25-34	F
<b>R18</b>	Academic			Doctorate degree	Subject expert	35-44	M
<b>R19</b>	Academic			Doctorate degree	Subject expert	45-54	M
<b>R20</b>	Academic			Doctorate degree	Subject expert	35-44	M

**Table 2. Factors affecting social media adoption**

<b>Main dimensions</b>	<b>Factors</b>	<b>Supporting references</b>
<b>Technological (T)</b>	Relative advantage (T1)	Ahani et al. (2017), Alsharji et al. (2019), Chatterjee and Kumar Kar (2020), Effendi et al. (2020), Eid et al. (2020), Gavino et al. (2019), Jaman et al. (2020), Kwon et al. (2021), PatePateli et al. (2020), Qalati et al. (2021), Shaltoni (2017)
	Complexity (T2)	Chatterjee and Kumar Kar (2020), Eid et al. (2020), Gavino et al. (2019), Puriwat and Tripopsakul (2021), Samsudeen et al. (2021), Turan and Kara (2018)
	Compatibility (T3)	Abu Bakar et al. (2019), Ahani et al. (2017), Ainin et al. (2015), Alsharji et al. (2019), Chatterjee and Kumar Kar (2020), Eze et al. (2021), Odoom et al. (2017), Qalati et al. (2021), Samsudeen et al. (2021), Shaltoni (2017)
	Cost-effectiveness (T4)	Hussein et al. (2021), Qalati et al. (2021), Bouargan et al. (2020), Chatterjee and Kumar Kar (2020), Odoom et al. (2017), Ainin et al. (2015)
	Trust (T5)	Bouargan et al. (2020), Rahman et al. (2020), N. C. Nawi et al. (2019), Shemi and Procter (2018), Ahamat et al. (2017)
	Observability (T6)	Samsudeen et al. (2021), Eid et al. (2020), PatePateli et al. (2020), Abu Bakar et al. (2019)
	Interactivity (T7)	Qalati et al. (2021), Bouargan et al. (2020), Odoom et al. (2017), Ainin et al. (2015)
<b>Organisational (O)</b>	Owner support (O1)	Eze et al. (2021), Qalati et al. (2021), Effendi et al. (2020), Rahman et al. (2020), Abu Bakar et al. (2019), Ahmad et al. (2019), AlSharji et al. (2018), Ahani et al. (2017)
	Technological competence (O2)	Hassan et al. (2021), Effendi et al. (2020), Rahman et al. (2020), Ahani et al. (2017), Taiminen and Karjaluo (2015), Schaupp and Bélanger (2014)
	Size (O3)	Pradhan et al. (2014), Amoah and Jibril (2020), Hazarika et al. (2016), Wamba and Carter (2014), Pentina et al. (2012)
	Innovative culture (O4)	Hassan et al. (2021), Kwon et al. (2021), PatePateli et al. (2020), Eggers et al. (2017), Shaltoni (2017), Wamba and Carter (2014)
	Financial resources availability (O5)	Amoah and Jibril (2020), Abed (2020), Oppong et al. (2020), Taiminen and Karjaluo (2015)
<b>Environmental (E)</b>	Competitive pressure (E1)	Samsudeen et al. (2021), Qalati et al. (2021), Kwon et al. (2021), Rahman et al. (2020), Alsharji et al. (2019), Ahani et al. (2017), Shaltoni (2017), Schaupp and Bélanger (2016)
	Customer pressure (E2)	Qalati et al. (2021), Kwon et al. (2021), Abed (2020), Rahman et al. (2020), Effendi et al. (2020), Shaltoni et al. (2018), Ahani et al. (2017), Schaupp and Bélanger (2014)
	Social influence (E3)	Puriwat and Tripopsakul (2021), Oppong et al. (2020), Eid et al. (2020), Tripopsakul (2018), Turan and Kara (2018), Adam et al. (2016)
	Bandwagon effect (E4)	Samsudeen et al. (2021), Qalati et al. (2021), Kwon et al. (2021), Abu Bakar et al. (2019), Bakar et al. (2017), Ahmad et al. (2019), AlSharji et al. (2018)
<b>Individual (I)</b>	Owner attitude (I1)	Hussein et al. (2021), Hassan et al. (2021), Vatanasakdakul et al. (2020), Salam et al. (2021), Sugandini et al. (2019), Adam et al. (2016)
	Demographic attributes (I2)	Puriwat and Tripopsakul (2021), Salam et al. (2021), Sai Manideep et al. (2019), Mack et al. (2017), Taiminen and Karjaluo (2015), Hazarika et al. (2016), Wamba and Carter (2014)
	Owner innovativeness (I3)	Hussein et al. (2021), Sugandini et al. (2019), Shemi and Procter (2018), Dalvi-Esfahani et al. (2018)
	Social Media Knowledge (I4)	Alsharji et al. (2019), He et al. (2017), Hazarika et al. (2016), Taiminen and Karjaluo (2015)

Identifying the significance of each factor impacting the usage of social media among SMEs is a multi-criteria decision making (MCDM) because multiple factors play a critical role in determining the utilisation of social media, as discussed before. Additionally, MCDM techniques are the most widely used techniques for evaluating new technology (Malek & Desai, 2019).

Various MCDM techniques are available and used for prioritising factors, such as “Analytic Network Process (ANP)”, “Multi-Attribute Utility Theory (MAUT)”, “Simple Multi-Attribute Rating Technique (SMART)”, “Analytic Hierarchy Process (AHP)”, “Multi-Objective Optimisation Ratio Analysis (MOORA)”, “VlseKriterijumska Optimizacija I Kompromisno Resenje (VIKOR)”, etc. (Malek & Desai, 2019; Suhi et al., 2019; Van de Kaa et al., 2019). All these techniques are based on conducting a pairwise comparison among several factors to identify the most powerful factor via evaluating the weight of each factor. But most of these MCDM techniques have been disadvantaged by the complexity and the inconsistency of the pairwise comparison among alternatives that can generate ambiguous results (Rezaei, 2015). To avoid these disadvantages, the Best–Worst Method (BWM) can be applied to solve multi-criteria problems. The BWM is a newly developed approach introduced by Rezaei (2015) and can be used to solve the complexity of pairwise comparison and deliver reliable results (Gupta & Barua, 2016; Kusi-Sarpong et al., 2019; Malek & Desai, 2019; Suhi et al., 2019).

When contrasted with other MCDM methods, the BWM provides the following advantages: a systematic approach of collecting data, less complicated (concerning the required datasets, decision-maker inputs, and pairwise comparisons), saves experts time, greater ease of implementation, and finally more reliable and consistent results (S. Ahmad et al., 2021; Ahmadi et al., 2017; Kusi-Sarpong et al., 2019; Malek & Desai, 2019; Suhi et al., 2019). Additionally, many scholars have utilised the BWM extensively in a variety of domains, including innovation and technology (e.g., Gupta & Barua, 2016; Moktadir et al., 2018; Orji et al., 2020; Salimi & Rezaei, 2018; Sobota et al., 2020; Tarei et al., 2021; Van de Kaa et al., 2019), sustainability (e.g., Ahmadi et al., 2017; Govindan et al., 2020; Kusi-Sarpong et al., 2019; Malek & Desai, 2019; Mathiyazhagan et al., 2021; Moktadir et al., 2020; Suhi et al., 2019), and entrepreneurship (e.g., Askarifar et al., 2018; 2020; Shao et al., 2020; Torbica et al., 2014). Therefore, in this study the BWM will be applied to identify the relative importance of the key factors that affect social media usage among Egyptian SMEs. The implementation of the BWM include the following steps (Rezaei, 2015):

**Step 1:** Determining a set of decision-making criteria.

Based on literature review and respondents’ opinions, a group of decision criteria defined as  $\{C_1, C_2, C_3 \dots, C_n\}$  for  $n$  main criteria have been obtained to make a comprehensive decision.

**Step 2:** Deciding what is the best (most important, superior) and the worst (least important, inferior) criteria among main as well as sub-criteria that have been identified in step 1.

**Step 3:** Conducting a pairwise comparison between the best criterion and the other criteria.

In this step, the decision-maker determine the preference of the most desirable criterion over all other criteria using a 9-point linguistic scale from 1 to 9 as presented in Table 3. The resulting best-to-others (BO) vector can be expressed as:  $A_B = (a_{B1}, a_{B2}, a_{B3}, \dots, a_{Bn})$ , where  $a_{Bj}$  indicates the preference or the significance of the best criterion  $B$  over criterion  $j$ , and thus  $a_{BB} = 1$ .

**Step 4:** Conducting a pairwise comparison between the other criteria and the worst criterion.

In this step, the decision-maker determine the preference of all other criterion over the worst criterion using the same scale in step 3. This step result in creating the others-to-worst (OW) vector that can be expressed as:  $A_W = (a_{1W}, a_{2W}, a_{3W} \dots, a_{nW})^T$ , where  $a_{jW}$  demonstrates the preference of criterion  $j$  over the worst criterion  $W$ . Also  $a_{WW} = 1$ .

**Table 3. 9-point linguistic scale**

9-point linguistic attributes	Scores
“Equal importance”	1
“Somewhat between Equal and Moderate”	2
“Moderately more important than”	3
“Somewhat between Moderate and Strong”	4
“Strongly more important than”	5
“Somewhat between Strong and Very strong”	6
“Very strongly important than”	7
“Somewhat between Very strong and Absolute”	8
“Absolutely more important than”	9

**Step 5:** Calculating the optimal weights  $(w_1^*, w_2^*, w_3^*, \dots, w_n^*)$

To determine the optimal weights, the maximum of absolute differences  $\{|w_B - a_{Bj}w_j|, |w_j - a_{jW}w_W|\}$  for all  $j$  must be minimised. Thus, the problem can be converted into the following formula:

$$\min \max_j \{|w_B - a_{Bj}w_j|, |w_j - a_{jW}w_W|\}$$

Subject to:

$$\begin{aligned} \sum_j w_j &= 1, \\ w_j &\geq 0, \text{ for all } j \end{aligned} \tag{1}$$

Equation (1) can be converted into the following linear programming problem:

$$\min \xi^L$$

Subject to:

$$\begin{aligned} |w_B - a_{Bj}w_j| &\leq \xi^L, \text{ for all } j \\ |w_j - a_{jW}w_W| &\leq \xi^L, \text{ for all } j \\ \sum_j w_j &= 1, \\ w_j &\geq 0, \text{ for all } j \end{aligned} \tag{2}$$

By solving Equation (2), the optimal weights  $(w_1^*, w_2^*, w_3^*, \dots, w_n^*)$ , and the optimal consistency value  $\xi^L$  can be determined. The closer the value of  $\xi^L$  to Zero, the more consistent the results and the more reliable the comparisons.

**4. Application of the best-worst method of (BWM)**

In this section, all the steps used to calculate the relative importance (weight) of the factors affecting Egyptian SMEs usage of social media are presented.

**4.1. Confirmation of the decision criteria**

In this step, the decision criteria were initially identified through conducting an in-depth literature review. The literature reviewed resulted in extracting 24 factors impacting the usage of social media in Egyptian SMEs. Then these factors were finalised and shortlisted to 20 factors, as previously presented in Table 2 via inputs from twenty respondents, as mentioned in the prior



**Table 4. Best and worst factors identified by Respondents 1–20**

<b>Social media usage criteria</b>	<b>Determined as Best by respondents</b>	<b>Determined as Worst by respondents</b>
<b>Technological (T)</b>	1,2,3,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20	
T1	1,3,4,7,10,11,13,14,15,16,17,18,19,20	
T2	9	2,3,17
T3		15
T4	5,6,8,12	
T5		1,5,7,8,10,12,13,14,16
T6	2	4,9,11,18,20
T7		6,19
<b>Organisational (O)</b>		5,6,8,9,10,12,14
O1	1,2,3,4,9,10,12,13,14,15,17,18,20	
O2	7,11,16,19	
O3		2,3,4,6,7,8,9,11,12,14,15,16,17,18,19,20
O4		1,5,10,13
O5	5,6,8	
<b>Environmental (E)</b>	4	2,3,18,20
E1	2,4,6,7,9,10,12,15,18	
E2	1,3,5,8,11,13,14,16,17,19,20	
E3		
E4		1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20
<b>Individual (I)</b>		1,4,7,11,13,15,16,17,19
I1	2,3,6,8,11,12,13,14,15,17	
I2	9	1,3,5,6,7,10,11,12,13,14,15,16,17,18,19,20
I3	1,4,5,7,16,18,19,20	8,9
I4	10	2,4

section. At the end of the first interview with the participants, they were requested for a second online interview to calculate the weight of each factor, as presented below.

#### **4.2. Determining the best and the worst criteria**

In the second step, each respondent was asked to:

- identify “the most important factor” affecting the use of social media by Egyptian SMEs,
- identify “the least important factor” affecting the use of social media by Egyptian SMEs. The best and worst criteria selected by each respondent are listed in Table 4.

#### **4.3. Determining the preference ratings of the best criteria over other criteria**

Using a “9-point scale” from 1 to 9, each respondent was invited to determine the preference of the most important factor over all other factors. The inputs from respondents have been converted into Best-to-Others vector as shown in Table 5.

**Table 5. Best-to-others vector**

	<b>Best</b>	<b>T</b>	<b>O</b>	<b>E</b>	<b>I</b>
<b>R1</b>	T	1	2	5	8
<b>R2</b>	T	1	2	4	2
<b>R3</b>	T	1	5	6	2
<b>R4</b>	E	2	5	1	8
<b>R5</b>	T	1	6	1	3
<b>R6</b>	T	1	6	3	2
<b>R7</b>	T	1	2	2	8
<b>R8</b>	T	1	8	2	3
<b>R9</b>	T	1	8	3	3
<b>R10</b>	T	1	7	2	3
<b>R11</b>	T	1	4	2	7
<b>R12</b>	T	1	6	2	4
<b>R13</b>	T	1	1	2	4
<b>R14</b>	T	1	4	1	2
<b>R15</b>	T	1	3	5	7
<b>R16</b>	T	1	3	2	5
<b>R17</b>	T	1	4	2	5
<b>R18</b>	T	1	3	5	2
<b>R19</b>	T	1	3	4	7
<b>R20</b>	T	1	3	6	2

**4.4. Determining the preference ratings of the other criteria over the worst criterion**

Following the same procedures in the previous step, each respondent has identified the preference ratings of all other factors over the least important factor. The inputs from respondents have been converted into “Others-to-Worst vector” as presented in Table 6 Table

**4.5. Calculating the optimal weights**

After conducting the pairwise comparisons for all the main factors and their corresponding sub-factors and transforming them into “Best-to-Others vector” and “Others-to-Worst vector” respectively, the optimal weights for all the main dimensions and their corresponding factors have been calculated using Equation (1). Next, by using Equation (2), the aggregate weights for all the main dimensions and their corresponding factors have been calculated for all the twenty respondents. Finally, a single weight vector for each of the main dimensions and their corresponding factors have been calculated using the simple average method. Table 7 demonstrates the optimal weights calculated for each respondent and the average weights of the main dimensions, as well as the average consistency ratio ( $\xi^L$ ). The calculated average consistency ratio ( $\xi^L$ ) is 0.070403 (close to zero), which indicates a high consistency and reliability of the comparisons.

The final outcomes obtained from the application of the BWM are presented in Table 8, which summarises the aggregate weights, as well as the final ranking of the main dimensions and their respective factors according to their influential power on the usage of social media among SMEs in Egypt. The results that were discovered will be thoroughly detailed in the next section.

**5. Results and discussion**

The final results obtained for each of the main dimensions and their corresponding factors are summarised in Table 8. The results revealed some initial observations that will be discussed in detail in the following sections.

**Table 6. Others-to-worst vector**

	<b>Worst</b>	<b>T</b>	<b>O</b>	<b>E</b>	<b>I</b>
<b>R1</b>	I	8	6	3	1
<b>R2</b>	E	4	2	1	2
<b>R3</b>	E	6	3	1	5
<b>R4</b>	I	7	3	8	1
<b>R5</b>	O	6	1	6	5
<b>R6</b>	O	6	1	2	4
<b>R7</b>	I	8	7	7	1
<b>R8</b>	O	8	1	7	4
<b>R9</b>	O	8	1	5	5
<b>R10</b>	O	7	1	5	5
<b>R11</b>	I	7	4	7	1
<b>R12</b>	O	6	1	6	3
<b>R13</b>	I	4	4	4	1
<b>R14</b>	O	4	1	4	2
<b>R15</b>	I	7	3	2	1
<b>R16</b>	I	5	3	5	1
<b>R17</b>	I	5	3	5	1
<b>R18</b>	E	5	2	1	5
<b>R19</b>	I	7	4	3	1
<b>R20</b>	E	6	4	1	5

**5.1. Ranking of the main dimensions affecting social media usage**

According to the results obtained from the application of the BWM, it is evident that the technological dimension (T) is the most influential dimension on the usage of social media among SMEs in Egypt with the highest global weight of (0.46729). This indicates that the attributes of social media as a technology have a strong impact and should be guaranteed when using social media by SMEs in Egypt. The next important dimension affecting social media usage is the environmental dimension (E) with a global weight of (0.22868). This reveals the important role that the external factors play in determining SMEs owners’ decision to utilise social media.

Based on respondents’ evaluation, the organisational dimension is the third most important dimension in driving Egyptian SMEs to utilise social media with a global rank of (0.154115). Finally, the least significant dimension is the individual dimension (I), which has a global weight of (0.149912).

**5.2. Global rank of the key factors affecting social media usage**

The top 10 factors, as presented in Table 8 that significantly influence Egyptian SMEs’ usage of social media are relative advantage (T1) > cost-effectiveness (T4) > customer pressure (E2) > competitive pressure (E1) > complexity (T2) > owner attitude (I1) > owner support (O1) > owner innovativeness (I3) > interactivity (T7) > observability (T6). Five factors (T1, T4, T2, T7, T6) out of the top 10 factors belong to the technological dimension which is consistent with the ranking of the main dimension discussed before.

Social media relative advantage (T1) with a global weight of (0.122794546) is ranked first, which indicates the importance of this factor as a driving force for the usage of social media among Egyptian SMEs. The owners of SMEs are derived to implement social media because of the expected benefits they will gain from social media compared to other conventional methods. Therefore, special

**Table 7. Optimal weights of the main dimensions for the 20 respondents**

	<b>T</b>	<b>O</b>	<b>E</b>	<b>I</b>	<b>ξ<sup>L</sup></b>
<b>R1</b>	0.529412	0.294118	0.117647	0.058824	0.058824
<b>R2</b>	0.444444	0.222222	0.111111	0.222222	0
<b>R3</b>	0.51	0.12	0.07	0.3	0.09
<b>R4</b>	0.302198	0.120879	0.521978	0.054945	0.082418
<b>R5</b>	0.393939	0.050505	0.393939	0.161616	0.090909
<b>R6</b>	0.4875	0.075	0.175	0.2625	0.0375
<b>R7</b>	0.44186	0.255814	0.255814	0.046512	0.069767
<b>R8</b>	0.483051	0.050847	0.279661	0.186441	0.076271
<b>R9</b>	0.534091	0.056818	0.204545	0.204545	0.079545
<b>R10</b>	0.475138	0.055249	0.281768	0.187845	0.088398
<b>R11</b>	0.496454	0.148936	0.297872	0.056738	0.099291
<b>R12</b>	0.491803	0.065574	0.295082	0.147541	0.098361
<b>R13</b>	0.357143	0.357143	0.214286	0.071429	0.071429
<b>R14</b>	0.363636	0.090909	0.363636	0.181818	0
<b>R15</b>	0.588679	0.207547	0.124528	0.079245	0.033962
<b>R16</b>	0.462963	0.185185	0.277778	0.074074	0.092593
<b>R17</b>	0.485437	0.145631	0.291262	0.07767	0.097087
<b>R18</b>	0.462963	0.185185	0.074074	0.277778	0.092593
<b>R19</b>	0.561404	0.210526	0.157895	0.070175	0.070175
<b>R20</b>	0.473684	0.184211	0.065789	0.276316	0.078947
<b>Final Wt.</b>	0.46729	0.154115	0.228683	0.149912	0.070403

consideration should be provided to this factor during the implementation of social media. This finding is consistent with the majority of earlier research findings (e.g., Effendi et al., 2020; Eid et al., 2020; Gavino et al., 2019; PatePateli et al., 2020; Qalati et al., 2020) that highlighted the significant impact of social media relative advantage on social media usage among SMEs.

Another highly ranked factor that has a strong power on social media usage among SMEs in Egypt is cost-effectiveness (T4) with the second highest global weight of (0.098699247). This reveals that social media is a cost-effective technology available to SMEs. Cost is a critical factor for SMEs when they decide to implement social media because they usually run their businesses with limited resources. This finding is consistent with most of prior research findings (e.g., Bouargan et al., 2020; Hussein et al., 2021; Odoom et al., 2017; Qalati et al., 2021) that have confirmed the considerable influence of cost on SMEs' use of social media.

Customer pressure (E2) with a global weight of (0.093997438) and competitive pressure (E1) with a global weight of (0.088831944), received the third and fourth positions respectively in the BWM evaluation. These two factors pertain to the environmental dimension and are essential for motivating Egyptian SMEs to adopt social media. SMEs in Egypt are oriented to use social media to meet and satisfy their customers' expectations. Currently, most of the customers are social oriented customers who use social media to collect information about organisations' products and services. Previous studies (e.g., Abed, 2020; Ahani et al., 2017; Effendi et al., 2020; Qalati et al., 2021; Rahman et al., 2020; Shaltoni et al., 2018) have demonstrated that customer pressure positively impact the usage of social media by SMEs.

Additionally, the severe competition among SMEs in Egypt is one the influential factors impacting SMEs usage of social media in Egypt. SMEs in Egypt adopt social media to enhance their abilities to compete in the marketplace and gain competitive edge. This finding is compatible with

**Table 8. Aggregate weights and final ranking of the main factors and sub-factors**

Main dimensions	Weights of main dimensions	Factors	Weights of factors	Global Weights	Rank
<b>Technological (T)</b>	0.467289997	T1	0.262780173	0.122794546	1
		T2	0.141292688	0.06602466	5
		T3	0.102960599	0.048112458	11
		T4	0.211216263	0.098699247	2
		T5	0.068278315	0.031905773	15
		T6	0.103656286	0.048437545	10
		T7	0.109815677	0.051315767	9
<b>Organisational (O)</b>	0.15411498	O1	0.345191631	0.053199201	7
		O2	0.250645838	0.038628278	13
		O3	0.047332755	0.007294687	20
		O4	0.10324122	0.015911019	17
		O5	0.253588556	0.039081795	12
<b>Environmental (E)</b>	0.228683343	E1	0.388449562	0.088831944	4
		E2	0.411037539	0.093997438	3
		E3	0.149973843	0.03429652	14
		E4	0.050539055	0.01155744	19
<b>Individual (I)</b>	0.149911681	I1	0.386923789	0.058004396	6
		I2	0.091767842	0.013757071	18
		I3	0.34822224	0.052202581	8
		I4	0.173086128	0.025947632	16

the reviewed literature (e.g., Ahani et al., 2017; Alsharji et al., 2019; Qalati et al., 2021; Rahman et al., 2020; Samsudeen et al., 2021), demonstrating that SMEs are heavily influenced by competitive pressure to use social media to improve their competitive position.

While customer pressure and competitive pressure are among the most important factors that drive SMEs in Egypt to use social media, it is observed that the bandwagon effect (E4) has the least important effect among the environmental factors. The bandwagon effect (E4) held the nineteenth position among all the factors with a global weight of (0.01155744). This implies the popularity of social media among other firms is not a key factor that stimulate Egyptian SMEs to use social media. This finding is inconsistent with some previous results (e.g., Abu Bakar et al., 2019; Ahmad et al., 2019; Qalati et al., 2021; Samsudeen et al., 2021), indicating the critical role of bandwagon effect on social media usage in SMEs.

Returning to the top 10 factors, complexity (T2) held the fifth position in ranking with a global weight of (0.06602466). This finding reveals that social media ease of use significantly impacts its adoption among SMEs in Egypt. The BWM analysis shows that the respondents perceived social media as not being difficult to use and not associated with complexity. So, social media ease of use stimulates SMEs' owners to utilise it. This relationship has been clarified in previous studies (e.g., Chatterjee & Kumar Kar, 2020; Effendi et al., 2020; Eid et al., 2020; Gavino et al., 2019; Samsudeen et al., 2021).

Although, five technological factors are among the top 10 factors that drive the usage of social media, trust (T5) was ranked fifteenth among all the factors with a global weight of (0.031905773), as well as it is the least important factor among all the technological factors. Indicating that SMEs in Egypt are not interested in the reliability, credibility and accuracy of the information obtained

from social media. Some previous studies (e.g., Ainin et al., 2015; Bouargan et al., 2020) demonstrated the poor association between trust and social media usage.

Since most SMEs are owner-manager oriented and most of the decisions are centralised in the hand of one person (owner/manager), SMEs' owners have influential power on the usage and acceptance of social media. This applies also to SMEs in Egypt, where 60% of SMEs in Egypt are owned and managed by one person (Aboelmaged et al., 2018). The crucial role of SMEs' owners was clearly demonstrated in the findings. From the BWM analysis, it is obvious that owner attitude (I1) with a global weight of (0.058004396), owner support (O1) with a global weight of (0.053199201) and owner innovativeness (I3) with a global weight of (0.052202581) are in the sixth, seventh, and eighth positions respectively.

However, the individual dimension is ranked as the least important dimension among the main dimensions influencing Egyptian SMEs' social media usage, it is surprising that two individual factors are among the top ten factors. These two factors as mentioned before are owner attitude and owner innovativeness. This finding indicates that these two individual factors should be taken into considerations when SMEs in Egypt implement social media. Egyptian SMEs business owners' positive attitudes toward social media play a critical role in their decision to use social media and facilitate its implementation. This significant relationship has been demonstrated in earlier research findings (e.g., Adam et al., 2016; Puriwat & Tripopsakul, 2021; Salam et al., 2021; Sugandini et al., 2019; Vatanasakdakul et al., 2020). Similarly, owner innovativeness is a fundamental attribute of SMEs business owners which is closely related to their use of social media. This finding is in line with prior studies (e.g., Dalvi-Esfahani et al., 2018; Hussein et al., 2021; Shemi & Procter, 2018; Sugandini et al., 2019) demonstrating that SMEs are more prone to implement social media when their owners are open to innovativeness.

On the other hand, the other two individual factors specifically social media knowledge (I4) and demographic attributes (I2) are among the least important five factors that impact social media usage among Egyptian SMEs with a global weight of (0.025947632) and (0.013757071) in the sixteenth and eighteenth position, respectively.

Also, it was not expected that only one factor under the organisational dimension will be among the top ten factors. This factor is owner support and ranked seventh, as presented in Table 8. Previous results of Abed, (2020), Abu Bakar et al. (2019), Ahmad et al. (2019), AlSharji et al. (2018), and Eze et al. (2021), Pateli et al. (2020), and Qalati et al. (2021) confirmed that owner support is highly important in creating a supportive environment and providing the necessary resources required for social media usage. On the other side, size (O3) with a global weight of (0.007294687) is ranked in the last position among all the factors that affect social media usage by SMEs in Egypt. The BWM analysis shows that the respondents perceived the size of the organisation as an insignificant factor affecting social media usage. This finding is in line with previous results of Jaman et al. (2020) and Toker et al. (2016), which suggest that size has no noticeable influence on how social media is used.

Another organisational factor that is among the least important factors is innovative culture (O4) with a global weight of (0.015911019) and is ranked seventeenth. This indicates that the innovative organisational culture is not significantly important, because most Egyptian SMEs are owner/manager oriented and most of the innovative ideas are created by the owner. This finding is consistent with the previously discussed results that owner attitude, owner support, and owner innovativeness are among the top ten factors that impact social media usage. Moreover, this finding reveals that the success of SMEs in Egypt depends mainly on the owner of the SMEs.

Finally, compatibility (T3), financial resources availability (O5), technological competence (O2), and social influence (E3) with global weights equal to (0.048112458), (0.039081795),



(0.038628278), and (0.03429652) respectively have an intermediate or moderate impact on driving SMEs in Egypt to use social media.

To practically examine the truthfulness and the applicability of the obtained results, two distinct kinds of validations—qualitative and quantitative—were executed. These two types of validation have been implemented in previous studies in various research context (e.g., Almutairi et al., 2019; Elnadi & Shehab, 2016, 2021; Vinodh & Chintha, 2011). Regarding the qualitative validation, online discussions with ten of the SME owners who participated in the data collection process were conducted. During the conversation, the results of this study were presented to each participant. Each participant was asked to express his or her opinion about: (1) the extent to which the framework is comprehensive and covers all the factors impacting the adoption of social media in SMEs, (2) any missing factors or sub-factors that need to be added to or excluded from the framework, and (3) the extent to which the calculated ranking and relative importance of the factors and sub-factors reflect the reality and are relevant to the adoption of social media in SMEs. The participants confirmed that the factors and sub-factors used in the framework are comprehensive and cover all the determinants that impact the utilisation of social media in SMEs. Additionally, all the participants agreed to the ranking and the relative importance of the main factors and sub-factors presented in this study.

Concerning the quantitative validation, at the end of the online discussion with the participants, they were asked to complete a questionnaire including four questions. Each participant was required to select an answer from a ten-point Likert scale ranging from 1 (strongly disagree) to 10 (strongly agree). After examining the responses collected from the participants, it was found that the framework, as well as the obtained results, are valid. Appendix 1 contains all the participants' responses.

## **6. Implications of the study**

The present study has major implications that will be described in the next two sections. The first section highlights the contributions for theoretical knowledge, and in the second section the practical implications will be discussed.

### **6.1. Theoretical implications**

This study has significant implications for the literature on social media adoption and SMEs, which are discussed below:

- The present study proposed a comprehensive framework that extended the TOE model and linked it to the individual dimension of the SMEs' owners or managers. The individual dimension plays a significant role in the adoption of social media since the decision-making in SMEs is usually centralised and taken by one person (owner/manager). In the proposed framework, 20 relevant factors that shape the usage of social media in SMEs were collected from previous studies and inputs from SMEs' business owners. Then, these factors were grouped under each of the four dimensions, namely, the technological dimension, the organisational dimension, the environmental dimension, and the individual dimension. The developed framework will be useful for future researchers to understand the main determinants influencing the usage of social media in SMEs. Additionally, future researchers can extend the framework by adding any further factors that may affect how SMEs use social media.
- The current study has identified a comprehensive set of factors (20 factors) from the available studies, to examine and prioritise their impact on social media usage in the SME context. According to the literature, most earlier studies did not take into account the entire range of factors. They have focused on common and specific factors.
- To the best of our knowledge, this study is one of the first to employ the BWM technique to rank the various determinants of social media usage and identify the relative importance of each determinant. Previous studies have employed different methods to evaluate social media adoption such as survey method and case studies. The BWM has been used because it provides more consistent and reliable results by eliminating the possibility of respondents' vagueness.

- The final theoretical implication of this paper is relevant to the Egyptian SMEs context. While reviewing the literature, it was evident that numerous research had investigated how SMEs were using social media in developed countries, and some studies had even been done in developing country settings. However, there is still a dearth of research on the subject in Middle Eastern countries, particularly Egypt. Because the implementation of social media is affected by different contexts, it is difficult to generalise the findings of these previous investigations to SMEs in Egypt.

### **6.2. Practical implications**

Apart from the previously mentioned theoretical implications, this research provides useful implications for SMEs' owners or managers and practitioners. These practical implications are explained as follows:

- The present study provides SMEs' owners/managers and practitioners with a frame of a reference model that clarifies the most significant factors and the least important factors influencing social media adoption in SMEs. Thus, this framework will enhance SMEs' owners/managers awareness of how social media could be implemented and what critical dimensions they should consider before using social media.
- SMEs' owners/managers in developing countries especially in Egypt, will find this study useful, as it provides a comprehensive framework for the effective adoption of social media. SMEs' owners who want to implement social media in their businesses should mainly consider the technological dimensions and the environmental dimensions as the main determinants of social media usage among SMEs in Egypt.
- The findings that SME business owner's attitude, support, and innovativeness are among the top ten factors influencing social media usage, suggest that their role is significant in the successful implementation of social media. Thus, they should demonstrate the benefits of social media adoption to their employees to ensure the successful adoption of social media.

### **6.3. Limitations and future work**

One of the main limitations of this research is the number of respondents. Therefore, to better investigate the determinants of social media usage in SMEs, future studies should collect inputs from more participants. Additionally, most of the participants were owners/managers of SMEs this leaves room for future studies to involve the opinion of SMEs' employees in examining social media adoption.

The context of this study is another limitation. The proposed framework and its associated factors were investigated using a single country. This may limit the generalisability of the obtained results. A comparative study using the same model can be conducted to determine the relative importance of social media determinants in different contexts. Moreover, rather than examining 20 factors employed in this study, the proposed model can be extended, and further factors can be considered and investigated in the future. Also, future research should consider the interrelationship among social media influential factors and evaluate the effect of one factor on another.

Finally, in the present study, the BWM is employed to rank the factors that influence the usage of social media. But other MCDM techniques are available and can be used as an alternative. Future studies can use the proposed model and compare the results obtained from the BWM in this study with the findings obtained from other MCDM techniques.

### **7. Conclusion**

Social media has become extensively used by many SMEs throughout the world in both developed and developing countries. Recently, SMEs have been more interested in adopting social media because of the numerous benefits they can gain from it. However, few studies have examined the factors that affect the usage of social media among Egyptian SMEs. Moreover, many SMEs in Egypt still do not have a clear vision about social media implementation in their businesses, owing to the lack of a defined framework that helps them to successfully adopt it. Therefore, this study aims to identify the main factors driving SMEs in Egypt to implement social media, as well as ranking these factors according to their relative importance and influential power. To achieve the aim of this

study, an extensive literature analysis was undertaken to specify the most frequently used factors in previous studies. Next, these factors were refined based on participants' opinions, yielding a total of 20 related factors influencing the utilization of social media by Egyptian SMEs. Then, an extended TOE model was applied to group these factors under four main dimensions "Technological dimension, Organisational dimension, Environmental dimension, and Individual dimension". After that, the BWM was applied using inputs from twenty participants to rank and prioritise the main dimensions and their relevant factors.

The results obtained from the BWM indicates that the most important dimension influencing social media adoption in Egyptian SMEs are the technological dimension, followed by the environmental dimension, then the organisational dimension, and finally in the last position the individual dimension. Additionally, the BWM results demonstrate that the top 10 factors with the highest relative importance and influential power on the utilisation of social media in Egyptian SMEs. These factors are relative advantage, cost-effectiveness, customer pressure, competitive pressure, complexity, owner attitude, owner support, owner innovativeness, interactivity, and observability.

Overall, this study brings new knowledge in the literature of social media adoption and SMEs in developing countries by highlighting the significant factors that affect SMEs' owners or managers decisions to implement social media in their businesses.

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## Appendix 1

Question	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	R <sub>4</sub>	R <sub>5</sub>	R <sub>6</sub>	R <sub>7</sub>	R <sub>8</sub>	R <sub>9</sub>	R <sub>10</sub>	Average
(1) To what extent do you believe that the framework is comprehensive and covers all the factors impacting the adoption of social media in SMEs?	9	8	9	10	9	9	10	8	10	10	9.2
(2) To what extent do you believe that the calculated ranking (the relative importance) of the main dimensions reflects the reality of social media adoption?	9	8	8	10	9	8	10	8	9	9	8.8
(3) To what extent do you believe that the calculated ranking (the relative importance) of the sub-dimensions reflects the reality of social media adoption?	9	8	8	10	9	8	10	8	8	9	8.7
(4) To what extent do you believe the framework provides useful guidelines to SME owners wishing to use social media in their businesses?	8	7	9	9	9	7	9	8	9	9	8.4



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