

Innovation Practices for Enhancing Small and Medium-Sized Enterprises' (SMEs) Performance and Survival during Coronavirus (COVID-19) Epidemic Crisis: The Moderating Role of External Support

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Keywords: Small and Medium-Sized Enterprises (SMEs), SMEs performance, SMEs survival, Coronavirus (COVID-19) Crisis, Innovative Practices, External Support

Posted Date: December 11th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-125153/v1>

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Abstract

Global epidemic crises, such as the coronavirus (COVID-19), usually put the lives of small and medium enterprises (SMEs) in danger. However, studies have demonstrated the vital role of innovation in improving enterprises' performance and increasing the likelihood of their viability. This study aims to develop a theoretical model to provide insights about the association between innovation practices and the SMEs' performance and survival while underlining the auxiliary role of external support in such a relationship. Online questionnaire has been used to collect the data from 259 randomly selected SME managers in Saudi Arabia, and the data was analyzed using SmartPLS3 software. The structural equation modeling (SEM-PLS) bootstrap results indicated that external support aids strengthen the positive impact of SMEs' innovation practices on business survival. These findings have significant implications for policy makers and SME managers.

Introduction

Since its emergence in late 2019, the COVID-19 epidemic has caused negative effects on the economies of countries and has had a disastrous impact on human health. The conditions and restrictions imposed in most countries to limit the virus's spread among people, such as social distancing and quarantines, have led to distortions in the system of supply and demand for goods and slowed many countries' economies. The repercussions of the COVID-19 pandemic have been felt across all economic sectors and institutions, including small and medium enterprises (Hasanat et al., 2020). During this epidemic crisis, SMEs have suffered from a lack of manpower and production inputs because of distortions that marred supply chains, which negatively affected their sales (Gurría, 2020). Coincidentally, a decrease in consumer spending has occurred because of the decrease in consumers' income and the feelings of high uncertainty (Gurría, 2020),

An International Trade Centre (ITC; 2020) survey report showed that of the more than 50% of SMEs in 68% of the countries affected by the epidemic crisis, over 20% of them expect to halt their business operations within the coming months because of a lack of sufficient liquidity. In its study conducted during May 2020, the General Authority for Small and Medium Enterprises (Monsha'at) found that the vast majority of SMEs in Saudi Arabia confirmed the significant negative impact of the COVID-19 epidemic on their business. As a result, the SMEs were forced to reduce the volume of their business activity and close some of their commercial branches and stores. The study also showed that 65.5% of business managers have had difficulty fulfilling their financial obligations and paying workers' salaries. The study revealed that half of the entrepreneurs are not optimistic about the future of their enterprises after the crisis.

Published research has indicated the weakness and inability of SMEs to withstand the consequences of economic crises (Latham, 2009; Michael & Robbins, 1998; Robbins & Pearce, 1992), This defect can be attributed to the lack of financial resources and the high cost of capital (Domac & Ferri, 1999; Mulhern, 1996), as well as limited administrative and technical capacities (Demirgüç-Kunt, Maksimovic, & Beck, 2005; Forbes, 2002), (Marino, Lohrke, Hill, Weaver, & Tambunan, 2008; Régnier, 2005). Studies have predicted that SMEs will be at the forefront of enterprises affected by economic crises (Latham, 2009; Robbins & Pearce II, 1993). Therefore, with a socioeconomic crisis related to people's health such as the COVID-19 epidemic, it is expect that the effects to be terrible for SMEs. This is because their projects requires a great connection with people, whether they are customers or suppliers (Nugent & Yhee, 2002).

There are many studies that have investigated the impact of economic crises on SMEs (Domac & Ferri, 1999; Gregory, Harvie, & Lee, 2002; Michael & Robbins, 1998; Mulhern, 1996; Özar, Oezertan, & İrfanoğlu, 2008). However, these studies focused on crises affecting specific countries. There is an urgent need for a study to investigate the status of SMEs and their innovation practices in light of the occurrence of the largest socioeconomic crisis in modern history. Focusing on SMEs have adaptation of innovative actions and strategies, to get them through a crisis such as the COVID-19 pandemic. Therefore, this study answers the research question: Can SMEs innovation practices impact the performance and survival during a crises?

This study aims to examine innovation practices and test their impact on the performance and survival of SMEs with the presence of external support. It focuses on the marketing and organizational innovation practices adopted by SMEs in Saudi Arabia to face the threats of their survival and continuity created by the COVID-19 pandemic. The present study is based mainly on the hypothesis that SMEs' innovation practices in times of economic crises similar to the COVID-19 pandemic may help increase the organization's performance and, subsequently, its survival.

The contributions of this study are twofold. First, it contributes to the growing literature on SMEs and external support in times of crisis, by providing empirical evidence on the nature of the relationship between innovation practices, external support, and the enterprise survival. The second, it provides more insights to SMEs managers about the importance of external support in strengthening the positive impact of their innovation practices on business survival, thus ensuring their continuity and sustainability after the occurrence of crises similar to SOVED-19.

We start the paper with a review of the literature on SMEs' innovation practices, performance, and survival. This section is followed by the theoretical framework and analysis of the five hypotheses being tested. Next, we present the results of our data analysis. Last, we discuss the data analysis results and state the main findings.

Literature Review

2.1 SMEs' Innovation practices

Innovation has become a necessity for all contemporary enterprises that want to survive in a world characterized by competition, technological change, and recurring crises. The concept of innovation refers to the use of new technology or new management practices in an organization to achieve a targeted improvement in its operations (Tornatzky, Fleischer, & Chakrabarti, 1990). From a SME perspective, innovation commonly indicates new products or processes that address customer needs more competitively and profitably than existing ones (O'Regan & Ghobadian, 2006; Zahra, Nielsen, & Bogner, 1999). We use the term "innovative practices" in this study to refer to the effective implementation of new solutions to challenges faced by SMEs, which include effective implementation of new ideas in relation to the organization's product, services, or processes; new marketing mechanisms; or new administrative practices for work amelioration and upgraded performance (Damanpour, 1992; Johannessen, Olsen, & Lumpkin, 2001; OECD. et al., 2005). This differs from innovative capabilities, which focus on developing new products, processes, method, or techniques through the use of knowledge, experiences, and ideas (Lala Popa, Preda, & Boldea, 2010). An enterprise's innovation, characterized by being linked to the institution's industry, may suit one organization but not another (Meyer & Goes, 1988; Ramiller, 1994).

There are several types of innovation mentioned in the literature, such as product innovations, process innovations, market innovations, organizational innovations, and technical innovations. Product innovation implies using knowledge and/or technology to create new or modified products or services to improve the enterprise's competitive advantage and its likelihood of success (Gunday, Ulusoy, Kilic, & Alpan, 2011; OECD. et al., 2005). Process innovation refers to the adoption of new production or placement methods, technique, mechanisms, or procedures for cost reduction or quality improvement (OECD. et al., 2005). According to Fagerberg (2004) process innovation leads to less improvement in the organization's financial performance compared to product innovations. Marketing innovation involves implementing ideas that result in a change in a product's features, product distribution channels, promotional instruments, or pricing method to greater customer satisfaction (Kotler, 1994). Organizational innovation is concerned with administrative procedures, which include renewing methods, procedures, systems, and tools to perform tasks or for addressing external environment challenges for operational costs reduction, improved employee satisfaction, or enhanced organizational performance (Gunday et al., 2011; OECD. et al., 2005). This study focuses on the marketing and organizational innovation practices adopted by SMEs in Saudi Arabia to face the threats of survival and continuity created by the COVID-19 pandemic.

The main drive behind innovation in enterprises is to open new horizons for the organization by enhancing efficiency, increasing performance, achieving a competitive advantage, and expanding market share and by adding improved products, performing efficient processes, and entering promising markets. All of these changes lead to lower costs, enhanced productivity, and increased sales growth (Gunday et al., 2011; Koh, 2004). Business researchers asserted that innovative organizations are characterized by rapid and steady growth, competent employees, and ambitious plans (OECD. et al., 2005; Rauch & Rijdsdijk, 2013). Previous studies also demonstrated that innovation is an essential tool for improving the enterprise's performance and developing a competitive advantage (Danneels, 2002; Hamel, 1999; O'connor & Rice, 2001). Therefore, innovation plays a major role in achieving an enterprise's goals of success, survival, and continuity (Bresciani, Ferraris, & Del Giudice, 2018; Nieto & Santamaría, 2007). Some argue that innovation has the potential to repair damage done to the organization due to environmental crises such as the COVID-19 pandemic (Danneels, 2002; Joseph A Schumpeter, 2013).

2.2 SMEs Performance

Enterprise performance represents the primary concern of management. Based on the literature, performance in this study is defined as achieving the institution's objectives related to sales, profitability, competition, market share, and any other strategic goals (Hult, Hurley, & Knight, 2004). Researchers also defined performance as achieving a set of desired outcomes resulting from the realization of the marketing objectives (Chittithaworn, Islam, Keawchana, & Yusuf, 2011). For Yıldız, Baştürk, and Boz (2014), performance refers to an effectiveness in carrying out the enterprise's tasks, which results in achieving its stated objectives. Achieving high performance level implicitly indicates enterprise success (Mahmudova & Kovács, 2018). Measuring the enterprise's performance helps to enhance the positive aspects of its operation and provides an opportunity to take corrective measures to address weaknesses (Mahmudova & Kovács, 2018).

Researchers have suggested two types of enterprise performance measures: financial and nonfinancial (Al-Hakim & Lu, 2017; Maisel & Cokins, 2013). The literature included several non-financial measures of SME performance, such as leadership, number of employees (Loscocco & Leicht, 1993; Mohr & Spekman, 1994; Orser, Hogarth-Scott, & Riding, 2000; Robinson & Sexton, 1994), revenue growth (Miller, Wilson, & Adams, 1988), market share (Bouchikhi, 1993; O'Farrell, 1986), and ratio of income to number of employees (Johannisson, 1993). McGee, Dowling, and Megginson (1995), remarked that recently revised nonfinancial measures are suitable for measuring enterprise performance when working in changing external environmental elements. Other authors also suggested using the nonfinancial indicators to measure administrative performance, which based on non-accounting data (Al-Ansari, Pervan, & Xu, 2013; Anning-Dorson, 2018; Reijonen & Komppula, 2007).

However, previous studies also have suggested using subjective financial measures, rather than objective ones, for evaluating an enterprise's performance (Dawes, 1999; Dess & Robinson Jr, 1984; Kim, 2006; Wall et al., 2004). Subjective performance measures have shown consistency and accuracy in evaluating business performance (Brush & Vanderwerf, 1992; Chandler & Hanks, 1993; Venkatraman & Ramanujam, 1987). The proposed subjective measures include financial indicators (e.g., profit, sales, return on investment) and nonfinancial indicators (e.g., labor turnover, service time, delivery, waiting, and consumer satisfaction (Chong, 2008). Annual profits and revenues are valid for measuring the enterprise's short-term performance (Birley & Westhead, 1994). Whereas, the enterprise's long-term performance and survival can be measured by reserved profits, income reserves, and market share (Barney, 1991). Because of the constraints surrounding the obtainability of objective financial information from SMEs, this study used subjective performance indicators to measure SMEs' performance.

Most of the studies that address the relationship between innovation practices and SME performance focused on the factors that enhance such a relationship under normal environmental circumstances (e.g. Damanpour, 1990; Hajar, 2015; Lin & Chen, 2007; Ndesaulwa & Kikula, 2016; Rosenbusch, Brinckmann, & Bausch, 2011). The current study only investigated the connection between SMEs' innovation practices on the enterprise's performance and survival, with a moderation of external support due to the exceptional economic conditions caused by the COVID-19 pandemic.

2.3 SMEs Survival

Enterprise survival used in the current study to indicate the amount of time the enterprise takes to carry out its activities since its inception up to closure (Bercovitz & Mitchell, 2007). There are many parties in the community who benefit from the enterprise's survival aside from its managers. They include workers, consumers, and suppliers (Bercovitz & Mitchell, 2007). Researchers confirm that enterprise survival is one feature of its performance (Danes, Loy, & Stafford, 2008; Kalleberg & Leicht, 1986). An enterprise can survive if it can adapt to the conditions and its surrounding environment (Child, 1972; Pfeffer & Salancik, 1978). Compared to large enterprises, SMEs have shorter life, more profitable, and largely affected by external environmental factors (Carroll & Huo, 1986). Some researchers consider survival to be an objective measure of enterprise success (Miner, 1997).

In times of crisis, the existences of SMEs are in danger (O'Reilly III & Tushman, 2011). Crises weaken SMEs' growth and threaten their projects, because their negative impact extends to all elements of the external enterprise environment (Dhochak & Sharma, 2015). For instance, in time of crisis, SMEs have limited financing opportunities due to weak capital market performance, lack of sufficient information, and component defects throughout the economy (Bester & Hellwig, 1989; Binks, Ennew, & Reed, 1992; Cowling, Liu, & Ledger, 2012; Hillier & Ibrahim, 1993; C. M. Mason & Harrison, 2015).

The literature suggests a wide range of factors that contribute to the survival of SMEs, such as managerial leadership (Postma & Zwart, 2001), liquidity (Lopez-Garcia & Puente, 2006), financial availability (Van der Sluis, Van Praag, & Vijverberg, 2005), business performance (Mata & Portugal, 2002), entrepreneurial risk attitudes (Chell, Haworth, & Brearley, 1991), business size (McPherson, 1995), and enterprise age (Dunne, Roberts, & Samuelson, 1988). Some of these factors were found to be positively correlated with SME survival, whereas others were inversely related to it. For example, the survival of the enterprise is adversely affected by an increase in debt because it causes more payments (in the form of interest), reduces profits, increases risks, and reduces the ability of the enterprise to acquire more finance (Guimarães Barbosa, 2016). However, López, Ordás, and León (2004) argued that profit is a significant SME survival indicator, because it implies enterprise production efficiency and /or good market position. For Grossi and Gozzi (2006) capital intensity supports the opportunity for SME to survive due to cost cutting and the competitive advantage of economies of scale. Leadership is an enterprise survival indicator because it is concerned with adjusting the enterprise strategy in line with changes in the external environment (Postma & Zwart, 2001).

In addition, general economic factors such as inflation, stagnation, and internal or external competition have an impact on the survival and viability of SMEs (Buehler, Kaiser, & Jaeger, 2006). This study exploited a number of the aforementioned factors as measures to assess the possibility of SMEs' survival under the circumstances of the COVID-19 pandemic.

2.4 External Support

External support refers to the assistance provided to the enterprise by external parties (Global, 2018). SMEs are increasingly using external support (R. Bennett & Robson, 2003; R. J. Bennett & Robson, 1999), because it provides them with the essential knowledge and information necessary to strengthen their competitive position and increase their chances for future prosperity (R. J. Bennett & Robson, 1999; E. Penrose, 1959; Teece, 2002; Teece, Pisano, & Shuen, 1997). Governments, advocates, and different agencies and institutions offer external support to SMEs to save their lives, boost their growth, stimulate innovation, and enhance their capabilities by increasing managerial capabilities and improving marketing skills, thereby ensuring they make a greater business contribution to the national economy (Chrisman & McMullan, 2004; C. Mason & Brown, 2013). Governments, on the other side, encourage SMEs to take external support to be better able to exploit their business capacity, improve their performance, increase their competitiveness, and assist in business expansion and growth (Cliff, 1998; Gimeno, Folta, Cooper, & Woo, 1997; D. J. Storey, Saridakis, Sen-Gupta, Edwards, & Blackburn, 2010).

SMEs' external support can be either direct or indirect. Direct external support usually takes the form of financial aid that is to be used in the acquisition of assets, the purchase of technology, or the implementation of development plans with the aim of solving funding deficiency problems. It is usually provided according to specific government policies or financial intermediary conditions (Freitas & Von Tunzelmann, 2008; Nishimura & Okamuro, 2011). Indirect external support usually take the form of consultancies, ideas, and advice provided by experts, advisory offices, and educational institutions to help eliminate the lack of knowledge and increase the available amount of information (Freitas & Von Tunzelmann, 2008; Metcalfe & Ramlogan, 2005). Despite the diversity and the importance of external support for SMEs, researchers have noticed that SMEs' benefit little from this support due to the lack of information and awareness about this form of support and the enterprise management's inability to choose the appropriate type of support (Story, 1994).

There are a number of researchers who have dealt with the issue of external support. Turok and Raco (2000), investigated the impact of SMEs' capabilities on the achievement of external support objectives. Dollinger (1985), also figured out the positive association between the amount of time of interaction of SMEs managers with external parties to obtain external support and the enterprise financial performance. There are other studies that focused on the relationship between external support and enterprise performance (e.g. Friedlander & Pickle, 1968; James, Ivancevich, & Donnelly Jr, 1973; Steers, 1975; Thompson & McEwen, 1958). However, Ahmed, Al-Hashimi, and Hamdan (2019) indicated the need for more studies relation to of external support for SMEs. The present study adds to the literature by examining the moderating effect of external support on the relationship between innovation practices and SME performance on the one hand and innovation practices and survival on the other hand.

Theoretical Framework And Hypotheses

3.1 Theoretical Framework

The conceptual framework in Fig. 1 shows the links between a SME's innovation practices, the business's performance, and survival. The model suggests that both relationships (innovation practices–performance and innovation practices–survival) are affected by external support. In addition, SME performance affected the business's survival. Innovative practices (independent variable) shown in the model included six dimensions (external knowledge, structures, leadership, regenerations, employees' activities, and marketing activities) extracted from the literature review. The dependent variables were the SMEs performance and SMEs survival. The model proposes that the connection between dependent variables and the independent variable is moderated by the external support.

First, the direct relationship between innovation practices and the SMEs' performance is analyzed (H1). Then, the direct association between SMEs innovation practices and business survival is considered (H2). An analysis of the effect of external support on the strength of the relationship between SMEs' innovation practices and their business performance is performed (H3). Finally, the role of external support in the link between innovation practices constitutions and SME survival is scrutinized (H4).

In the next section, the hypothetical relationships of the independent variable and dependent variables in the model are discussed.

3.2 Innovative practices and SMEs performance

The key driver of innovation practices in enterprises is the ambition to get reimbursement in the form of better performance, success, and survival. Therefore, innovation is defined as a creation of some modifications in the enterprise's practices that are intended to obtain an improvement in performance (Curristine, 2006). There is a large amount of literature supporting the significant positive relationship between innovation and SME performance (Qian & Li, 2003; Rosenbusch et al., 2011; Verhees & Meulenber, 2004; Yıldız et al., 2014). The published research also indicated the positive impact of innovation capabilities on SME performance (O'Cass & Sok, 2014; Oura, Zilber, & Lopes, 2016; Zhang, Zhang, Dai, Harandi, & Hartley, 2018). Zulu-Chisanga, Boso, Adeola, and Oghazi (2016), noted that the efforts exerted to develop different innovations are the primary reason for the improvement in SMEs' financial indicators. Previous studies also indicated the positive correlation between the innovation capabilities and SMEs' performance (O'Cass & Sok, 2014; Oura et al., 2016; Zhang et al., 2018). Freeman (2004), added that distinct SMEs' performance is an outcome of the effective implementation of innovations. However, Lin and Chen (2007) argued that the impact of managers' innovation practices on SME income outweighs that of technological innovation. Therefore, we argue that the innovation practices of SMEs in all environmental situations such as the COVID-19 pandemic can contribute positively to enterprise performance. Therefore, we hypothesize the following:

H1: In an epidemic crisis, an SME's innovation practices have a significant positive impact on its performance.

3.3 Innovative practices and SMEs survival

The business innovations–survival relationship has been illustrated in numerous studies. Innovation is critical to the continuity of any enterprise (Ortiz-Villajos, 2014). According to Gaynor (2002) innovation is the core factor behind the survival and continuity of enterprises; it supports the company's expansion and growth and enhances the enterprise's future success. Previous studies suggested using innovations to overcome the obstacles and challenges of industrial SMEs' success and survival (Bruns & Stalker, 1961; Hurley & Hult, 1998; Porter, 1990; Joseph A Schumpeter & Redvers, 1934). Joseph Alois Schumpeter (1942), declared that the enterprise's survival is strongly linked to its innovation practices. Several studies have attempted to explain this link by pointing to some concepts relevant to both innovation and enterprise survival. For instance, a competitive advantage is simultaneously a product of enterprise innovation practices and a fundamental pillar of its survival (Brüderl, Preisendörfer, & Ziegler, 1992; Cofis & Marsili, 2003; Helmers & Rogers, 2010). Joseph Alois Schumpeter (1942), argued that enterprises cannot survive and continue their activities without being innovative. However, survival also results from achieving victory in the face of crises imposed by the external environment (Aldrich, 1979; Hannan & Freeman, 1977; Kanter & Brinkerhoff, 1981). Therefore, this study argues that the various innovation efforts exerted by SMEs for mitigating the negative effects of the COVID-19 pandemic can bring positive results to these enterprises. Therefore, the second hypothesis of this research is stated as such:

H2: In an epidemic crisis, an SME's innovation practices have a significant positive impact on its survival.

3.5 Moderating Effect of External Support

External support is important for SMEs because it provides them with the knowledge needed to develop and implement innovations. According to Based Woodman et al. (1993) innovations usually grounded on the business informational support received from the enterprise surrounding environment. Cohen and Levinthal (1990), showed that innovations in enterprises result from combining the knowledge received from their external environment with their available internal knowledge. Damanpour (1991), confirmed a positive association between external support received by an enterprise and innovation. External support also provides an enterprise with human and financial resources that undergird innovation within the enterprise (Amabile, 1996; Scott & Bruce, 1994).

Numerous researchers have examined the linkage between external support and enterprise performance. For instance, Kent (1994) noted that the use of external support raises the SME's financial indicators. Larsson, Hedelin, and Gärling (2003), concluded that external support in form of managerial consultancies and advices received by SMEs, positive the business growth. J. D. Storey (2002) and Brush and Vanderwerf (1992) demonstrated that external consultants positively affected an SME's performance, expansion, and viability. Research findings noted that the use of external support contributes positively to a business's competitive advantage (R. Penrose, 1959; Teece et al., 1997). Dollinger (1985), emphasized the positive results of interaction with the external environment components on the SME's performance. Many other scholars have emphasized the positive association between an enterprise's performance and its use of external support (Bylund & McCaffrey, 2017; Matlay, Boter, & Lundström, 2005).

However, researchers asserted that the link between innovation practices and enterprise performance requiring an auxiliary factor represent a moderating variable (Covin & Slevin, 1989; Jones & de Zubielqui, 2017; Li & Atuahene-Gima, 2001). According to (Rosenbusch et al., 2011), this moderator is expected to come from the enterprise's external environment.

Studies have proven the strong and positive link between an enterprise's performance and its likelihood of its survival (Friedlander & Pickle, 1968; James et al., 1973; Steers, 1975; Thompson & McEwen, 1958). For example, Wiklund and Shepherd (2011), asserted that an enterprise survival requires a minimum level performance. In addition, published literature shows that an enterprise's survival indicates its outstanding performance over a long period (Friedlander & Pickle, 1968; Gibson, Ivancevich, & Donnelly, 1973; Steers, 1975; Thompson & McEwen, 1958). Moreover, both an enterprise's performance and survival are affected by external environmental factors and crises such as the COVID-19 pandemic (Holmes et al., 2010). This study argued that external support received by SMEs for the purpose of mitigating the effects of the COVID-19 pandemic contributes to strengthening the relationship between both innovation practices and an enterprise's performance on the one hand and between innovation practices and the business survival on the other hand. Thus we hypothesize the following:

H3: In epidemic crisis, the positive association between an SME's innovation practices and its performance may be stronger when the enterprise receive more external support.

H4: In epidemic crises, the positive association between an SME's innovation practices and its survival may be stronger when the enterprise receive more external support.

Method

4.1. Data collection and sample

The current study is limited to small and medium enterprises in Saudi Arabia that employ a number of employees, ranging between six and 250, with revenue less than 200 million Saudi riyals. The online questionnaire prepared through SurveyMonkey was used to collect the data from SME managers. The online questionnaire is less expensive and helps obtain large responses in a short period of time (Bryman & Bell, 2014). The questionnaire was first translated from the English language into the Arabic language so the respondents could understand the questions. Then, an e-mail containing a link to the questionnaire was sent to a randomly selected sample frame, which contained a request to fill out the questionnaire and an explanation of its purpose. The participants were given 15 days to complete the questionnaire.

The online survey distributed during August 2020 included 500 randomly selected SME managers (selected from the General Authority for Statistics [GaStat] database). At the end of the survey period, 259 participants completed the questionnaire, resulting in a response rate of 52%. The total number of filled questionnaires was sufficient to represent the SMEs in Saudi Arabia, and they

were analyzed using PLS-SEM (Sekaran & Bougie, 2003). A majority of the respondent SME managers were males (68%), with a bachelor's degree (55.2%), and age 26–30 years (22.4%). The SMEs included in the sample were 75% small and of age groups 1–3 years (21.2%), 4–7 years (23%), and more than 12 years old (29 %).

4.2 Measurements

Measures of the constructs of the proposed research model were derived from the literature and modified to suit the nature of the study. To ensure these measures are valid for measuring the constructs, the questionnaire wording was, first, reviewed by two of our colleagues. Then, an initial survey was piloted to 15 SME managers in Riyadh city. Based on their comments and feedback, some of the questionnaire questions were edited and revised.

The survey constructs were measured using multiple items. All of the questionnaire questions were related to SME business activities and situations since the outbreak of COVID-19 in Saudi Arabia (March 2020).

4.3.1 Dependent variables

Our dependent variables are SME performance and business survival. SME performance was measured using a subjective scale adapted from Bouchikhi (1993), O'Farrell (1986), and Miller et al. (1988). The components of the scale include items related to enterprise sales, profit, assets, capital, production, and market share. These items were measured using a five-point Likert scale (1–largely decreased, 2–decreased, 3–no change, 4–increased, and 5–largely increased).

Business survival was measured using two set indicators (financial indicator and strategy) derived from Barbosa (2016). The financial indicator included five items used to measure an enterprise's cash availability, debt magnitude, reserved cash, accounts receivable turnover, and technology usage. The strategy indicator comprised five items used to measure the nature of the enterprise's products, market geographical area, and market segment, ability to estimate sales, and risk tolerance. All of the items were measured using a five-point Likert scale (ranging from 5–strongly agree to 1–strongly disagree).

4.3.2 Independent variables

Innovation practices are presented as the main independent variable in the research model. It is comprised of five sub-constructs adapted from Crossan and Apaydin (2010). Innovation practices usually pertain to new actions and innovation that encourage enterprise internal environmental features (Aragón-Correa, García-Morales, & Cordón-Pozo, 2007). The measures of enterprise innovation practices were made up of several indicators related to enterprise internal settings that operated individually or simultaneously. The five indicators of SME innovation practices embrace “external knowledge,” “structure,” “leadership,” “regeneration,” and “employee's activities.” All of the items were measured using a five-point Likert-scale (ranging from 5–strongly agree to 1–strongly disagree).

External knowledge is indicated by knowledge and information obtained as a result of existing within social business-related networks in addition to other types of knowledge required to develop enterprise innovation capabilities (Crossan & Apaydin, 2010). External knowledge (six items) were derived from a scale developed by Jarrar et al. (2007), Smith, Busi, Ball, and Van der Meer (2008), and Saunila, Ukko, and Rantanen (2014).

The structures are related to the required system, work organization, and task arrangement to ensure the success of innovation implementation (Martínez-Román, Gamero, & Tamayo, 2011; Smith et al., 2008). The structures construct is divided into sub-constructs in relation to business expenses and production. The six items for expenses and the six items for production sub-constructs were developed from Adams, Bessant, and Phelps (2006).

The leadership construct was concerned with the support and the encouragement that an enterprise managerial leadership devotes to innovation (Saunila et al., 2014; Smith et al., 2008). The leadership (seven items) scale was modified from Adams et al. (2006).

Regeneration concerns the extent to which the enterprise is able to learn lessons from the past and benefit from previous experiences in developing current innovations (Saunila et al., 2014; Smith et al., 2008). The regeneration (five items) scale was derived from Crossan and Apaydin (2010).

The employees' activities construct indicates the innovation capabilities of the employees and their enthusiasm and motivation to come up with successful, innovative ideas in different enterprise-related fields (Saunila et al., 2014; Smith et al., 2008). The employees' activities (five items) scale was derived from Crossan and Apaydin (2010).

4.3.3 Moderating variable

External support was inserted into the theoretical model as a moderator in the relationship between innovation practices and SMEs' performance and innovation practices and business survival. The hypothetical task of external support in this case is to assist the innovative efforts of SMEs, exerted since the COVID-19 pandemic crisis, to reflect positively on its performance and survival. External support was measured through a seven-item scale obtained from official websites of government agencies and NGOs websites. These measures concern the types of support that provided to SMEs during the crisis period. All items were measured using a five-point Likert-scale (ranging from 5 – strongly agree to 1 – strongly disagree).

Data Analysis And Results

4.1 Data analysis

The research hypotheses were tested through the partial least squares structural equation modeling (PLS-SEM) using SmartPLS 3.2.9 software (Ringle, Wende, & Will, 2005). PLS-SEM is efficient in measuring the strength of structural and complex relationships between model constructs, determining the interaction effect of moderating variables and examining the theoretical soundness of relationships between variables (Chin, Marcolin, & Newsted, 2003). Initially, SmartPLS was used to estimate the measurement model-for-model constructs, and then it was exploited to test hypothetical connections between the latent variables shown in the structural model (Joseph F Hair Jr, Hult, Ringle, & Sarstedt, 2016).

4.2 Measurement model

The measurement model was tested for reflective and latent variables to ensure the validity of the models constructs. Constructs validity was evaluated using factor loadings, composite reliability (CR), average variance extracted (AVE), and discriminant validity (Joseph F Hair Jr & Lukas, 2014). Items of indicators' loadings, and constructs CR, and AVE are shown in Table 1. Most items exhibited a loading greater than 0.60 (Bagozzi & Yi, 1988) except for item structure (expenses) item STREX5, external support items EXS1, EXS2, and survival construct item SurvStr1. Eight items (EK1, EK2, EK4, REGEN1, STREX4, STREX5, STREX6, SurFin6) from different constructs with loadings less than 0.50 were deleted to improve constructs reliability. Results in the Table indicates CR values exceeds the criterion (0.70) as suggested by Joe F Hair Jr, Sarstedt, Hopkins, and Kuppelwieser (2014), ranging between 0.932 and 0.793. Regarding the AVE, results showed all constructs scored values above the threshold of 0.50 (Joe F Hair Jr et al., 2014). The Discriminant validity is confirmed since values depicted in Table 2 indicate that square of the variable correlations with other factors are less than the square root of its AVE (Fornell & Larcker, 1981).

Table 1

Internal Consistency, Convergent Validity, composite reliability and AVE

Construct	Items	Loadings	CR	AVE	Construct	Items	Loadings	CR	AVE
External Knowledge	EK3	0.700	0.800	0.572	Regeneration	REGEN2	0.679	0.800	0.504
	EK5	0.821				REGEN3	0.560		
	EK6	0.743				REGEN4	0.817		
Employees' Activities	EMA1	0.806	0.932	0.732		REGEN5	0.758		
	EMA2	0.896				External Support	EXS1		
	EMA3	0.914			EXS2		0.515		
	EMA4	0.855			EXS3		0.616		
	EMA5	0.802			EXS4		0.546		
Leadership	LEAD1	0.624	0.897	0.557	EXS5		0.926		
	LEAD2	0.775			EXS6	0.879			
	LEAD3	0.782			Business Performance	FINPER1	0.763	0.915	0.645
	LEAD4	0.812				FINPER2	0.686		
	LEAD5	0.792				FINPER3	0.824		
	LEAD6	0.732				FINPER4	0.866		
	LEAD7	0.690				FINPER5	0.789		
Expenses	STREX1	0.811	0.805	0.518	Financial Indicators	SurvFin1	0.704	0.840	0.516
	STREX2	0.808				SurvFin2	0.849		
	STREX3	0.746				SurvFin3	0.571		
	STREX5	0.453				SurvFin4	0.782		
Production	STRP1	0.782	0.840			SurvFin5	0.653		
	STRP2	0.805			Strategy	SurvStr1	0.516	0.793	0.571
	STRP3	0.728				SurvStr5	0.846		
	STRP4	0.644				SurvStr6	0.856		
	STRP5	0.610							
	STRP6	0.782							

Table 2

Discriminant Validity (Fornell and Larcker, criterion)

	BP	PS	EA	EX	EK	ES	FI	Lead	Pro	Reg.	Stra.	Struc.
Business Performance	0.803											
Business Survival	0.536	0.525										
Employees' Activities	0.401	0.318	0.856									
Expenses	-0.150	-0.088	-0.065	0.720								
External Knowledge	0.105	0.032	0.264	0.161	0.756							
External Support	0.121	0.145	0.127	0.136	0.213	0.726						
Financial Indicators	0.462	0.916	0.182	-0.099	-0.107	0.092	0.719					
Leadership	0.359	0.415	0.479	-0.060	0.300	0.168	0.228	0.747				
Production	-0.166	-0.141	-0.057	0.496	0.234	0.220	-0.167	-0.050	0.718			
Regeneration	0.219	0.235	0.437	-0.016	0.310	0.078	0.121	0.509	0.045	0.710		
Strategy	0.413	0.712	0.337	-0.064	0.243	0.180	0.394	0.511	-0.033	0.298	0.756	
Structures	-0.154	-0.113	-0.049	0.792	0.263	0.238	-0.135	-0.049	0.912	0.025	-0.032	0.563

- Values in the diagonal indicate the square root of latent variable AVE, represent the highest value in each column.

4.3 Structural model

Once constructs validity and reliability was assured through the measurement model testing, the next step is to examine the hypothetical relationships between the structural model latent variables using PLS-SEM. structural model's Path coefficients of determination (R^2) and model goodness of fit (GoF) (Memon & Rahman, 2014). Then, the interaction effect was determined as a part of moderation analysis. Prior to the structural model analysis, the collinearity between constructs was reviewed using variance inflation factors (VIF). Table 3 illustrated that all independent variables have VIF value less than benchmark 5 (Joseph F Hair Jr et al., 2016).

Table 3

VIF values for Inner Model

Construct	Business Performance	Business Survival	Innovation Practices	Structures
Employees' Activities			1.411	
Expenses				1.326
External Knowledge			1.260	
External Support	1.029	1.042		
Financial Indicators		1.187		
Innovation Practices	1.029	1.373		
Leadership			1.556	
Production				1.326
Regeneration			1.483	
Strategy		1.533		
Structures		1.102		

Structural model examination results in Table 4 present the exogenous latent variables coefficient of determination (R^2). R^2 indicates the degree to which exogenous latent variables explain the variation in the endogenous variables (Joe F Hair Jr et al., 2014). Falk and Miller (1992) suggested that R^2 value for endogenous variable should not be lower than 0.10. While Chin (1998) classified R^2 values into substantial explanation (value = 0.67), moderate explanation (value = 0.33), and weak explanation (value = 0.19). Accordingly, the endogenous variables business survival and innovation practices have achieved sufficient variance explained values. Whereas, endogenous variable business performance has scored moderate explanation. Therefore, we can conclude that our proposed structural model has sufficient predictive power.

Table 4

Variance Explained

Construct	R Square	R Square Adjusted
Business Performance	0.222	0.216
Business Survival	1.517	1.525
Innovation Practices	1.166	1.169

In addition, general Goodness-of-fit (GoF) was estimated by calculating the square root of product of inner construct average R^2 and outer constructs average AVE (Fornell & Larcker, 1981). Wetzels, Odekerken-Schröder, and Van Oppen (2009), suggested that, fitness of structural model is considered sufficient if $GoF \geq 0.36$. Value of GoF estimated for the research structural model is 0.59, showing that it had satisfactory fit.

4.4 Hypotheses Testing

4.1.1 Bootstrapping Results

SEM-PLS bootstrapping was used to evaluate the hypothesized relationship among research structural model constructs. The analysis results in Table 5 and Fig. 2 demonstrate path coefficients, significance levels, and t-value. Results indicate that hypothesis (H1) is confirmed, and SMEs innovation practices have significance positive influence on business performance (STD beta = 0.45; t = 8.432; p = 0.00). Similarly, hypothesis (H2), which is concern with strength of the link between SMEs innovation practices and business survival is supported (STD beta = 0.054; t = 3.782; p = 0.00).

Table 5

Hypothesis Testing Results

Hypothesis	Relationships	Std. Beta	Std. Error	t- value	5% LL	95% UL	Decision
H1	Innovation Practices -> Business Performance	0.45	0.053	8.432**	0.354	0.531	Supported
H2	Innovation Practices -> Business Survival	0.054	0.015	3.782**	0.031	0.078	Supported
** P < 0. 01							

4.4.2 Moderating Effect

For analyzing the moderating effects, the variable 'external support' was added to the original structural model as proposed assistant for strengthening the relationship between the independent variable (innovation practices) and the dependent variables (business performance and business survival) (in Fig. 2). PLS-SEM bootstrapping was utilized to examine such moderation relationships. Hypothesis H3 denoted that 'external support' has a moderating effect in the relationship between 'innovation practices' and 'business performance'. Statistical results in Table 6 demonstrates that the moderator variable 'external support' has no significant effect in the relationship between 'innovation practices' and 'business performance', wherefore hypothesis H3 is rejected (beta= -0.081; t = 1.029; p > 0.10). Hypothesis H4 concerned with the strengthening impact of 'external support' in the relationship between 'innovations practices' and 'business survival'. Results exhibited that 'external support' has a significant moderation effect in the relationship between 'innovation practices' and 'business survival', the t-value was found to be 1.698 which is greater than the threshold 1.96, p < 0.10. Therefore, hypothesis H4 was accepted on statistical basis.

Table 6

Moderating Effects

Hypothesis	Relation	STD Beta	(STDEV)	t- value	P Values	5.00%	95.00%	Decision
H3	Innov.P-P -> Business Performance	-0.081	0.082	1.029	0.304	-0.201	0.084	Not Supported
H4	Innov.P-Sur -> Business Survival	-0.016	0.013	1.698**	0.09	-0.036	0.008	Supported
** P < 0. 10								

Discussion Of Results

The main purpose of this study is to highlight the importance of "external support" in strengthening the relationship between SMEs' innovation practices and their business performance and survival in periods of health and economic crises, such as the COVID-19 epidemic crisis. Previous studies have exposed a significant and positive relationship between innovation and the performance of enterprises (Rosenbusch et al., 2011; Verhees & Meulenberg, 2004) and enterprise business survival (Bruns & Stalker, 1961; Hurley & Hult, 1998; Porter, 1990; Joseph A Schumpeter & Redvers, 1934). Additionally, the literature illustrated the importance of external support for enterprise performance (Matlay et al., 2005; Wiklund & Shepherd, 2011) and the survival of SMEs (Brush & Vanderwerf, 1992; Dollinger, 1985; Kent, 1994; J. D. Storey, 2002). Nevertheless, the role of external support in encouraging the relationship between innovation practices and SMEs' performance and survival was left unexplored.

The results of the present study confirmed that the innovation practices of SMEs have a significant and positive impact on business performance and the likelihood of their survival. These results indicate that the new management practices (in the field of external knowledge, structures and leadership, regeneration, or employee activities), which have been implemented in SMEs after the outbreak of the COVID-19 pandemic, may result in improvement in the performance and survival of these enterprises. These results partially agreed with Lin and Chen (2007) in regard to the importance of innovation management practices for SME performance. Moreover, the results of the current study are also consistent with the findings of previous research (Bruns & Stalker, 1961; Hurley & Hult, 1998; Porter, 1990; Joseph A Schumpeter & Redvers, 1934), which states that innovation renews the enterprise activities and strengthens their ability to face crises (Aldrich, 1979; Hannan & Freeman, 1977; Kanter & Brinkerhoff, 1981).

In regard to the study findings, the impact of innovation practices on the performance of SMEs (0.45) outweighs their impact on enterprise survival (0.054). This indicates that managerial innovation practices have a greater impact on an enterprise's short-term compared to long-term performance. These findings agreed with Freeman (2004), who pointed out that enterprise performance is an outcome of innovation.

The results also indicated that external support provided to SMEs has a significance role in tempering the relationship between innovation practices and enterprise survival. These results indicate that a moderating role of external support is mainly limited to the relationship between innovation practices and enterprise survival, rather than the enterprise short-term performance. The external support provided to SMEs during the COVID-19 pandemic, whether in the form of training, consultancy, or finance, supports the continuity and survival of these enterprises. The findings partially support the findings of previous studies (Covin & Slevin, 1989; Li & Atuahene-Gima, 2001; Rosenbusch et al., 2011) that noted the interaction effect of a moderator from an external environment on enhancing business performance. The present study results signify a vital role of external support in strengthening the association between innovation practices undertaken by SMEs during the COVID-19 pandemic crisis and the survival of these enterprises. At the same time, these results denote that this role is less imperative when addressing the relationship between innovation practices and the performance of these enterprises in the short term.

5.2. Implications for practice

This study added to the literature by arguing that in times of crisis, external support can help obtain more positive results for innovation practices on the performance and survival of SMEs. Crises usually weaken the performance of these enterprises and their ability to survive (Michael & Robbins, 1998; Robbins & Pearce II, 1993), and in this case, external support can push innovation efforts. Crises usually affect an enterprise's sales, production capabilities, and financial position. Therefore, the present study proposes that SMEs develop new practices and ideas to obtain knowledge and information from external parties, build effective structures for production and expenditures, follow motivational leadership, and implement effective employee activities to ensure good business performance and protect the life of the enterprise.

Additionally, this study provided empirical evidence of the importance of external support (whether governmental or nongovernmental) for the survival of SMEs in times of crisis. This study also provides important implications for policy makers by proposing focusing the development of policies that encourage the provision of support in business areas and from multiple parties to ensure SMEs survival and continuity, especially in times of crisis, such as the COVID-19 epidemic.

5.3 Conclusions

The current research proposes a theoretical model for studying the moderating effect of external support, provided during the COVID-19 epidemic crisis, in strengthening the link between innovation practices and the performance and survival of SMEs using the PLS-SEM algorithm. The study based on four basic hypotheses in relation to the association between these variables. The main findings of the study suggest that the innovation practices of SMEs have a significant impact on the performance and survival of SMEs. Additionally, the study results confirmed the significant and moderating role of external support provided to SMEs during the COVID-19 epidemic crisis and the survival of the business. Results of the study showed that the policies adopted by the Saudi's government to reduce the repercussions of the COVID-19 epidemic crisis on SMEs, which represented numerous financial support packages and encouraging the support of nongovernmental organizations, expected to contribute to the resilience of these enterprises in facing such a crisis.

Although the current study has achieved findings that have significant implications for SME managers and policy makers, it has some limitations. Because of the wide range of innovation practices, the study focused only on administrative innovation practices and excluded other fields, such as technological innovations. Another limitation of this study is the measurement of the performance of SMEs using financial indicators and ignoring other indicators, such as marketing, administrative, social, and psychological elements.

Future research will be more helpful if it covers the shortcomings of the current study. To obtain comprehensive and in-depth insight into the nature of the relationship between SMEs' innovation practices, external support, and the business performance and survival, all indicators for measuring enterprise performance should be considered, and the types of innovation must be addressed.

Declarations

Acknowledgements

This research was funded by the Deanship of Scientific Research, at Princess Nourah bint Abdulrahman University (Saudi Arabia), through the Fast-track Research Funding Program.

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Figures

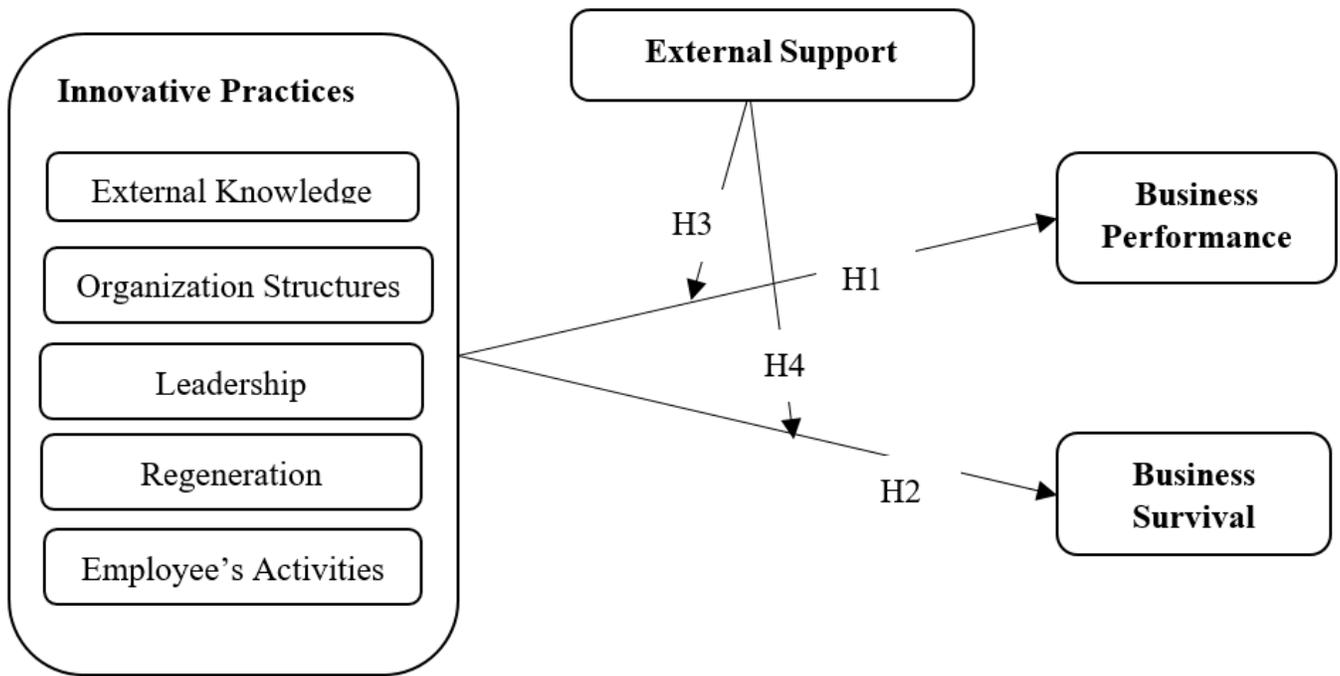


Figure 1

The Conceptual Research Model

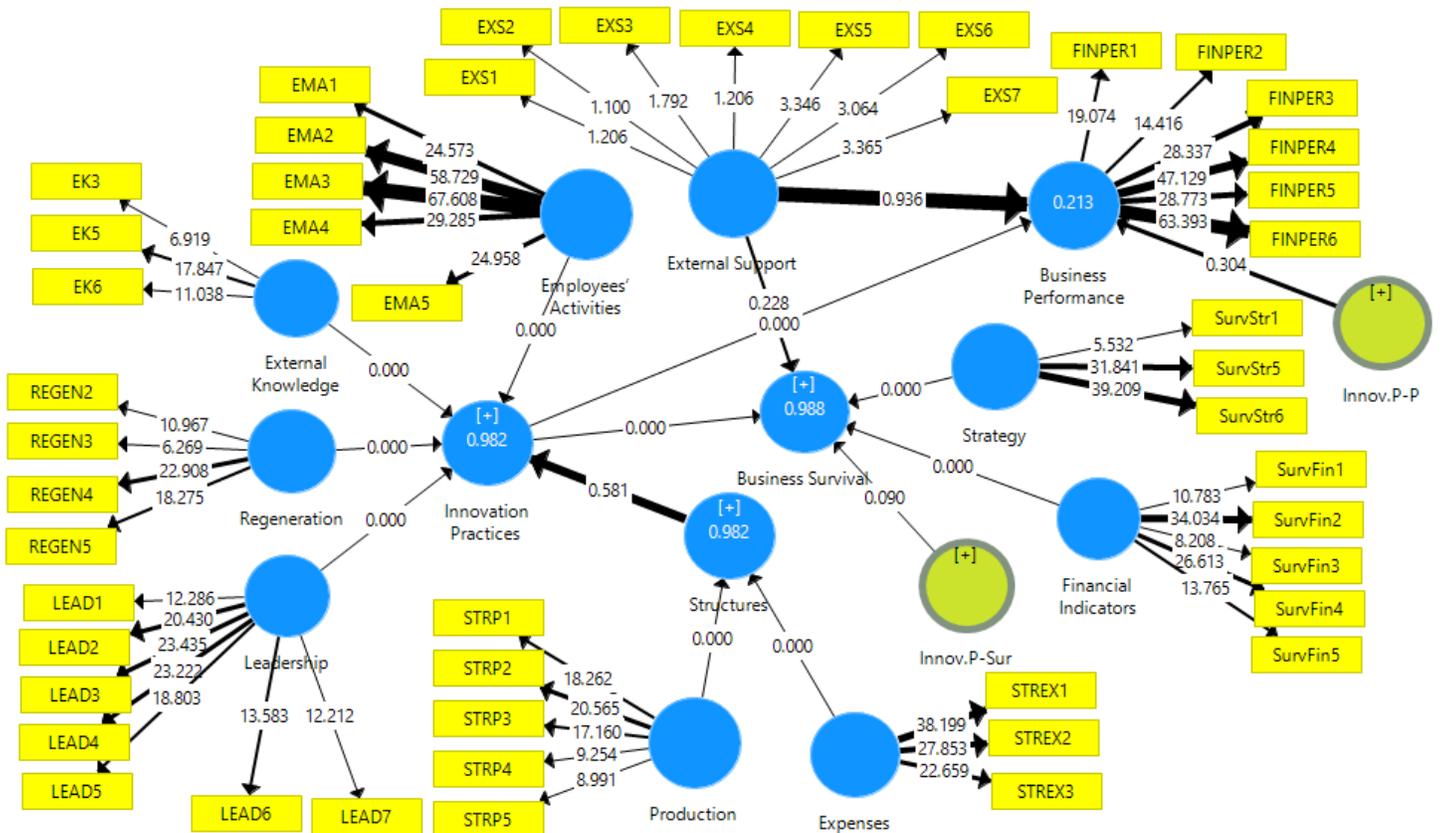


Figure 2

PLS-SEM Model with Moderating Effect