

# **Entrepreneurial e-Equity Crowdfunding Platforms: Antecedents of Knowledge Acquisition and Innovation Performance**

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## **Abstract**

**Purpose**– The crowdfunding concept and activities have recently been the focus of attention of researchers and practitioners over different business contexts. However, there is a dearth of literature considering the main aspects of e-equity crowdfunding activities and their impact on the innovation performance for entrepreneurial business. Therefore, this study explores how entrepreneurs’ engagement in e-crowdfunding activities could enhance both knowledge acquisition and innovation performance.

**Design/methodology/approach** – the conceptual model will be proposed based on three main theoretical perspectives: relationship marketing orientation (RMO); Kirzner's alertness theory; and the DeLone and McLean model of information systems. The data of the current study was collected using an online questionnaire from a sample of 500 entrepreneurs who have actively engaged in e-crowdfunding in Saudi Arabia.

**Findings** – The statistical results of structural equation modelling (SEM) approved the impacting role of RMO; entrepreneurial alertness; system quality; and service quality on the entrepreneurs’ engagement in e-equity crowdfunding, which in turn, predicts both knowledge acquisition and innovation performance.

**Research limitations/implications** – there are several limitations which could be addressed in future studies. For example, this study has only considered one form of crowdfunding (equity based crowdfunding) and due to its nature these findings would not be easily generalized to other kinds of crowdfunding (i.e. donation-based crowdfunding; rewards-based crowdfunding; and debt-based crowdfunding). Future studies could consider these kinds of crowdfunding activities.

**Originality/value** – This study has contributed to the understanding of e-equity crowdfunding in several aspects. For example, this study presents results that assists both researchers and practitioners in the Middle East and Saudi Arabia to develop an in-depth knowledge of e-equity Crowdfunding by considering new dimensions such as RMO and information system success factors.

**Keywords:** e-Equity Crowdfunding; entrepreneurship; RMO; entrepreneurial alertness.

**Paper type:** Research paper

## 1. Introduction

In recent years, the crowdfunding concept and activities have been the focus of attention of many researchers and practitioners in the digital business area (Bouncken et al., 2015; Clauss et al., 2018; Farrukh et al., 2021). The crowdsourcing phenomenon assists organizations, especially start-ups and small and medium sized enterprises (SMEs), to obtain the resources for developing new products and services; building a knowledge base regarding the target market; to obtain finance, as is the case of Crowdfunding from large societal groups (i.e. Lukkarinen et al., 2016; Chiu, Liang, and Turban, 2014). Conceptually, crowdfunding would be defined as:

*“the efforts by entrepreneurial individuals and groups – cultural, social and for-profit – to fund their ventures by drawing on relatively small contributions from a relatively large number of individuals using the internet, without standard financial intermediaries”* (Mollick, 2014, p. 2).

As this study seeks to address the related issues of crowdfunding from the perspective of an entrepreneurial business, the digital Equity-based crowdfunding will be the focus here. In crowdfunding activities, there are typically two principal actors namely: entrepreneurs seeking unconventional finance for their projects and supporters who provide financial and non-financial support. Moreover, digital and electronic Equity-based crowdfunding are considered the most recent versions and therefore there are many aspects that need to be studied and analysed (Bade and Walther, 2021; Lukkarinen et al., 2016).

The importance of e-crowdfunding appears as a result of difficulties and obstacles related to the traditional financing methods of SMEs from external sources (Farrukh et al., 2021; Borello et al., 2015; Felbermayr and Nanopoulos 2016; Xu et al. 2016; Macht and Weatherston, 2014). Entrepreneurs have increasingly utilised e-Crowdfunding as a strategic option replacing the more traditional start-up business sources (Ahlers et al., 2015; Troise and Tani, 2020; Gamble et al. 2017; Bade and Walther, 2021). The growing interest in e-Crowdfunding in recent years is notable due to the considerable opportunities that Crowdfunding could make available to business organizations especially entrepreneurial enterprises (Behl and Dutta, 2020; Xu et al., 201; Cholakova and Clarysse, 2015; McKenny et al., 2017; Troise and Tani, 2020; Bruton et al., 2015; Shepherd and Patzelt, 2017).

Entrepreneurs benefit from e-Crowdfunding in different ways. For example, entrepreneurs could utilise the interactive features of digital platforms to increase investors in a more cost-effective time efficient method (St John et al., 2021; Cosma et al., 2021; Ahlers et al., 2015). An effective e-Crowdfunding campaign would contribute to the level of stakeholders' engagement, and accordingly, alerting entrepreneurs' brand image and their social and information capital (Macht and Weatherston, 2014; Troise and Tani, 2020; Di Pietro et al. 2018). This, in turn, contributes to value of the global Crowdfunding market to reach 12.27 billion US dollar in 2021 (Statista, 2021a). This number is likely to double by 2027 as reported by the same report of Statista (2021a). As for the equity based crowdfunding in particular, SMEs and start-ups were able to generate about 4.41 billion dollars by the end of 2021 (Statista, 2021b).

In Saudi Arabia, e-crowdfunding has received increased attention attracting entrepreneurs and start-ups reflecting the drive of the Kingdom's 2030 vision. In this respect, 10 firms (i.e. Scopeer; Manafa Capital Company; Afaq Company; Buthoor Solidarity for Financing Co; Emkan Alarabiya Company; Mudaraba Capital Company; Mekyal Financial Technologies Company; Osool & Bakheet Investment Company) have been authorized by the Capital Market Authority to work in the field of equity crowdfunding (Capital Market Authority, 2022). This could be linked to the internet revolution that enhances the capabilities of entrepreneurs to have such financing opportunities at a lower cost. However, crowdfunding activities are still in the process of emerging within the Arab world and Saudi Arabia in particular. Alrajhibank (2021), noted crowdfunding transaction value in Saudi Arabia was approximately 22 million US dollars in 2021. Thus, there is a need to further understand the key levers that assist entrepreneurs to engage in e-Crowdfunding activities in Saudi Arabia and utilize new models of business finance.

However, despite the opportunities offered by adopting e-crowdfunding as an innovative method of fundraising, several challenges remain that could impact the entrepreneurs' engagement in e-crowdfunding activities. Cumming and Johan (2013); Mollick (2014); and Lukkarinen et al. (2016) reported that 70% of equity crowdfunding campaigns failed due to lack of understanding of the factors predicting their success. This, suggests the need to have a solid theoretical and empirical understanding regarding the key success factors of equity crowdfunding campaigns. However, there is a limited existing literature exploring e-crowdfunding activities and their impact on the innovation performance for entrepreneurial businesses in the Middle East and Saudi Arabia (Huesig and Endres, 2019; Troise and Tani,

2020; Mochkabadi and Volkmann, 2020; Macht and Weatherston, 2014). Moreover, existing studies have evaluated crowdfunding success factors in general and aspects related to digital crowdfunding platforms remains under researched. Furthermore, minimal attention is given to addressing the impact of marketing practices and relationship marketing orientation (RMO) on crowdfunding success (Feola et al., 2019; Troise and Tani, 2020). Thus, there is a need to conduct further empirical study to identify the factors that enhance entrepreneurs' engagement in e-crowdfunding activities. This study evaluates how entrepreneurs' engagement in e-crowdfunding activities could enhance both knowledge acquisition and innovation performance.

## **2. Literature review**

Crowdfunding presents a new phenomenon that has increasingly attracted research interest. Recent research has considered many different themes in evaluating crowdfunding (Mochkabadi and Volkmann, 2020; Ryu and Kim, 2016; Cox et al., 2018; Sun et al., 2022). For example, Mochkabadi and Volkmann (2020) identified five crowdfunding perspectives namely capital market; digital platform; entrepreneur; stakeholder (investor); and organizational issues. Whilst, Kumar et al. (2015) proposed a conceptual model to test ideal crowdfunding deals and noted specific financing targets and pre-sale price should be considered to guarantee an optimal crowdfunding contract.

A further body of research has focused on the drivers motivating both entrepreneurs and stakeholders to actively engage in a crowdfunding campaign. Allison et al. (2017) and Gerber and Hui (2013) report several drivers of crowdfunding engagement such as achieving financial returns, supporting community causes, and gaining a sense of community membership. Whilst Ordanini et al. (2011), Jian and Shin (2015) and Ryu and Kim (2016) note the role of supporters and stakeholders' personal characteristics. For example, Jian and Shin (2015) and Ryu and Kim (2016) supported the role of hedonic motivation (fun) as key drivers of supporters' participant in a crowdfunding campaign. Whilst, Agrawal et al. (2014) suggested further motivations including opportunities to access new investment types and products with a lower cost, adopting a positive social role and participation, supporting humanitarian causes and activities and formalizing contracts. Narcissistic rhetoric was another personal feature considered by Anglin et al. (2018) to examine crowdfunding performance. Sponsor personality and demographic profiles were identified by Ryu and Kim (2016) as drivers of supporter's motivation and intention to donate to crowdfunding

campaigns. Communication was considered by Efrat et al. (2020) as a key lever of the supporters' engagement in a crowdfunding campaign. Whilst Efrat et al. (2020) identified the impact of active engagement on the supporters' willingness to promote the targeted campaign and their future intention to continue participating. Lacan and Desmet (2017) emphasized the role of attitudes toward crowdfunding platforms in customers' willingness to share positive word of mouth and participation intention. Furthermore, Lacan and Desmet (2017) reported the impact of transaction risk and social sensitivity on both perceived ease of use and usefulness, which, shaped the participants' attitudes toward e-crowdfunding.

Different theoretical perspectives regarding the main barriers and drivers of crowdfunding campaigns (Cox et al., 2018; Parhankangas and Renko, 2017; Zheng et al., 2014). For example, self-presentation theory was proposed by Cox et al. (2018) to examine the role of prosocial behavior as drivers motivating supporters to actively engage in crowdfunding activities. Cox et al. (2018) argued that even though prosocial behavior would enhance the supporters' willingness to spend more time on investment choices, prosocial behaviour would not make a significant difference in terms of the average financial amount that the participant would potentially invest. Social capital theory was considered as a theoretical foundation by Zheng et al. (2014) in their cross-cultural study into the impact of social capital on the performance of crowdfunding campaigns. To address the Crowdfunding campaign performance from the perspective of entrepreneurs, Oe et al. (2022) integrated their model based on the stereotype content model and expectancy violation theory. Their findings supported the role of entrepreneurs' characteristics (warmth and competence) on the success of a crowdfunding campaigns. Certification theory was proposed by Ralcheva and Roosenboom (2016) to validate the impact of third-party indicators on the equity crowdfunding success. Moreover, Ralcheva and Roosenboom (2016) identified intellectual properties, awards received for prior outstanding performance, considering investors as shareholders and business partners and grants awarded as key indicators.

Prior literature suggests that the success of crowdfunding could be accelerated by several factors such as prior positive experience of supporters, effective use of social and traditional media tools and third-party endorsement (Courtney et al., 2017). Courtney et al. (2017) added that the extent of homogeneity among supporters may significantly influence individuals' decisions to participate. Similarly, Nitani and Riding (2017), noted the success of crowdfunding campaigns is reflected by the extent of transparency, social capital, entrepreneurial and organization characteristics. Whilst Bitterl and Schreier (2016) approved

the role of supporters' experience on their consumption behaviour towards new products and willingness to share positive word of mouth. Crowdfunding performance was also found by Davis et al. (2017) to be accelerated by perceived product creativity. Whilst, Ahlers et al. (2015) and Piva et al. (2017) confirmed the role of transparency regarding anticipated risks, existence of solid exit strategy, and human resources capabilities and qualifications in predicting the success of crowdfunding campaigns.

Ahlers et al. (2015) identified the influence of both social and intellectual capital in predicting the equity of a crowdfunding campaign. Numerical indicators (i.e. equity retained) were considered by Vismara (2016) to measure the success of equity crowdfunding campaigns. Vismara (2016) approved the impact of entrepreneur's social and personal connections on the fundraising success and suggested the fundraising amount was accelerated by the number of investors who engaged in the equity crowdfunding project (Vulkan et al., 2016). Whilst, Bapna (2016) identified several personal and social features that entrepreneurs possessed when succeeding in equity crowdfunding. Bapna (2016) suggested these features are related to the entrepreneurs' ability to clarify their project and products, collaborate with well-known businesses and predict the reactions of prior investors.

Even though existing literature has added to the understanding of crowdfunding, there remains a need to conduct further research regarding the factors that could accelerate or hinder the success of e-Equity crowdfunding activities. Thus, Mochkabadi and Volkmann (2020, p. 75) assured that "*equity crowdfunding research is still in its infancy and scholarly knowledge remains limited and fragmented*". Further, these studies have not considered aspects relating to the adoption of the modern marketing orientation in e-Equity crowdfunding. Indeed, the relationship-marketing orientation (RMO) presents the main foundation on which all business bonds and interactions are constructed (Yoganathan et al., 2015; Zhuang and Zhang, 2011). Therefore, this study investigates whether the RMO can accelerate the entrepreneur's engagement in e-Equity crowdfunding activities.

Therefore, considering the related issues of entrepreneurs' perception, traits, and marketing orientation are important aspects which will be examined to gain a full picture regarding the success factors of an e-crowdfunding campaign. Little is known regarding the long-term contribution of e-crowdfunding activities in terms of knowledge acquisition and innovation performance. The majority of crowdfunding studies have tested the campaign success in general (Davis et al., 2017; Nitani and Riding, 2017; Ahlers et al., 2015) or numerically consider the fundraising (Vismara, 2016; Wald et al., 2019; Di Pietro et al., 2017) as a key

performance indicator for such campaigns. This notice has also been approved by Troise and Tani (2020, p. 998) who have indicated that “*Only a few studies have considered that ECF is more than a fundraising tool* (Di Pietro et al., 2018; Estrin et al., 2018; Wald et al., 2019).”

### **3. Conceptual Model**

A conceptual model was proposed based on three main theoretical perspectives: RMO (i.e. Sin et al., 2005); Kirzner's alertness theory [entrepreneurial alertness] (Kirzner, 1973; 1999); and The DeLone and McLean model of information systems success (DeLone and McLean, 2003). As seen in Figure1, RMO will be validated and proposed in the current model as multi-dimensional construct comprising five dimensions: trust; bonding; empathy; shared values; and communication (i.e. Sin et al., 2005; Kwan and Carlson, 2017; Yoganathan et al., 2015; Amoako, 2019). Tang et al. (2012); Troise and Tani (2020); and Zhao et al. (2005), suggest three dimensions will be considered to test the role of entrepreneurial alertness that are scanning and searching, association and connection and evaluation and judgment. Information quality, system quality and service quality were proposed as key success factors of e-equity crowdfunding. As seen in Figure 1, entrepreneurs' engagement in e-crowdfunding was expected to predict both knowledge acquisition and innovation performance.



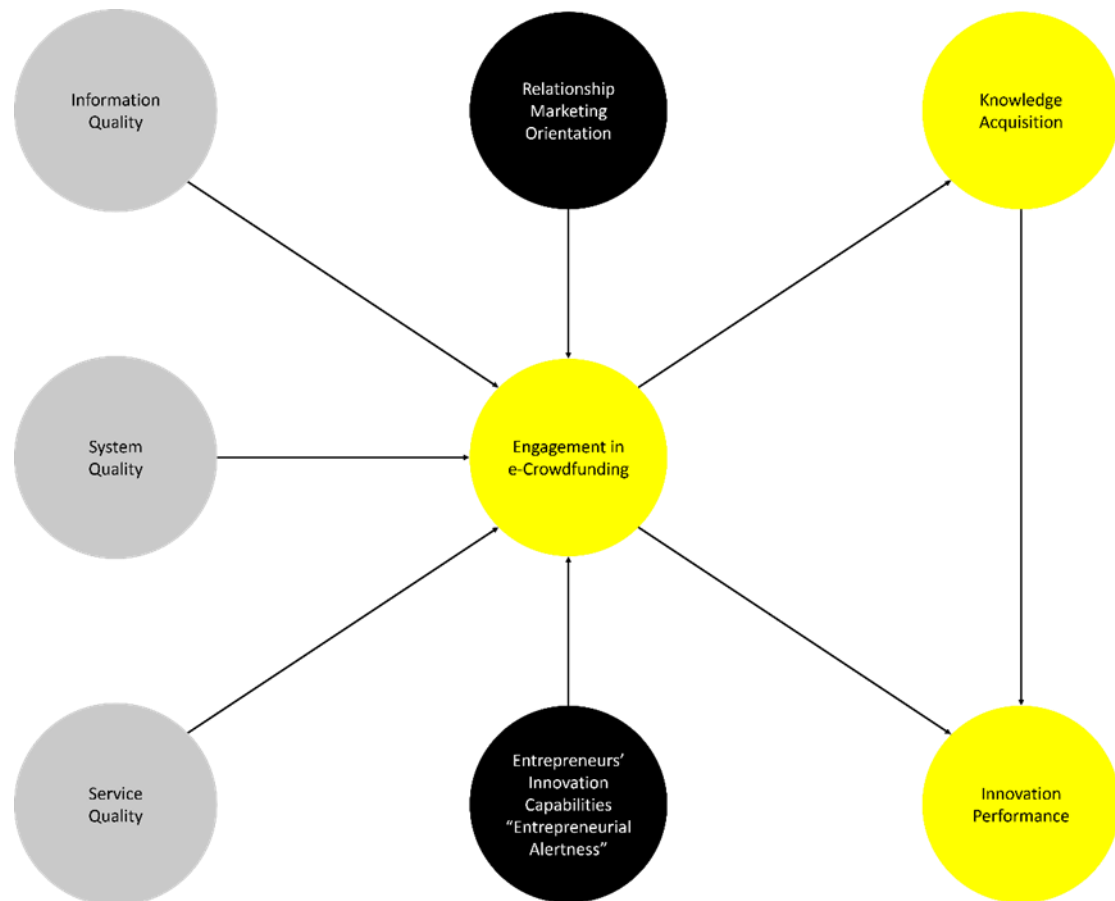


Figure 1: Conceptual Model (Source: Adapted from Sin et al., 2005; Kirzner, 1973; 1999; DeLone and McLean, 2003)

### 3.1 Relationship Marketing Orientation (RMO)

Sin et al. (2005, p.38), suggests RMO can be defined as a business philosophy in which ‘*a distinct organizational culture value ... places the buyer-seller relationship at the center of the firm’s strategic or operational thinking.*’ The RMO has not only led to suppliers’ and customers’ commercial deals but has also changed the approach adopted by partners in initiating, managing, and sustaining profitable business relationships (Alrubaiee and Al-Nazer, 2010; Zhuang and Zhang, 2011). The adoption of RMO means that both relationship parties (entrepreneurs and investors) should sacrifice their power in controlling all transactions and activities for the sustainability and interest of the relationship as a whole (Zhuang and Zhang, 2011). In this regard, Fontenot and Wilson (1997) stated that the RMO helps to build and improve sustainable relationships in addition to enhancing cooperation and joint coordination between business partners like these between entrepreneurs and investors in equity crowdfunding projects. Therefore, this study found that the dimensions of RMO – trust, bonding, empathy, shared values and communication (Sin et al., 2005; Kwan and

Carlson, 2017; Yoganathan et al., 2015; Amoako, 2019) are more applicable to be considered as antecedences of entrepreneurs' engagement in e-Equity crowdfunding campaign.

Dimensions of RMO has been individually tested and validated by prior crowdfunding studies (Block et al. 2018; Efrat et al., 2020; Palmatier et al., 2006; Frydrych et al., 2016; Mero, 2018; Zheng et al. 2014; Bi et al. 2017). For example, Frydrych et al. (2016) argued the role of communication in enhancing the extent of how much partners are involved in the business interactions in general and these related to crowdfunding in particular. Whilst, Gerber and Hui (2013) concluded that crowdfunding campaigns are likely to succeed through using a variety of communication channels between entrepreneurs and supporters.

Bonding is another dimension of RMO which was tested by Efrat and Gilboa (2020) and Gerber and Hui (2013). Bonding is a kind of emotion (Affection and belonging) which is generated between the two sides (i.e. entrepreneurs and supporters) of the reciprocal process (Efrat et al., 2020). Efrat and Gilboa (2020), Gerber and Hui (2013), and Macht and Weatherston (2014) argue bonding is a fundamental prerequisite of crowdfunding success due to the relationship between entrepreneurs and supporters in such investment activities would not be easy initiated and sustained without levels of connectivity between those partners.

Trust was tested by several crowdfunding studies as an individual dimension of RMO (Efrat et al., 2020; Palmatier et al. 2006). Conceptually, trust reflects the extent of reliance, balance, and integrity built over the time between business partners (Efrat et al., 2020). Trust has been commonly approved to have considerable positive impact on business partners' interactions, and accordingly, their engagement in more productive relationships (Efrat et al., 2020; Palmatier et al. 2006; Mohr and Puck, 2013). This assumption has been empirically tested by Efrat and Gilboa (2020) to assess the predictors of equity crowdfunding success. The impact of trust is not only restricted in the supporters' side but also for entrepreneurs as argued by Agrawal et al. (2014). Specifically, Zheng et al. (2016) suggests trust was among the significant levers of the entrepreneurs' interaction and engagement in e-equity crowdfunding.

It is argued that entrepreneurs who adopt RMO as a philosophy to interact with their partners and conduct their campaign, are more likely to actively engage in e-equity crowdfunding activities. Thus equity crowdfunding presents a new way of communicating and interacting with business partners to co-create value and sustain a long-term relationship with business partners. Therefore, this study proposes that:

***H1: RMO will positively influence entrepreneurs' engagement in e-Equity crowdfunding.***

### **3.2 Entrepreneurial alertness**

This study has identified the importance of considering the role of entrepreneurial alertness as a personal innovation capability that entrepreneurs need to undertake (e-Equity crowdfunding). Conceptually, entrepreneurial alertness presents the extent to which an entrepreneur is able to scan, target, and utilise new opportunities that could emerge in the market (Tang et al., 2012; Sharma, 2019; Troise and Tani, 2020; Kirzner, 1999). Thus, the most important dimensions that distinguish entrepreneurs from other start-up owners is their openness to embrace new opportunities and their alertness to what is innovative and novel in the world of business and their opportunistic awareness (Alaassar et al., 2022; Piñeiro-Chousa et al., 2021; Renko et al., 2012; Neneh, 2019; Sharma, 2019; Troise and Tani, 2020). Therefore, entrepreneurial alertness of the surrounding environment could be considered a prerequisite for effective exploitation of existing opportunities (Troise and Tani, 2020; Patel, 2019; Chen et al., 2020).

e-Equity crowdfunding presents an emerging opportunity that if properly realized and exploited, will inevitably contribute to the success and innovation of entrepreneurial business, and accordingly, contributing to the overall success and development of the entrepreneurial business (Di Pietro et al., 2018; Schwienbacher and Larralde, 2012; Ahlers et al., 2015; Vismara, 2016; Belleflamme et al., 2014; Ahlers et al., 2015). Further, a high level of entrepreneurial alertness would make entrepreneurs more open towards opportunities offered by e-Equity crowdfunding (Troise and Tani, 2020). This study argues that entrepreneurs with high alertness, are more likely to realise the opportunity offered by e-Equity crowdfunding, and actively engage (Troise and Tani, 2020). This assumption has been empirically supported by Troise and Tani (2020) who approved the role of entrepreneurial alertness in enhancing the entrepreneurs' motivation to participate in Crowdfunding activities. Therefore, this study proposes that:

***H2: Entrepreneurial alertness will positively influence entrepreneurs' engagement in e-Equity crowdfunding.***

### **3.3 System quality**

In line with Delone & McLean (2003), system quality is related to the technical features of new systems such as usability, navigation; speediness; accessibility, reliability, adaptability, and interactivity. Thus, system quality is more related to the user perception of technical features that could facilitate the users' interaction and experience with new system such as e-crowdfunding (Muthukannan et al., 2021; Delone & McLean, 2003; Kuo et al., 2014). Therefore, e-crowdfunding platforms that characterize with high system quality would make the users usage experience more efficient, smooth, and productive, and accordingly, users would be more willing to actively engage in e-Equity crowdfunding. Lacan and Desmet (2017) reported the significant impact of systems features (i.e. perceived ease of use and usefulness) on the users' attitudes toward e-crowdfunding. Thus, this study proposes that:

***H3: System quality will positively influence entrepreneurs' engagement in e-Equity Crowdfunding.***

### **3.4 Service Quality**

The second success factor considered was service quality. Delone and McLean (2003, p. 25) stated, "*the overall support delivered by the service provider*" reveals assurance, empathy, and responsiveness. In fact, service quality would be considered as key levers of the entrepreneurs experience and engagement with e-Equity crowdfunding (Kuo et al., 2014; Zheng et al., 2017). This could be attributed to the nature of e-Equity crowdfunding requires a constant and reliable support for both entrepreneurs and supporters (Baabdullah et al., 2019). E-equity crowdfunding platforms have a particular technical nature and purpose which differ from those in normal e-commerce platforms (Kuo et al., 2014). The role of service quality was empirically approved by Kuo et al. (2014) in the area of e-crowdfunding. Therefore, it could be argued that users of equity crowdfunding would be more motivated to actively engaged in using such systems as long as there is a constant and high reliable support available (Kuo et al., 2014; Yang et al., 2005). Thus, this study proposes that:

***H4: Service quality will positively influence entrepreneurs' engagement in e-Equity Crowdfunding***

### **3.5 Information Quality**

The success of crowdfunding campaigns is shaped by the extent of how much the content provided is reliable, accurate, suitable, comprehensive, persuasive, and relevant (Block et al.,

2018; DeLone and McLean, 2003; Islam and Rahman, 2017). Therefore, information quality was proposed here as the third success factor predicting entrepreneurs' engagement in e-Equity crowdfunding. Conceptually, information quality was operationalized by McKinney et al. (2002, p. 299) “*users' perception of the quality of information presented on a Web site*”. In line with Liu et al. (2017) and Islam and Rahman (2017), information quality represents the difference between what system users expect and perceive in the disseminated information. In e-equity crowdfunding, information quality would be addressed in terms of the ability of such systems to deliver an accurate, updated, reliable, suitable, comprehensive, and presentable content. Thus, entrepreneurs would be motivated to engage in e-equity crowdfunding activities if they perceive that the information disseminated matches their expectation and requirements (Islam and Rahman, 2017; Eppler, 2006). The prior IS literature has argued that users' experience and engagement with new systems is accelerated by using high quality information (Prentice, et al., 2020; Islam and Rahman, 2017; Ali et al., 2021). Thus, this study proposes that:

***H5: Information quality will positively influence entrepreneurs' engagement in e-Equity Crowdfunding***

### **3.6 Engagement in e-equity Crowdfunding and Knowledge Acquisition**

Practically, opportunities for e-crowdfunding are not restricted by capturing required financial resources but also in enhancing the ability of entrepreneurs in terms of knowledge acquisition and innovation performance (Alaassar et al., 2022). Entrepreneurs are able to provide adequate feedback and knowledge from the crowd which is known as the “wisdom of crowds” (Belleflamme et al., 2014; Troise et al., 2020; Polzin et al., 2018; Liu et al., 2016). The interactive nature of e-equity crowdfunding enables both entrepreneurs and supporters to mutually share and communicate the knowledge and experience they have (Lin et al., 2020; De Dreu & West, 2001; Nguyen et al., 2015; Martínez-Climent et al., 2021) Further, crowdfunding provides a wealth of information and expertise that are difficult to obtain using traditional methods of work. Thus Lin et al. (2020) approved the crucial role of e-crowdfunding in accelerating the ability of entrepreneurs to acquire the necessary knowledge for their entrepreneurial business. Further, Martínez-Climent et al. (2021) noted the role of crowdfunding activities in assisting entrepreneurs to capture high quality valuable ideas and feedback from the supporters. Thus, this study proposes that:

***H6: Entrepreneurs' engagement in e-Equity Crowdfunding will positively influence knowledge acquisition***

Knowledge acquisition in the area of e-equity crowdfunding would be articulated as the approach that assists entrepreneurs to accumulate the related market and product information and experiences for large numbers of external stakeholders. Such acquired knowledge, in turn, helps entrepreneurs to assess the attractiveness and feasibility of new opportunities (Zhang & Li, 2010; Nguyen et al., 2015). Thus, entrepreneurs who actively engage in e-equity crowdfunding are typically able to generate novel ideas and identify innovation solutions to encountered problems (Lin et al., 2020). The flow of information and experiences between entrepreneurs and shareholders also helps in marketing and promoting innovative projects and attracts new supporters and new innovative ideas as well (Clayton et al., 2018; Martínez-Climent et al., 2021). Further, the captured crowdfunding knowledge would assist entrepreneurs in the long term through developing future business projects attributing with high levels of novelty, applicability, and understandability (Dezi et al., 2019; Dejean, 2019; Martínez-Climent et al., 2021).

***H7: Entrepreneurs' engagement in e-Equity Crowdfunding will positively influence innovation performance.***

Prior scholars have argued (Grant, 1996; Teece, 2007; Duan & Xu, 2012), knowledge acquisition and sharing present key prerequisites and capabilities regarding the success of new innovations. Given the scarcity of the resources available to entrepreneurs, Nguyen et al. (2015) asserted the important role of knowledge acquisition in shaping the success of brand innovation. Agarwal et al. (2004) suggests innovation performance is predicted by the role of knowledge acquisition. This could be attributed to the ability of business organizations undertaking knowledge acquisition to effectively innovate novel operational procedures as well as introducing new products and services, to capture a high quality and breadth of information from several sources (Marvel and Lumpkin, 2007; Grant, 1991; Nguyen et al., 2015).

***H8: Knowledge acquisition will positively influence innovation performance.***

## **4. Methodology**

The study data was collected using an online questionnaire from a sample of 500 entrepreneurs during the period from 15<sup>th</sup> December to 30<sup>th</sup> of January 2022 in Saudi Arabia.

Researchers approached entrepreneurs through official bodies concerned with entrepreneurship and innovation in Saudi Arabia (i.e. Capital Market Authority; Small and Medium Enterprises General Authority [Monsha'at]; Ministry of Commerce and Chamber of Commerce). Furthermore, as this study is focused on entrepreneurs actively engaged in e-crowdfunding in Saudi Arabia, it focused on firms authorized by the Capital Market Authority operating in equity crowdfunding (Capital Market Authority, 2022).

All constructs were measured using scale items derived from well-established and valid sources. For example, knowledge acquisition was measured using six scale items derived from Lin et al. (2020) and Troise and Tani (2020). Similarly, six items extracted from Mardani et al. (2018) were adapted to measure innovation performance. Six items were also derived from Kim et al. (2004); Lu and Yang (2011) and Chiu et al. (2021) to test information quality. Finally, the same sources (Kim et al., 2004; Lu and Yang, 2011; Chiu et al., 2021) were used to capture system quality and service quality scale items.

Tang et al. (2012); Troise and Tani (2020); and Zhao et al. (2005), identify three dimensions to test the role of entrepreneurial alertness that are scanning and searching, association and Connection; and evaluation and judgment. Entrepreneurial alertness was operationalized by Ardichvili et al. (2003, p. 105) as “*a necessary condition for the success of the opportunity identification triad: recognition, development, and evaluation*”. Items of these three dimensions were taken from Tang et al. (2012); Troise and Tani (2020); and Zhao et al. (2005). RMO was proposed and tested as multi-dimensional construct comprising five dimensions: trust, bonding, empathy, shared values and communication (Sin et al., 2005; Kwan and Carlson, 2017; Yoganathan et al., 2015; Amoako, 2019). It is also worth mentioning that the RMO has been treated as a multidimensional construct comprising of five main dimensions as first-order factors: bonding, communication, empathy, shared values and trust. There are many different examples regarding the studies that have operationalised RMO as a multidimensional construct (Alrubaiee and Al-Nazer, 2010; Amoako, 2019; Edwards, 2001; Firdaus and Kanyan, 2013; Kwan and Carlson, 2017; Olotu et al., 2010; Sin et al., 2002; Sin et al., 2005; Yoganathan et al., 2015; Zhuang and Zhang, 2011). Therefore, this study validates RMO as a multidimensional construct. These dimensions were measured using scale items derived from Sin et al. (2005) and Kang et al. (2016).

Three dimensions namely cognitive engagement, emotional engagement and behavioural engagement were proposed to test entrepreneurs' engagement in e-Equity crowdfunding. Items of engagement dimensions were taken from Ahn and Back (2018), Harrigan et al.

(2017) (see Appendix 1). A seven-point Likert scale was used to measure the degree to which participants agreed with the questionnaire items. Furthermore, the questionnaire was validated and evaluated by several experts and academics from the entrepreneurship and crowdfunding disciplines prior to conducting the main survey. Further, so as to assure adequate levels of validity and reliability, a pilot study with 25 entrepreneurs with experience in e-equity crowdfunding was undertaken. All respondents deliberated the clarity and appropriateness of the questions, despite observations regarding the length of the questionnaire. The Cronbach's alpha value for all constructs was tested for the pilot study and all constructs returned a value higher than 0.70 as suggested by Nunnally (1978).

## **5. Results**

### **5.1 Demographic characteristics**

Four hundred entrepreneurs over different industrial sectors were approached to complete an online questionnaire survey. Overall, 250 questionnaires were completed and found to be valid, and analysed via structural equation modelling. The demographic distribution of the current study sample participants was similar to prior entrepreneurial studies conducted in Saudi Arabia (Bosco et al., 2021; Brown et al., 2022). Overall, 71.2% of the sample was male and 28.8% females. In terms of age, the 31-40 category presents the largest proportion of the sample (36.2%) followed by the 22-30 category 27.6% and the over 50s category 5.7%. The majority of respondents were well-educated with bachelor (59.1%) degrees or had completed a postgraduate qualification Masters and Ph.D. (33.2%). Moreover, 43.5% participants have more than five years of experience in entrepreneurship. As for entrepreneurs' experience with e-Equity Crowdfunding, about 41.4% have experienced e-Equity Crowdfunding once; 31.7% have experienced e-Equity Crowdfunding twice; 26.9% have experienced e-Equity Crowdfunding three times. Regarding business sector, the majority of participants (29.4%) worked in the service sector followed by the information technology and social media commerce (26.3%), retailing (16.2%), wholesaling (8.2%), manufacturing (7.6%), construction (95.2%), and agriculture (4.8%).

### **5.2 Descriptive Statistics of the Measurement Items**

As seen in Table 1, 63 scale items were used in the survey to measure the latent constructs. All scale items used were able to capture a mean value not less than the median value of the



seven-point Likert scales (3.5) which means that entrepreneurs positively value the aspects related to e-Equity crowdfunding. The largest mean value was accounted by SRQ items with average mean value of 6.329 and Std. deviation value of 0.795. This, in turn, reflects that entrepreneurs highly appreciate the important role of service quality in facilitating their engagement with e-Equity crowdfunding. SQ items were also positively rated with average mean value of 5.365 and Std. deviation value of 0.990 while INQ items have the lowest average mean value among the success factors of the e-Equity crowdfunding. Entrepreneurs in the current study sample seem to value the aspects of RMO as all sub-dimensions of RMO have average mean values ranging from (BOND: 5.369); (COM: 5.449); (TR: 5.514); (EMPT: 5.636); to (SHV: 6.118). Likewise, Entrepreneurs in the current study demonstrate adequate level of alertness to the opportunities comprised in using e-Equity crowdfunding as three aspects of EA have average mean values fluctuating from 5.496 for EJU to 5.77 for ASS. Entrepreneurs express a good level of engagement in e-Equity crowdfunding activities as all sub-dimensions of ENG have average mean value range from 5.438 (EMG) to 5.732 (CG). The average mean values accounted to KWA and IVP was about 5.630 and 5.827 respectively which means that the sample acknowledged the great role of engaging in e-Equity crowdfunding acquiring the knowledge and innovation performance.

### **5.3 Structural Equation Modelling**

Structural equation modelling was applied in two stages: measurement model and structural model. Therefore, the next three subsections will display the results measurement model followed by results of the structural model.

#### **5.3.4 Confirmatory factor analysis of the full model**

Confirmatory factor analysis was also conducted for all model constructs and scale items used. Model goodness of fit was tested by inspecting the suggested fit indices and the results were: GFI was 0.883; AGFI was 0.781; CFI was 0.929; CMIN/DF was 2.935; NFI was 0.893; RMSEA was 0.057 (Mai et al., 2021; Hair et al., 2010). Observation of several of these indices (i.e. GFI; AGFI; and NFI) reveals the need to revise the measurement model as it does not adequately fit the observed data (Anderson and Gerbing, 1988; Byrne, 2010). The model, therefore, was revised by dropping the most problematic namely those that have a factor loading of less than 0.50 (Mai et al., 2021; Hair et al., 2010).

Several items were found to have a factor loading value less than 0.50 such as SQ4, SRQ1, INQ1, IVP6, TR1, TR3, BOND4, EMPT4 and KWA6, and therefore, all of these items were

removed from the revised measurement model. The yielded of fit indices of the revised version were able to exist within their recommended level as such GFI was 0.921; AGFI was 0.842; CFI was 0.977; CMIN/DF was 2.335; NFI was 0.949; RMSEA was 0.06 (Hair et al., 2010) (see Table 2).

Composite reliability (CR); Cronbach's alpha ( $\alpha$ ); and average variance extracted were considered to offer adequate levels of constructs reliability and validity. As seen in Table 3, all constructs have a CR value higher than the threshold level 0.70 as recommended by Fornell and Larcker (1981). Innovation performance has the largest CR value (0.924) followed by service quality (0.896) while the lowest CR value (0.779) was identified for entrepreneurial alertness. Likewise, Cronbach's alpha ( $\alpha$ ) value was able to be higher than the cut-off value (0.70) as recommended by Nunnally (1978). Innovation performance has the largest Cronbach's alpha ( $\alpha$ ) value of 0.919 and then SQR with value of 0.892 where the minimum Cronbach's alpha ( $\alpha$ ) value (0.791) was recorded by entrepreneurial alertness. AVE values were able to be within their suggested level higher than 0.50 (Mai et al., 2021; Hair et al., 2010). As seen in Table 3, Innovation performance has the highest value of AVE (0.709) followed by SRQ with AVE value of 0.688 while knowledge acquisition has the lowest AVE value (0.504).

Confirmatory factors analysis also supported the criteria related to convergent validity and discriminant. As seen in Table 5, all unremoved scale items have standardised regression weight value (factor loading) higher than 0.50 with p value 0.000 (Mai et al., 2021; Hair et al., 2010; Fornell and Larcker, 1981). As for the discriminant validity, the intercorrelation values between latent constructs were not higher than the values of squared roots of AVE with corresponding constructs (Kline, 2005; Mai et al., 2021) (see Table 4).

### **5.3.5 Structural Model Analysis**

Structural model results largely supported the predictive validity of the conceptual model and the associated research hypotheses. At the outset, the conceptual model was able to have adequate goodness of fit as all fit indices were noticed within their threshold level as such GFI was 0.919; AGFI was 0.84; CFI was 0.973; CMIN/DF was 2.339; NFI was 0.942; RMSEA was 0.063 (Hair et al., 2010). Further, the current model was able to predict about 76%, 35%, and 43% of variance in engagement, knowledge acquisition, and innovation performance respectively. This, in turn, supports the theoretical foundation of the current study model. In terms of path coefficient analysis, RMO ( $\gamma=0.258$ ,  $p<0.000$ ), EA ( $\gamma=0.420$ ,

$p < 0.000$ ), SQ ( $\gamma = 0.157$ ,  $p < 0.002$ ), SRQ ( $\gamma = 0.133$ ,  $p < 0.000$ ) all were approved to have a significant impact on the ENG. However, path coefficient analysis disapproved the impact INQ on ENG ( $\gamma = 0.018$ ,  $p < 0.572$ ). A strong causal relationship was identified between ENG with both IVP ( $\gamma = 0.132$ ,  $p < 0.000$ ) and KWA ( $\gamma = 0.481$ ,  $p < 0.000$ ) (see Figure 2 and Table 6). Finally, the largest coefficient value in the structural model was noticed for the casual path between KWA and IVP ( $\gamma = 0.572$ ,  $p < 0.000$ ).

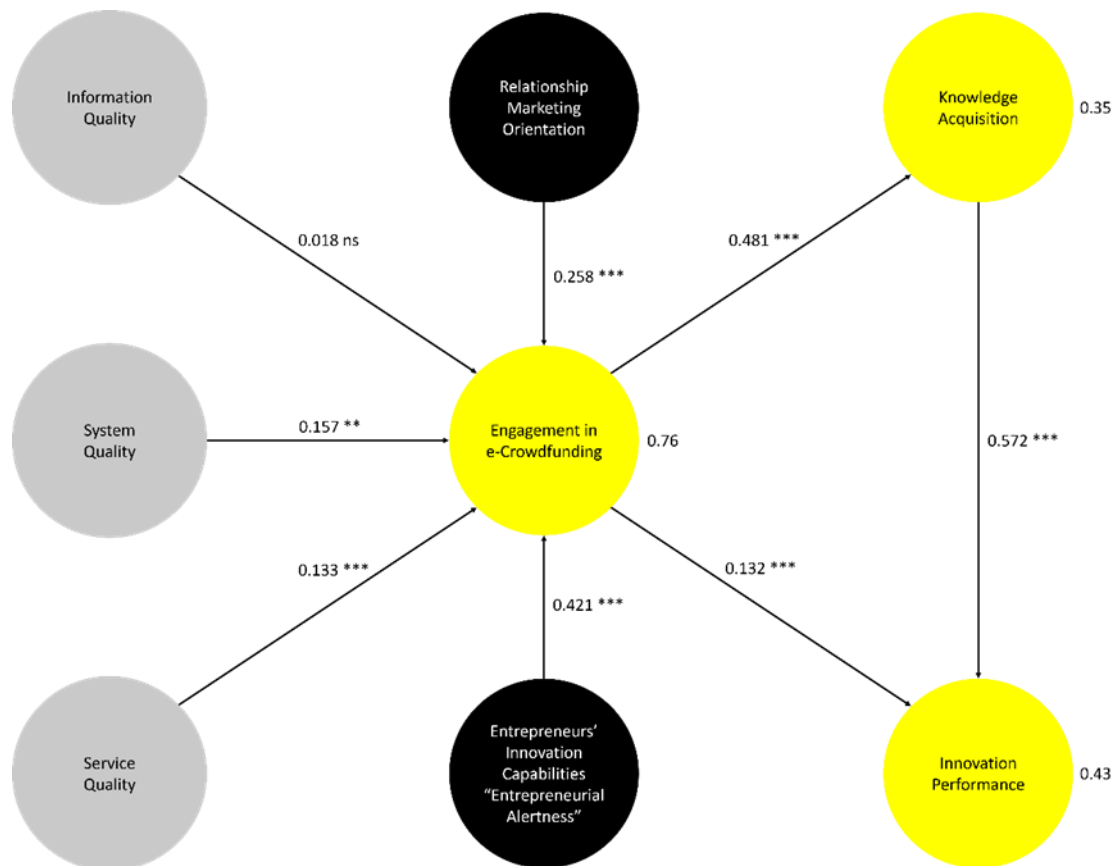


Figure 2: Structural model results

## 6. Discussion

The issue of crowdfunding has been attracting the attention of researchers and practitioners. This interest has returned to the considerable contribution comprised in crowdfunding as a new business approach assisting entrepreneurial and start-up-businesses to obtain their various resources from developing new products and services; building a knowledge base regarding the target market; to obtain the funds they require (Lukkarinen et al., 2016; Chiu et al., 2014). Therefore, this study was conducted with intention to see the key levers of

entrepreneur's engagement in e-equity crowdfunding as well as to see how an active engagement in e-equity crowdfunding would enrich the knowledge acquisition and innovation performance.

The yielded results of SEM largely supported the model as large portion of variance was accounted in entrepreneurs engagement in e-equity crowdfunding with  $R^2$  value of 0.76, and accordingly, supporting the selection of RMO, IS success model, and Entrepreneurial alertness as theoretical base of the current study model. This confirms other studies that have asserted the suitability of such theories in the area of e-Equity crowdfunding (i.e. Troise and Tani, 2020; Efrat et al., 2020; Tang et al., 2012; Chen et al., 2020).

Structural model results also approved the most of research hypotheses proposed in the current model. As presented in Table 12 and Figure 12, entrepreneurial alertness was able to account a large portion of variance in engagement in e-equity crowdfunding with regression weigh value of 0.42. This means that business owners who enjoy a high level of entrepreneurial alertness are more likely to actively engage in e-equity crowdfunding. In fact, a high level of entrepreneurial alertness would empower entrepreneurs to discover the opportunities offered in e-equity crowdfunding, and accordingly, become more enthusiastic and quick to take advantage of such opportunities than others. Such results of the significant impact of entrepreneurial alertness are similar to these reported by Di Pietro et al. (2018); Vismara (2016) and Troise and Tani (2020).

The second largest factor predicting entrepreneurs' engagement in equity crowdfunding was RMO. Thus, entrepreneurs who adopt RMO are more likely to actively engage in e-equity crowdfunding. Indeed, RMO presents one of the contemporary features of business organizations which adopt the philosophy of mutual co-benefits, cooperation and joint coordination, and coevolution (Dong et al., 2017). Crowdfunding, therefore, presents a great opportunities for adopters of RMO to have a sustainable relationship with stakeholders (Dong et al., 2017). In general, the existence of RMO between partners (entrepreneurs and investors) could improve the opportunity of e-equity crowdfunding success in terms of engagement, knowledge acquisition, and innovation performance. The RMO dimensions (bonding, communication; empathy; shared trust and values) significantly intersect with the tenor of business partners' relationships, helping to create a deep bond that will enable partners to be more flexible in their business interactions and to make one-sided decisions in their commercial interactions without being concerned that disputes will arise among the parties to the relationship. Such results supporting the role of RMO are in the line with what

has been approved by prior studies that tested the dimensions of RMO individually such as communication (Frydrych et al., 2016); bonding (Efrat and Gilboa, 2020; Gerber and Hui, 2013); and trust (Efrat et al., 2020; Palmatier et al., 2006).

Two dimensions (system quality and service quality) of the IS success model were approved to have a significant impact on the entrepreneurs' engagement in equity Crowdfunding. Study participants paid particular attention to system quality such as usability, navigation; speediness; accessibility, reliability, adaptability, and interactivity. Thus, entrepreneurs who perceive a high systems quality in e-equity crowdfunding are more likely to be able to effectively use and engage with e-equity. Crowdfunding. Such results are in the line with other studies that have commonly supported the role of system quality on the users' engagement with new systems (Peters et al., 2016; Ali et al., 2021; Islam and Rahman, 2017).

Service quality was the least but still significant factor affecting the entrepreneurs' engagement in e-equity crowdfunding. This means that either entrepreneurs or investors require a constant and high level of support to actively use e-Equity crowdfunding. Due to the innovative and technical nature of e-Equity crowdfunding platforms, an extent level of assurance, empathy, and responsiveness is required by users to facilitate their engagement in using such platforms. Therefore, service quality presents a prerequisite to ensure a greater level of assurance, responsiveness, and empathy with the target user to encourage them to engage in the use of e-Equity crowdfunding platforms. The significant impact of service quality on the user's engagement with e-Crowdfunding has also been approved by Kuo et al. (2014); Yang et al. (2005).

As suggested in the current study model, entrepreneurs' engagement in e-Equity crowdfunding not only develops the knowledge acquisition but also enhances the level of innovation performance. As a kind of crowdsourcing, e-Equity crowdfunding enables entrepreneurs to capture adequate feedback and knowledge from the crowd which is normally known as "wisdom of crowds" (Polzin et al., 2018; Liu et al., 2016; Di Pietro et al., 2018). This could be attributed to the interactive nature of e-equity crowdfunding that helps both entrepreneurs and supporters to jointly share and communicate the knowledge and experience especially these related to new product development (Lin et al., 2020; Dezi et al., 2019; Nguyen et al., 2015; Martínez-Climent et al., 2021). The crucial role of e-crowdfunding in accelerating the knowledge acquisition was also empirically approved by Lin et al. (2020) and Martínez-Climent et al. (2021). The high quality knowledge available from actively

engaging in e-equity crowdfunding will empower entrepreneurs to create novel ideas and seek innovation focused solutions (Lin et al., 2020).

## **6.1 Theoretical contribution**

As argued in the introduction and literature review section, the success of e-equity crowdfunding depends on entrepreneurs engage in such activities. Therefore, there is a need to have a theoretical understanding regarding the main aspects and drivers that would shape the entrepreneur's engagement in e-equity crowdfunding. From theoretical perspective, this study has contributed to the current understanding of e-equity crowdfunding in several aspects. This is in the context of a dearth of literature in Crowdfunding in general and e-equity crowdfunding in particular. In this respect, Mochkabadi and Volkmann (2020, p. 75) assured that "equity crowdfunding research is still in its infancy and scholarly knowledge remains limited and fragmented".

Furthermore, there is a near absence of studies that have addressed issues related to e-crowdfunding in the Middle East and Saudi Arabia in particular (Troise and Tani, 2020; Mochkabadi and Volkmann, 2018; Macht and Weatherston, 2014). Thus, this study presents a worthy attempt that assists both researchers and practitioners in the Middle East and Saudi Arabia to have a in-depth knowledge regarding e-equity Crowdfunding.

Prior studies have examined crowdfunding success factors. However, less attention has been paid to digital features of e-equity Crowdfunding. Accordingly, a considerable contribution has been captured in this study by proposing and empirically examining three factors (information quality; system quality; and service quality) from DeLone and McLean's (2003) information success model. This study has expanded the current understanding regarding the role of technical and digital features of e-equity Crowdfunding.

The RMO is a modern business mechanism used by organisations to sustain the quality of relationships with stakeholders (Dong et al., 2017). Thus, entrepreneurs, who have a greater tendency towards RMO, will be more prepared to participate in a sustainable relationship comprising an advanced level of cooperation and joint coordination with their stakeholders in the crowdfunding campaign (Dong et al., 2017). However, minimal attention has been given to addressing the impact of marketing practices and RMO on the crowdfunding success (Feola et al., 2019; Troise and Tani, 2020). This study has added a theoretical value by highlighting the significant role of adopting a marketing relationship orientation in enhancing the success of e-equity crowdfunding.

The outcomes of crowdfunding activities have been commonly tested in terms of the campaign success (Davis, Hmieleski, Webb, and Coombs, 2017; Courtney et al., 2017; Riding, 2017; Ahlers et al., 2015) or the fundraising (Lukkarinen et al. 2016; Wald et al., 2019; Di Pietro et al., 2017) as key performance indicators for such campaign. Nevertheless, the sustainability of crowdfunding impact required further research (i.e. knowledge acquisition and innovation performance). Thus, another contribution was attained in the current study by testing how engagement would reflect on the entrepreneurial business's sustainability in terms of knowledge acquisition and innovation performance.

## **6.2 Practical implications**

One of the main objectives that this study has achieved is providing entrepreneurs with clear guidelines regarding the most important aspects and challenges that could impact the success of e-crowdfunding activities. Therefore, several factors based on a solid theoretical and logical justification were proposed as key levers of entrepreneurs' engagement in e-equity crowdfunding activities. The statistical results have supported the role of proposed factors (i.e. RMO, entrepreneurial alertness and E-crowdfunding success factors). This, in turn, gives novel insights regarding the main aspects that have to be the focus of attention of entrepreneurs and practitioners over the related area. Initially, e-equity crowdfunding is still in its infancy stage, and there is a lot of ambiguity and lack of understanding regarding the mechanism by which this system of project financing works and the opportunities inherent in it. Therefore, further efforts should be spent in terms of marketing and promotion to create a level of awareness and persuasiveness of e-equity crowdfunding. Therefore, statistical results approved the importance of three dimensions of engagement (cognitive; emotional; and behavioral). Thus, marketers in designing their marketing and communication programme should consider issues related to affective and cognitive appeals that could stimulate entrepreneurs' behavioural engagement with e-equity crowdfunding.

This study has approved the significant role of RMO aspects which, therefore, should receive further attention from marketers. In fact, the adoption of relationship marketing orientation is not something for granted or complementary but RMO is a basic and essential requirement for business success, especially those businesses (i.e. crowdfunding) that rely heavily on the participation of business partners and customers together in creating the added value (Wald et al., 2019). Further, RMO can serve as a reference framework for entrepreneurs in how to deal with their partners and supporters. In this respect, it is recommended considering RMO

would also serve as a basis in developing educational and training programmes for entrepreneurs that raise their skills and abilities in building sustainable relationships with stakeholders (Sin et al., 2005; Kwan and Carlson, 2017). Furthermore, individual dimensions of RMO have too be carefully addressed and enriched. For example, the communication process between entrepreneurs and supporters should be improved using more interactive and innovative channels that guarantee a high level of contractual efficiency (Sin et al., 2005). Interactive communication with stakeholders and supporters should enjoy a high levels of credibility and honesty so as to enhance the level of trust as key dimensions of RMO. It should also focus on the existence of common denominators and shared values between the entrepreneurs and supporters on an ongoing basis. This requires an accurate understanding of the culture and value system in Saudi Arabia and adopting them as a concept and a frame of reference for working within the entrepreneurial projects. Entrepreneurs should reflect such values in the strategy and vision of the pioneering enterprises, as well as it is necessary to share it through different platforms with supporters. Empathy is one of the important RMO dimensions supported in this study, and therefore, entrepreneurs should be careful to demonstrate that they understand and appreciate the feelings and ideas of their supporters.

The current study results assured the important role of entrepreneurial alertness, and accordingly, there is a need to enrich the entrepreneurs' alertness features (scanning and searching; association and connection; and evaluation and judgment). Thus, it is important to argue that entrepreneurial alertness is not just inherited skills, but rather capabilities and capabilities that can be developed over time with a sustainable system of smart education and training. According to Neneh (2019), a well-designated and practical training programme could assist entrepreneurs to grow their skills and capabilities required to have full of alertness and behave proactively rather than reactively. Such training programmes should be customized according to entrepreneurs' training requirements as well as considering the personal, cultural, and demographic differences among entrepreneurs (Neneh, 2019; Shirokova et al., 2016; Obschonka et al., 2017). Furthermore, policy makers at the national level in Saudi Arabia must work to spread the culture of entrepreneurship and creativity at all levels in the country, and this was explicitly reflected in the Kingdom's Vision 2030, which focused on the role of entrepreneurship and innovation in community service and achieving sustainable development.

As for E-equity crowdfunding success factors, systems developers and designers should work on improving the aspects of system quality especially in term of system quality and service



quality. The significant role of system quality leads to notice the importance of improving technical and digital features of e-equity crowdfunding. In this respect, systems developers and designers should initially assess the extent of aesthetic and functional features (i.e. speed, usability, ease of use, navigability, visual attractiveness) of e-equity crowdfunding platforms. Then, these aesthetic and functional features should be constantly improved and enhanced. It is also recommended that E-equity crowdfunding should comprise an extent level of customization that enables entrepreneurs to tailor these features according to their preferences. Furthermore, a high level of service quality should be continuously delivered to entrepreneurs to facilitate their engagement and using experience with e-equity crowdfunding. More efforts must also be placed to ensure a high level of excellence, customization, and professionalism in providing these services.

### **6.3 Limitations and future research directions**

Regardless the practical and theoretical value captured in this study as discussed in the prior sections, there are several limitations which could be addressed in the future studies. This study has addressed the aspects of e-Equity crowdfunding from the perspective of entrepreneurs rather than supporters. Thus, it would be more useful for future studies to examine the related aspects of e-equity crowdfunding from both perspectives: entrepreneurs and supporters. Further, due to the collective nature of the crowdfunding, there is a need to examine how the cultural dimensions (i.e. power distance; individualism; collectivism; masculinity, femininity, uncertainty avoidance) would reflect on the people (entrepreneurs and supporters) engagement and perception toward crowdfunding (Hofstede, 2011).

## **7. Conclusions**

In recent years, crowdfunding concept and activities have been the focus of attention of start-up and entrepreneurial businesses as new way of project funding. However, there is a dearth of literature that has tested the aspects of e-equity crowdfunding activities and their impact on the knowledge acquisition and innovation performance for entrepreneurial business. Therefore, this study examines how entrepreneurs' engagement in e-equity crowdfunding activities could enhance both knowledge acquisition and innovation performance. Reviewing the body of literature leads to identification of the importance of considering the entrepreneurs' innovation capabilities; the e-equity crowdfunding success factors; and the

marketing orientation. Therefore, a conceptual model was proposed based on three main theoretical perspectives: RMO (i.e. Sin et al., 2005); Kirzner's alertness theory (Kirzner, 1973; 1999); The DeLone and McLean model of information systems success (DeLone and McLean, 2003). The data of the study was collected using online questionnaire from entrepreneurs who have actively engaged in e-crowdfunding in the Saudi Arabia. The data was tested using structural equation modelling (SEM) via AMOS. The statistical results supported the predictive validity of the proposed model. RMO; Entrepreneurial alertness; system quality; and service quality significantly influence the engagement in e-equity crowdfunding, which in turn, predicts both knowledge acquisition and innovation performance. A significant relationship was also approved between knowledge acquisition and innovation performance. The study has contributed to the understanding of e-equity crowdfunding area in several aspects as argued in the theoretical and practical implications subsections.

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# Tables

**Table 1: Descriptive Statistics of Measurement Items**

Item	Mean	Std. Deviation	Item	Mean	Std. Deviation	Item	Mean	Std. Deviation
TR1	5.46	1.10	SSR1	5.69	1.05	EMG1	5.47	1.09
TR2	5.46	1.06	SSR2	5.67	1.09	EMG2	5.45	1.10
TR3	5.66	0.95	SSR3	5.77	0.99	EMG3	5.38	1.13
TR4	5.48	0.94	Average	5.71	1.04	Average	5.43	1.11
TR5	5.50	0.95	EJU1	5.49	1.11	BG1	5.69	1.1
Average	5.51	1.00	EJU2	5.56	1.13	BG2	5.66	1.1
EMPT1	5.64	.956	EJO3	5.42	1.14	BG3	5.66	1.07
EMPT2	5.59	0.97	Average	5.49	1.13	Average	5.67	1.09
EMPT3	5.67	0.98	ASS1	5.80	1.01	KWA1	5.38	1.08
Average	5.63	0.97	ASS2	5.77	1.11	KWA2	5.68	0.97
BOND1	5.43	1.12	ASS3	5.75	1.04	KWA3	6.04	1.07
BOND2	5.35	1.08	Average	5.77	1.06	KWA4	5.53	1.20
BOND3	5.31	1.01	INQ1	4.94	1.32	KWA5	5.50	1.19
BOND4	5.36	1.01	INQ2	4.99	1.22	KWA6	5.61	1.10
Average	5.36	1.07	INQ3	5.28	1.12	Average	5.63	1.10
SHV1	6.06	0.88	INQ4	4.48	1.14	IVP1	5.84	1.11
SHV2	6.20	0.76	INQ5	4.72	1.25	IVP2	5.72	1.17
SHV3	6.08	0.85	INQ6	5.26	1.170	IVP3	5.93	1.06
Average	6.11	0.83	Average	4.95	1.20	IVP4	5.97	1.00
COM1	5.59	1.01	SQ1	5.58	1.08	IVP5	5.77	1.08
COM2	5.39	1.11	SQ2	5.83	0.88	IVP6	5.71	1.24

COM3	5.35	1.11	SQ3	5.80	0.90
Average	5.44	1.08	SQ4	5.80	0.99
SSR1	5.69	1.05	SQ5	5.50	1.05
SSR2	5.67	1.09	SQ6	5.67	1.01
SSR3	5.77	0.99	Average	5.36	0.99
Average	5.71	1.04	SRQ1	6.32	0.81
EJU1	5.49	1.11	SRQ2	6.35	0.73
EJU2	5.56	1.13	SRQ3	6.36	0.78
EJO3	5.42	1.14	SRQ4	6.34	0.79
Average	5.49	1.13	SRQ5	6.25	0.85
ASS1	5.80	1.01	Average	6.32	0.79
ASS2	5.77	1.11	CG1	5.77	0.92
ASS3	5.75	1.04	CG2	5.78	1.03
Average	5.77	1.06	CG3	5.63	1.03
			Average	5.73	0.99

**Table 2: Fit indices**

Fit indices	Cut-off point	Initial measurement model	Revised measurement model
CMIN/DF	$\leq 3.000$	2.935	2.335
GFI	$\geq 0.90$	0.883	0.921
AGFI	$\geq 0.80$	0.781	0.842
NFI	$\geq 0.90$	0.893	0.949
CFI	$\geq 0.90$	0.921	0.977

RMSEA	≤ 0.08	0.057	0.046
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**Table 3: Constructs' Reliability**

	CR	Cronbach's alpha ( $\alpha$ )	AVE
INQ	0.895	0.891	0.631
RMO	0.880	0.879	0.597
ENG	0.807	0.803	0.586
EA	0.799	0.791	0.574
SQ	0.864	0.861	0.559
SRQ	0.896	0.892	0.688
IVP	0.924	0.919	0.709
KWA	0.835	0.832	0.504

**Table 4: Discriminant validity**

	INQ	RMO	ENG	EA	SQ	SRQ	IVP	KWA
INQ	0.795							
RMO	0.392	0.773						
ENG	0.294	0.712	0.765					
EA	0.486	0.707	0.716	0.757				
SQ	0.711	0.407	0.360	0.499	0.748			
SRQ	0.132	0.352	0.442	0.325	0.321	0.829		
IVP	0.587	0.290	0.360	0.509	0.658	0.299	0.842	
KWA	0.741	0.435	0.406	0.618	0.684	0.254	0.665	0.710

**Table 5: Standardized Regression Weights: (Factor Loading)**

			<b>Estimate</b>				
<b>EOU</b>	<---	RMO	.636	CG1	<---	CG	.633
<b>TR</b>	<---	RMO	.898	CG2	<---	CG	.842
<b>EMPT</b>	<---	RMO	.795	CG3	<---	CG	.803
<b>COM</b>	<---	RMO	.746	BG1	<---	BG	.876
<b>CON</b>	<---	RMO	.766	BG2	<---	BG	.938
<b>CG</b>	<---	ENG	.775	BG3	<---	BG	.644
<b>BG</b>	<---	ENG	.627	EMG1	<---	EMG	.737
<b>EMG</b>	<---	ENG	.874	EMG2	<---	EMG	.890
<b>SSR</b>	<---	EA	.635	EMG3	<---	EMG	.846
<b>ASS</b>	<---	EA	.768	KWA1	<---	KWA	.603
<b>EJU</b>	<---	EA	.853	KWA2	<---	KWA	.630
<b>BOND1</b>	<---	CON	.857	KWA3	<---	KWA	.659
<b>BOND2</b>	<---	CON	.900	KWA4	<---	KWA	.636
<b>BOND3</b>	<---	CON	.875	KWA5	<---	KWA	.748
<b>SHV1</b>	<---	EOU	.773	IVP1	<---	IVP	.788
<b>SHV2</b>	<---	EOU	.821	IVP2	<---	IVP	.850
<b>SHV3</b>	<---	EOU	.853	IVP3	<---	IVP	.904
<b>COM1</b>	<---	COM	.615	IVP4	<---	IVP	.801

<b>COM2</b>	<---	COM	.846	IVP5	<---	IVP	.862
<b>COM3</b>	<---	COM	.803				
<b>TR5</b>	<---	TR	.859				
<b>TR4</b>	<---	TR	.869				
<b>TR2</b>	<---	TR	.797				
<b>EMPT3</b>	<---	EMPT	.845				
<b>EMPT2</b>	<---	EMPT	.844				
<b>EMPT1</b>	<---	EMPT	.651				
<b>INQ2</b>	<---	INQ	.810				
<b>INQ3</b>	<---	INQ	.774				
<b>INQ4</b>	<---	INQ	.719				
<b>INQ5</b>	<---	INQ	.806				
<b>INQ6</b>	<---	INQ	.857				
<b>SQ1</b>	<---	SQ	.789				
<b>SQ2</b>	<---	SQ	.786				
<b>SQ3</b>	<---	SQ	.724				
<b>SQ4</b>	<---	SQ	.721				
<b>SQ5</b>	<---	SQ	.716				
<b>SRQ2</b>	<---	SRQ	.925				
<b>SRQ3</b>	<---	SRQ	.878				
<b>SRQ4</b>	<---	SRQ	.860				



<b>SRQ5</b>	<---	SRQ	.621
<b>SSR1</b>	<---	SSR	.799
<b>SSR2</b>	<---	SSR	.903
<b>SSR3</b>	<---	SSR	.661
<b>EJU1</b>	<---	EJU	.854
<b>EJU2</b>	<---	EJU	.882
<b>EJO3</b>	<---	EJU	.692
<b>ASS1</b>	<---	ASS	.683
<b>ASS2</b>	<---	ASS	.842
<b>ASS3</b>	<---	ASS	.818

**Table 6: Hypotheses testing**

			<b>Estimate</b>	<b>S.E.</b>	<b>C.R.</b>	<b>P</b>
<b>ENG</b>	<---	RMO	.258	.052	4.984	***
<b>ENG</b>	<---	EA	.420	.082	5.145	***
<b>ENG</b>	<---	SQ	.157	.038	4.131	.002
<b>ENG</b>	<---	INQ	.018	.032	.565	.572
<b>ENG</b>	<---	SRQ	.133	.037	3.578	***
<b>KWA</b>	<---	ENG	.481	.164	4.950	***
<b>IVP</b>	<---	ENG	.132	.075	4.506	***
<b>IVP</b>	<---	KWA	.572	.119	4.806	***

## Appendix: Scale Items

Constructs	Items		Sources
<b>RMO</b>	Communication	We communicate our supporters and express our opinions to each other frequently.	Sin et al. (2005)
		We can show supporters our discontent towards each other through communication.	
		We can communicate honestly.	
	Shared Values	We share the same worldview with our supporters	Sin et al. (2005)
		We share the same values with our supporters	
		We share the same opinion about most things.	
	Empathy	We always see things from each other's view	Sin et al. (2005)
		We know how each other feels.	
		We care about each other's feelings.	

		We understand each other's values and goals.	
	Bonding	We rely on each other.	
		We both try very hard to establish a long-term relationship	
		We work in close cooperation	
		We keep in touch constantly	
	Trust	We trust each other.	Sin et al. (2005)
		Our supporters are trustworthy on important things.	Sin et al. (2005)
		According to our past business relationship, my company thinks that our supporters are trustworthy persons.	Sin et al. (2005)
		The crowdfunding project and platform have my confidence.	Kang et al. (2016)
		The crowdfunding project and platform have high	Kang et al. (2016)

		integrity	
<b>Entrepreneurial Alertness</b>	Scanning and searching	I always keep an eye out for new business ideas when looking for information	Tang et al. (2012); Troise and Tani (2020); and Zhao et al. (2005)
		I have frequent interactions with others to acquire new information	
		I am always actively looking for new information	
	Association and Connection	I see links between seemingly unrelated pieces of information	Tang et al. (2012); Troise and Tani (2020); and Zhao et al. (2005),
		I am good at “connecting dots”	
		I often see connections between previously unconnected domains of information	
	Evaluation and Judgment	I have a gut feeling for potential opportunities	Tang et al. (2012); Troise and Tani (2020); and Zhao et al. (2005)
		I can distinguish between profitable opportunities and not-so-profitable opportunities	
		When facing multiple opportunities, I am able to select	

		the good ones	
<b>Entrepreneurs' engagement in e-equity crowdfunding</b>	Cognitive Engagement	Using the e-equity crowdfunding gets me to think about it	Ahn and Back (2018), Harrigan et al. (2017)
		I like to learn more about e-equity crowdfunding	
		I pay a lot of attention to anything about e-equity crowdfunding	
	Emotional Engagement	I feel very positive when I use e-equity crowdfunding	
		I feel good when I use e-equity crowdfunding	
		I am enthusiastic about e-equity crowdfunding	
	Behavioural Engagement	I spent a lot of time using e-equity crowdfunding	
		I use e-equity crowdfunding the most	
		I often participate in activities of the e-equity crowdfunding	
	<b>Information Quality</b>		

	E-equity crowdfunding provides me with sufficient information.	Chiu et al. (2021)
	E-equity crowdfunding provides me with accurate information.	
	E-equity crowdfunding provides me with up-to-date information.	
	E-equity crowdfunding provides me with reliable information.	
	E-equity crowdfunding provides me with detailed information and representation	
<b>System Quality</b>	E-equity crowdfunding quickly loads all the text and graphics.	Kim et al. (2004) and Zhou (2011); Lu and Yang (2011) and Chiu et al. (2021)
	E-equity crowdfunding is user friendly	
	E-equity crowdfunding is easy to navigate	
	E-equity crowdfunding is easy to use	

	E-equity crowdfunding is visually attractive.	
	E-equity crowdfunding has the ability to enable me to interact with the content easily.	
<b>Service quality</b>	E-equity crowdfunding provides service excellence	Kim et al. (2004) and Zhou (2011); Lu and Yang (2011) and Chiu et al. (2021); Lee and Lin (2005)
	E-equity crowdfunding provides personalized services	
	E-equity crowdfunding provides professional services	
	The level of service quality I receive from E-equity crowdfunding is high	
	My overall opinion of the services provided by E-equity crowdfunding is very good	
<b>Knowledge Acquisition (KA)</b>	I receive shared information about business projects via e-equity crowdfunding	Lin et al. (2020); Troise and Tani (2020)
	I obtain information about working experience and secrets of proposing a business projects from e-equity crowdfunding	

	I regularly obtain information from e-equity crowdfunding and apply it in business project	
	In e-equity crowdfunding I look for learning new product/service features to consider	
	In e-equity crowdfunding I look for getting market trends insights	
	In In e-equity crowdfunding I look for feedback on the early-version of the product/service	
<b>Innovation performance</b>	Our organization is quick in coming up with novel ideas as compared to key competitors.	Mardani et al. (2018)
	Our organization is quick in new product launching as compared to key competitors.	
	Our organization is quick in new product development as compared to key competitors.	
	Our organization is quick in problem solving as compared to key competitors.	



	Our organization is quick in new processes as compared to key competitors.	
	Our organization does better in management improving as compared to key competitors.	



