

# A qualitative exploration of factors driving sustainable innovation in small-and medium-sized enterprises in Jordan

Factors  
driving  
sustainable  
innovation

Saad Zighan and Tala Abuhussein

*Department of Business Administration, University of Petra, Amman, Jordan*

Zu'bi Al-Zu'bi

*Business School, The University of Sydney, Sydney, Australia, and*

Nidal Yousef Dwaikat

*Department of Industrial Engineering, Al-Najah National University, Nablus, Palestine*

Received 10 November 2022  
Revised 5 January 2023  
Accepted 7 February 2023

## Abstract

**Purpose** – Business excellence relies heavily upon sustainable innovation. Still, sustainable innovation is an emerging concept in business practices and has yet to reach a common perception among small- and medium-sized enterprises (SMEs). This study aims to address sustainable innovation in SMEs and the factors driving sustainable innovation development.

**Design/methodology/approach** – An exploratory study was conducted to gain insight into the emerging concept of sustainable innovation in the SMEs' context. Empirical evidence was collected from five case studies. Twenty-five interviews were conducted.

**Findings** – This study findings show that SMEs have different ways of understanding sustainable innovation, resulting in different approaches to integrate sustainable innovation into their business. In SMEs, sustainable innovation may not be a fixed concept due to its ambiguous boundaries and various ways of understanding. External and internal factors are driving SMEs' sustainable innovation. It depends mainly on organizational culture and the capabilities of SMEs and their members in terms of cooperation and integration in work teams, conditions to achieve consensus, articulation of activities, coherence and commitment to the firms' objectives. These factors collide and enhance each other and positively impact SMEs' sustainable innovation.

**Originality/value** – The scientific relevance of this study lies in the integration of sustainable innovation research in the context of SMEs. There has been limited exploration of how SMEs perceive and engage in sustainable innovation and the factors that drive sustainable innovation development outside of large firms. This study empirically explored the concept of sustainable innovation in the context of SMEs to understand underlying factors related to sustainable innovation.

**Keywords** Business excellence, Sustainable innovation, SMEs, Jordan

**Paper type** Research paper

## 1. Introduction

Economic value used to be the dominant factor in decision-making, yet in recent years, sustainable innovation has gained more attention and attributed value driven by great



The authors would like to acknowledge the University of Petra and the scientific research and graduate study department for their constant support to research initiatives.

concern for economic, social and environmental elements (Nasiri *et al.*, 2021). Sustainable innovation primarily focusses on innovation in products, processes and management practices, intending to attain competitive advantages in an environmentally friendly way (Mousavi and Bossink, 2017). The increased awareness of, and interest in, sustainable innovation has changed how companies operate (Dana *et al.*, 2021b). Several forces have resulted in a surge in interest in sustainable innovation. First, in today's highly competitive environment, business innovation has become the workhorse of organizations (Dana *et al.*, 2021a). Second, dynamic changes, globalization, fierce competition, digitalization, disruptions, distractions and a wide variety of customer needs are critical challenges for organizational change and development (Goffin and Mitchell, 2016; Marotta *et al.*, 2017). Third, the incredible growth of emerging economies as attractive manufacturing centres has also prioritized the search for sustainable practices (Royer and Bradley, 2019). Finally, organizations are forced to continuously innovate, changing how they think about products, processes and business models (Tullio and Tarquinio, 2021). An increasingly important way for companies to address these challenges is through sustainable innovation (Georgiou *et al.*, 2020).

Today, sustainable innovation should be fully integrated into the corporate culture as part of the company's strategy and operating system (Charoensukmongkol, 2020). Today, SMEs must innovate by reforming their business models, creating new products or services, interpreting the market, marketing and selling (Perretti, 2020). In addition, SMEs must re-innovate production activities to provide unique value and excellence in customer service (Zighan, 2020). While sustainable innovation should be embedded in SMEs' operations systems to help them succeed in the current dynamic market (Widya-Hasuti *et al.*, 2018), sustainable innovation is a relatively new concept (Schaltegger *et al.*, 2012; Verbong *et al.*, 2019).

Despite a growing body of research on sustainable innovation, little emphasis has been placed on understanding the underlying factors driving sustainable innovation within SMEs (Abbas *et al.*, 2020; Weidner *et al.*, 2020). Nasiri *et al.* (2021) argue that an in-depth understanding of sustainable development in SMEs requires knowledge about factors driving sustainable innovation. Therefore, this research aimed to explore empirically and gain more profound knowledge about sustainable innovation in SMEs and understand underlying factors related to sustainable innovation within the SMEs context. The study sought to answer the question:

*Q1.* What factors drive sustainable innovation in SMEs?

Investigating this question contributes to the research stream and fills the known literature gap about the emerging concept of sustainable innovation, particularly in the context of SMEs and Jordan.

## **2. Innovation**

During the past decade, academia and practitioners have expanded their knowledge about innovation to understand how advanced technologies enable more innovative ideas. Innovation is the process of doing something new or traditional under a new protocol or strategy (Maklan *et al.*, 2008; Zighan and Ahmed, 2020). Innovation significantly impacts economic growth (Gërguri-Rashiti *et al.*, 2017), as well as an organization's long-term success (Ramadani *et al.*, 2019). However, in applying the innovation concept to business, it is important not to lose sight of the dimension of improvement. Business innovation is not only doing something different or differently but doing something much better (Mazzucato *et al.*, 2020). Therefore, business innovation entails continuously developing new products or

improving existing technologies, processes, designs and marketing to solve problems that may arise during growth and reach new customers (Dana *et al.*, 2021a; Thrane *et al.*, 2010). Rexhepi *et al.* (2019) argued that innovation uses knowledge to build a new path, leading to a particular goal. Each innovation process matches a specific case and will likely not address other challenges (Zighan, 2021). Therefore, it is not easy to define an exact innovation method. According to Geissdoerfer *et al.* (2016), teams, ideas, implementation and value propositions are the primary elements to consider in business innovation processes; they mark the success or failure of the business innovation process. Biju *et al.* (2017) argued that it is impossible to develop business innovation efficiently without a good team willing to implement appropriate changes. Bruns (2013) emphasized the role of collaboration, arguing that the collaborative process encompasses more than working together to think together and acting in a synchronized way.

However, regardless of the different business innovation methods today, the continuing changes in the business environment, such as digital transformation, imply that innovation is becoming the key focus of many types and sizes of business organizations.

### *2.1 Business innovation methods*

Depending on the type of business and its available capabilities, there are different categories of business innovation (Herrera, 2016). However, according to Reichstein and Salter (2006), the most frequent categories are as follows:

- Incremental innovation to gradually increase the value of existing products and services based on small improvements.
- Process innovation to refine manufacturing and delivering processes to enhance organizational productivity, efficiency, effectiveness, capabilities or product quality.
- Service innovation enhances the customer journey and experience by improving customer relationships, the channel of interaction and after-sales services.
- Business model innovation to reinvent the value-creation model and value proposition.
- Resources innovation to do more with less by developing minimalist techniques and trends to take advantage of resources and create new products or services without significant capital investment.

These different types of business innovation are applicable depending on the business sector. A company does not have to implement all types of business innovation simultaneously but will seek commercial excellence through innovation (Bucherer *et al.*, 2012). Ramadani *et al.* (2017a, 2017b, 2017c) found that innovative activities significantly affect organizational performance. According to Berisha *et al.* (2020), some of the effects resulting from innovation include positive behaviour and performance by employees. Gërguri-Rashiti *et al.* (2017) argued that high employee performance in the USA is attributable to better innovation activities. Recently, the terms “innovation” and “sustainability” have been integrated to create the concept of sustainable innovation (Nasiri *et al.*, 2021). This sustainable innovation that creates environmentally friendly products, services and processes should be integrated into an organization’s innovation system, from idea generation to development and commercialization (Geissdoerfer *et al.*, 2016).

### *2.2 The concept of sustainable innovation*

Sustainable innovation involves environmental, social and financial factors (Mousavi and Bossink, 2017). It is a twofold process. First, innovation is an ongoing, long-term process

---

within the organization. It aims to eliminate the harmful impacts of a dynamic environment (Adams *et al.*, 2016). Bossink (2013) defined sustainable innovation as the development of new initiatives at the firm “to sustain, improve and renew the environmental, social and societal quality of its business processes and the products and services these business processes produce”. Sustainable innovation is a continuous process. Abbas *et al.* (2020) argued that sustainable innovation is “the continuous process of perceiving, exploring and learning, which enables enterprises and business organizations to innovate new procedures in business organizations, and new markets and improved products and services.

Boons *et al.* (2013) asserted that sustainable innovation differs from traditional innovation in purpose and direction. Sustainable innovation requires integrated thinking and incorporates a broader range of considerations in the innovation processes, including social and environmental concerns. Traditional innovation emphasizes only the financial perspective (Ketata *et al.*, 2015). Recently, companies have begun to treat sustainability as a frontier for innovation. Indeed, more organizations now focus on sustainability, which forces them to reconsider products, technological processes and business models (Ayuso *et al.*, 2011). Thus, adopting sustainable innovation is accelerating within firms (Kilkaş, 2018). Sustainable innovation can occur at the product level through the design of sustainable products and services, at the production level by making value chains more sustainable, or at the organizational level by creating new forms of management or structures or by developing new business models (Rosca *et al.*, 2017). As a result, sustainable innovation is emerging as a significant force for change in business and society, owing to its potential to transform technology, markets and products (Le Bas, 2016).

Traditionally, innovation has been a short-term process; sustainable innovation emphasizes continuous long-term innovation (Rauter *et al.*, 2017). Earlier studies have focussed primarily on opportunities that sustainable innovation can bring, including cost reduction, new market opportunities, enhanced brand reputation and competitive advantage (Ketata *et al.*, 2015; Nidumolu *et al.*, 2009). However, sustainable innovation may not result in immediate financial benefits. Instead, its payoffs are often related to a firm’s long-term objectives. In addition, sustainable innovation may be more expensive than conventional innovation because it often requires investment in different technologies, exceeding a company’s existing technological capabilities (Ketata *et al.*, 2015). Consequently, companies may fear that sustainable innovation leads to market failure or cannibalization of existing products (Geels *et al.*, 2008). The research on sustainable innovation has expanded rapidly during the past decade, increasing our understanding (Geissdoerfer *et al.*, 2016); nevertheless, there is still no conceptual consensus regarding sustainable innovation (Adams *et al.*, 2016; Boons and Lüdeke-Freund, 2013; Schiederig *et al.*, 2012).

A myriad of terms has been used interchangeably and synonymously with the term sustainable innovation: eco-innovation, eco-friendly innovation, environmental innovation, environmentally sustainable innovation, green innovation, sustainability-driven innovation, sustainability-enhancing innovation, sustainability-focused innovation and sustainability-oriented innovation (SOI; Adams *et al.*, 2016; Arnold and Hockerts, 2011; Carrillo-Hermosilla *et al.*, 2010; Hansen *et al.*, 2009). Furthermore, it has been argued that sustainable innovation goes beyond eco-innovation, environmental innovation or green innovation, as it incorporates a social dimension (Boons *et al.*, 2013; Schiederig *et al.*, 2012). Furthermore, Ketata *et al.* (2015) argued that sustainable innovation is a broad and multidimensional concept linked to sustainability’s holistic and long-term objectives. However, there remains a dearth of empirical studies addressing sustainable innovation in the context of SMEs and the factors influencing sustainable innovation development (Veronica *et al.*, 2020).

---

### 2.3 Importance of sustainable innovation to small- and medium-sized enterprises

SMEs must innovate to stay competitive and succeed in changing markets and environments (Rexhepi *et al.*, 2019). As sustainable innovation becomes increasingly important for businesses (Paramanathan *et al.*, 2004; Roome, 1994; Sharma, 2002; Wagner and Schaltegger, 2003), its triple bottom line may be most important. To create effective long-term sustainable solutions, economic, ecological and social factors must all be addressed. Therefore, SOI strives to improve or create new product concepts based on economic, ecological and social objectives (Hansen *et al.*, 2009).

SMEs are more oriented towards innovation (Toska *et al.*, 2021); according to Ejupi-Ibrahimi *et al.* (2020), there are two major reasons why sustainable innovation is important to SMEs. The first reason is strongly related to increasing pressure for environmental regulation from stakeholders to address their sustainability-related concerns. As consumer and regulatory pressure mounts, businesses are progressively compelled to operate more sustainably (Werbach, 2009). In support of Werbach (2009), Klewitz and Hansen (2011) argued that SMEs' sustainable innovation occurs due to external pressure and consumer demand and is frequently focused on new product development, market possibilities or competition. In SMEs, sustainable innovation may include, for example, switching to more environmentally friendly raw materials and using more sustainable business methods that meet, if not exceed, consumer and regulatory criteria (Klewitz and Hansen, 2011).

SMEs can adapt rapidly to market demand and provide a greater range of products in line with market trends, such as ecological alternatives because they are smaller and nimbler. Larger firms benefit from economies of scale (Martin-Tapia *et al.*, 2010) find this adaptation more difficult. The second major reason sustainable innovation is important to SMEs is that sustainable innovation helps generate competitive advantage through more cost-efficient production, business relationships and access to resources.

Acknowledging that sustainable innovation is complex and requires resources, much of the existing research has more often addressed large companies that command more resources in terms of time, money and personnel. Endowed with fewer resources, SMEs have been said to be limited to adopting a more reactive approach towards sustainable innovation. Most existing literature on sustainability and innovation focusses on large, mature, global corporations, with few studies on sustainable innovation in SMEs (Bos-Brouwers, 2010; Klewitz and Hansen, 2014; Ukko *et al.*, 2019). Schaltegger and Wagner (2011) argue that sustainable entrepreneurs treat environmental issues as their primary business, as there is a significant correlation between financial success and environmental performance.

The present body of knowledge on sustainable innovation in SMEs is dispersed throughout many studies based on qualitative interviews, case studies and larger quantitative surveys. Few prior studies have focused on pooling sustainable innovation expertise in SMEs. In Jordan, several older literature reviews (e.g. Del Brio and Junquera, 2003) cover many investigations. However, only a few recent reviews (Tranfield *et al.*, 2003) have focused on barriers and drivers for SOI in SMEs (Walker and Devine-Wright, 2008), as well as on policy interventions that facilitate SOI in SMEs (Parker *et al.*, 2009). While these systematic studies provide a clear picture of the antecedents of SOI in SMEs, they are less useful in demonstrating actual SOI practices or suitable solutions to support SMEs. Thus, the present study aimed to present findings regarding the underlying factors driving sustainable innovation in SMEs.

### 3. Research design

An exploratory study was conducted to gain insight into the emerging concept of sustainable innovation in the SME context. This exploratory study approach is considered

---

to be an acceptable investigatory method (Tellis, 1997). It helps generate an in-depth understanding based on comprehensive data regarding the research topic (Toska *et al.*, 2021). As the aim was to understand sustainable innovation and the underlying factors driving sustainable innovation at the firm level, a case study methodology was considered appropriate for this research. According to Ejupi-Ibrahimi *et al.* (2020), the qualitative research method offers researchers the opportunity to analyse additional facets of the topic and provides greater depth of explanation than the quantitative method. Ramadani *et al.* (2017a, 2017b, 2017c) maintain that the qualitative method enables learning via direct engagement with the study topic, helping researchers avoid mistakes such as asking improper questions or addressing an erroneous issue.

Qualitative case studies are encouraged in exploratory research for their considerable ability to generate answers to “why”, “how” and “what” questions (Yin *et al.*, 2009). Five cases were selected representing the construction, telecommunications, IT, fashion and furniture industries. These choices were based on prior knowledge that the companies would be willing to participate in the study and provide information that would benefit the study’s aims.

Following Gammelgaard’s (2017) guidelines, the data collected included interviews and written sources, such as company documents and reports on sustainable innovation. In this way, rich information was gathered with which it was possible to capture the concept of sustainable innovation better and identify the underlying factors that encourage its development. Empirical data were collected primarily through semi-structured interviews with managers within the selected case study firms. A total of 25 interviews were conducted. A convenience sampling technique (Emerson, 2015) was adopted. The study respondents were general managers, operations managers, marketing managers, R&D managers and supply chain managers. The interview lasted approximately 45 minutes. The demographics of the participants can be seen in Table 1.

The interview questions addressed two primary topics: the meaning of sustainable innovation in the context of SMEs and the factors underlying drives towards sustainable innovation in SMEs. The primary data collected through interviews were recorded and transcribed, allowing accurate quotes to be collected and compared data between respondents in the data analysis. Transcripts were read thoroughly to understand how each firm engaged in sustainable innovation. After the transcripts were produced, the key points emerging from the interviews were summarised. The summaries allowed the researchers to grasp the overall meaning and significance of the data provided and to become more familiar with the principal themes of the interviews. These themes were grouped and structured (Braun and Clarke, 2006).

## 4. Findings

### 4.1 *Concept of sustainable innovation in small- and medium-sized enterprises*

Compared to innovation in general, sustainable innovation is different. By integrating sustainability into the innovation concept, SMEs can create products, services and processes that are good for the organization and society. Most respondents claimed that sustainable innovation was a new area of interest and that their companies were transitioning, learning more effective ways of engaging in this field. For instance, a General Manager said, “sustainable innovation is more disruptive because it can result in different business models, processes and create new market segments”. An Operations Manager argued that “sustainable innovation is challenging and requires support and commitment from all organizational levels”. A Marketing Manager added, “sustainable innovation is costly and requires support from the market and society”.

Job roles of interviewees	No. of interviews	Company size (no. of employees)				Construction	Telecommunications	IT	Fashion	Furniture
		Less than 50	Medium	50–250	More than 250					
General managers	5	2	3		x	x	x	x	x	
Operations managers	5	2	3		x	x	x	x	x	
Marketing managers	5	2	3		x	x	x	x	x	
R&D managers	5	1	4		x	x	x	x	x	
Supply chain managers	5	1	4		x	x	x	x	x	
Total interviews	25									

**Source:** Authors work

Factors driving sustainable innovation

**Table 1.** Participants demographics



All of the companies in this study indicated that sustainable innovation was linked to the corporation's sustainability strategy and set the priorities that would receive focus in the upcoming years. However, Sustainable Innovation includes two popular terms but rather unclear terms. The study found that companies interpret sustainable innovation in their own way.

For instance, a Project Manager from the construction industry defined sustainable innovation as "innovating for sustainable productivity". For IT, sustainable innovation was closely linked to a sustainable society. A General Manager stated that "every new idea with the potential to impact one of the sustainable development goals of a firm is regarded as sustainable innovation automatically".

Table 2 summarizes the different interpretations of sustainable innovation according to the industry.

Regardless of these different understandings of sustainable innovation, the three main factors, i.e. economic, social and environmental, remain the main focus of sustainability. Furthermore, the study finds that sustainable innovation plays a more significant role in the construction industry than in previous periods. Within their resource-intensive industry is the opportunity to innovate and transform industry standards to build a more sustainable future. Construction strategy consists of lifecycle construction projects intended to increase efficiency and help customers adapt to an increasingly resource-restricted world. From an industrial standpoint, sustainable innovation was associated primarily with eco-design and how companies design products and implement processes in an eco-efficient manner. For instance, A General Manager reported three primary drivers for sustainable innovation: "corporate responsibility to contribute to a better world, legal demands and legislation, and a genuine drive to work toward a better future".

In the IT industry, companies use technology solutions to address global challenges and positively impact their stakeholders, including employees, customers, shareholders and society.

In the fashion industry, sustainable innovation was reported to mean using the sustainability perspective to change the way fashion products are made and the processes behind them. A respondent stated that sustainable innovation was a tool for the company to use to reach the highest level of innovation, targeting 100% circular production where all

Industry	Interpretations of sustainable innovation
Construction	Sustainable innovation in the construction industry means the effective use of recyclable and renewable materials, reducing cost, waste and energy consumption and maintaining the project's durability
Telecommunications	Sustainable innovation in the telecommunications industry means offering more Smart products and solutions, working more efficiently, using advanced technology to reduce costs and industrial emissions and reducing energy consumption
IT	Sustainable innovation in the IT industry involves bringing into common usage of ideas, concepts, practices and products that contribute to the ecological environment, social cohesion and economic viability
Fashion	Sustainable innovation means sourcing, manufacturing and designing clothes that maximize the benefits to the organization and society through the use of recyclable materials
Furniture	In the furniture industry, sustainable innovation means the improvement of products' lifecycle, usage and recycling. It also includes the use of renewable raw materials, reduced waste and recovery

Source: Authors work

**Table 2.**  
The different interpretations of sustainable innovation



products must be designed and produced to be fully recyclable. Sustainable innovation is related primarily to materials and how a company can create new and alternative materials with credentials. A respondent explained that the need to innovate from a sustainability perspective stems from limited resources, a limitation that forces companies to change the way they operate and become more resource-independent to survive in the future. The respondent added that companies are actively engaged in sustainable innovation because “not enough is happening in the fashion industry. The company wants to change that perception by developing additional innovation projects and adding more value. However, another respondent said that innovation is a rolling target”. What is considered a sustainable choice today might change in a few decades. Thus, more sustainable innovation is needed.

Finally, in the furniture sector, sustainability has long been an integral part of a company’s business model; it has been identified as a significant driver of innovation. One respondent’s company decided to use sustainability as a base for innovation and transformation of their business and set up a team with specific tasks to drive sustainable innovation. Another respondent explained that his/her company’s sustainable innovation was strongly connected to sustainability strategy via three pillars: inspiring customers to live more sustainable lives, becoming more resource-independent and ensuring favourable business operations for people and the community. This company strived to bring the most sustainable solutions to the market. They invested in developing sustainable innovation to become a leading force in the industry and positively transform people and society. The company’s strategic focus on sustainable innovation was also stated explicitly in the company’s corporate strategy.

#### *4.2 Factors for sustainable innovation*

Data analysis identified several factors that underlie sustainable innovation in SMEs. These factors were categorized as external and internal factors.

*4.2.1 External factors for sustainable innovation.* Regulations and market demand were two widely mentioned external factors influencing sustainable innovation development.

*4.2.1.1 Regulation.* Regulation appeared to be a predominant external factor in adopting sustainable innovation in SMEs. Respondents stressed that enforcing laws and rules on social and environmental issues can increase the pressure to innovate. Higher levels of control by government regulatory bodies led to a higher probability of investment in new equipment and technology and, thus, a higher probability of successful sustainable innovation. Respondents further emphasized that perceived pressure from regulatory stakeholders boosts sustainable innovation and is instrumental in stimulating R&D policies and creating leading markets for sustainable innovation. As a firm responds to regulatory mechanisms, sustainable innovation becomes a chosen and mandatory capability. One respondent contended that small- and medium-sized companies are late to learn about new regulations because they do not have the resources to keep up with the most current rules and dare to become the prime mover.

*4.2.1.2 Market demand.* In data analysis, market demand refers to the needs of various stakeholders, including suppliers, partners, customers, competitors, consultants and non-governmental organizations. Data analysis in this study found that the impact of market demand was threefold. First, stakeholders increasingly demanded that products be produced sustainably, using eco-efficient processes, consuming less energy and resources, mitigating hazardous impacts on the environment and improving employee health and safety conditions in local communities and society. Second, stakeholders demanded more cost-effective production and efficient use of organizational resources. Finally, market

---

demand also led to additional collaboration with external stakeholders, through which companies gain knowledge and competence through joint projects, partnerships and multi-stakeholder cooperation. These collaborations serve as crucial mechanisms for fostering sustainable innovation. Hence, SMEs benefit greatly from interaction with various stakeholders, as the stakeholders and interactions can help the companies predict, understand and respond faster to rapid changes in the business environment.

The study's data analysis found that customers play an essential role, as sustainable innovation depends on consumers' willingness to buy innovative goods and services. According to one respondent, today's customers have particular needs related to improved environmental performance and process innovations that increase material efficiency and reduce energy consumption, waste and dangerous substances. Thus, responding to customer requirements serves the company's interests. Furthermore, as customers become more sensitive to sustainability issues, they may react aggressively to firms' unsustainable conduct by boycotting products or services. Conversely, customers' loyalty may increase if a company is known to conduct business sustainably.

*4.2.2 Internal factors for sustainable innovation.* While external factors are beyond organizations' control, internal factors are not. Therefore, SMEs must focus on internal factors to achieve more sustainable innovation.

*4.2.2.1 Searching for new business opportunities.* All study respondents emphasized that sustainable innovation delivers opportunities for their companies; it is a strategic direction for the future. From a broader perspective, sustainable innovation will help transform the company, leading it in a more sustainable direction when business, as usual, is not considered sustainable. The following statements, or similar ones, were made by respondents from each company, emphasizing the relevance of sustainable innovation:

Sustainable innovation will change the world.

Sustainable innovation represents a significant opportunity.

Going forward, we should only be innovating if sustainability is an element of every idea.

This will help transform us and our industry in a more sustainable fashion.

According to these respondents, sustainable innovation enables companies to reduce costs by continually improving their processes to minimize resources and energy consumption. Respondents further noted that reducing energy consumption delivers benefit in short term. Some respondents brought up the need to balance product development costs and sustainability. For example, furniture companies start by identifying parts that need to be included and finding a balance between price and sustainability to develop sustainable products. Sustainable innovation focusses on finding new ideas and creating sustainable products in a cost-efficient manner.

Sustainable innovation allows a company to enhance its brand and create a competitive advantage. A respondent explained that through the company's engagement in sustainable innovation, customers credit the company as being more responsible while at the same time perceiving that the company was not merely complying with demands but actively driving efforts to create a positive impact. According to one respondent, moving towards sustainable innovation put the company in a better position than its competitors and helped it gain a leading role in the industry.

Despite recognizing new business opportunities, study respondents also noted associated challenges. Respondents stated that sustainable innovation could be difficult to justify in a

business case, despite it appearing worthwhile and positively impacting society. Claiming that sustainability is sometimes considered a “best effort”, respondents said there is a clear need for improved evaluation of sustainable innovation so that it is not characterized as philanthropy. Respondents also stressed that it is difficult to see customer gains and profitability prospects from sustainable innovation in the short term. It is also difficult to know if sustainable innovation could and will work. A company cannot rely on one solution. These concerning factors lead to frustration. As a result, sustainable innovation is sometimes not (yet) a top priority. For business-driven companies, profits are still the core of their businesses.

4.2.2.2 Inter-functional collaboration. Companies must develop various forms of inter-functional collaboration to integrate sustainable innovation within firms. All respondents stated that inter-functional collaboration was vital to enabling sustainable innovation. A respondent emphasized the need to harvest employees’ ideas for innovation, explaining that innovation does not occur in one place at one time. A company needs a strategy to deploy significantly empowered staff members to different parts of the organization to collaborate. Doing so increases the chance of capturing new ideas and developing innovations. Respondents stated that collaboration is the critical cornerstone of fostering and collecting new and innovative ideas and driving sustainable innovation in SMEs. According to study respondents, collaboration happens within cross-functioning. Generally, companies succeed only if sustainability is integrated into areas where decisions are made. Inter-functional collaboration brings people with diverse competencies, backgrounds, knowledge and experience.

However, inter-functional collaboration can be impacted by how an organization is structured. For example, study respondents raised one challenge: a complex structure could hinder efficiency in executing sustainable innovation. More specifically, a respondent claimed that centralization and bureaucracy could affect the capacity for sustainable innovation, slowing the innovation process and potentially killing innovation.

4.2.2.3 Management commitment. In all of the case studies, it was evident that management commitment served as a driver for sustainable innovation. Top management can demonstrate long-term commitment and help spread awareness of sustainable innovation within the company. For example, a respondent stated that management support is vital because, while the sustainable innovation team can carry out the pilot phase, the entire organization needs to scale innovation up. The process requires full management support to execute a sustainable innovation strategy successfully. Respondents shared that clear long-term direction from top management, acknowledging the need for innovation and a strong personal commitment to sustainability from the company founder is vital. The commitment of leaders and managers is crucial to achieving sustainable growth.

Data analysis also found that long-term commitment from management allows the company to work on sustainable innovation in the long term. However, as managers of the study’s case study companies expressed their commitment to pursuing sustainable innovation, they also pointed out the need for financial support to execute sustainable innovation ideas. For example, a respondent claimed that an internal discussion is held to determine the budget for every innovative idea. There would be no opportunity for sustainable innovation without financial support. Similarly, another respondent acknowledged that access to financing could be a barrier to creating sustainable innovation in SMEs. According to respondents, a funding structure should be in place to maintain sustainable innovation’s speed.

4.2.2.4 Knowledge management. Knowledge and information are the foundations of innovation. Study respondents argued that people are often unaware of how much they

---

know or can create due to a scarcity of motivation, time and tools to use as guides in this increasingly complex and challenging practice. Although the role of knowledge management in innovation is not known definitively or beyond any debate, it has been shown that innovation leads to the production of new knowledge. This data analysis found that considerable investment in knowledge management is crucial for SMEs. Respondents said that internal tools and communication systems should encourage employees to share their ideas, knowledge and innovation experience. They reported that SMEs are building innovation platforms to use the entire organization's internal knowledge, gather ideas and then evaluate and act on the knowledge and ideas. However, the challenge is ensuring that employees engage with available tools and internal platforms. A respondent claimed that informal networks through personal relationships are more important than tools and programs. Most respondents stated that most of the ideas selected for consideration came from informal networks rather than established channels, such as IT tools or formal programs. The process is more about people being creative, feeling empowered, entrepreneurial and energized and then sharing ideas. Informal, soft elements in terms of tools that are available in logical and natural locations in the right place drive innovation.

One primary reason to use internal tools is to disseminate information and awareness of sustainable innovation. One case study respondent reported the development of communication materials over previous years that provided information about sustainable innovation; employees need to learn about sustainable innovation. Regarding employee training, most respondents across all case study companies mentioned that their companies provided information and education about corporate sustainability strategy but no specific training related to sustainable innovation. Respondents shared that their companies encouraged "on-the-job" experience, time and opportunity for employees to explore possible avenues of sustainable innovation and develop their capabilities accordingly.

4.2.2.5 Corporate culture. All respondents stated that corporate culture influenced the way the company innovated. They said a company should embed core principles, driving general innovation and sustainable innovation through its culture. According to one respondent, "There is always a better way" suggests that this person's company continuously innovates and seeks new and better solutions. The majority of respondents explained that the encouragement of employees characterizes company culture to pursue their passions and belief in an entrepreneurial spirit. According to a respondent, culture is an enabler of creativity, as it drives people to seek new solutions and ways of doing things. In these circumstances, innovation can thrive everywhere in the company. Similarly, another respondent said, "One way to spur innovation is through diverse teams involving a variety of perspectives, experiences and references".

Respondents argued that the specific characteristics of corporate culture that spur innovation also apply to sustainable innovation. An additional factor connected to sustainable innovation in SMEs is cost consciousness. A cost-conscious culture aims to create a significant impact with small outputs of resources, a philosophy that forces people to be creative and find new ways to do things less expensively. This factor can be considered a driver of sustainable innovation. According to a respondent, however, cost consciousness can also be a barrier in the short term, inhibiting a company from investing in sustainable innovation.

Another reported value within a corporate culture that drives sustainable innovation is a moral obligation. Empirical findings demonstrated that corporations respond to global challenges they have identified as a moral obligation, leading them to act and, thus, engage in

---

sustainable innovation. All respondents in this study claimed that sustainable innovation is driven by the company's acknowledgment of global challenges, such as climate change and resource scarcity, as the world uses more resources than it can reproduce. Therefore, companies must strongly react to challenges of this kind to ensure they remain relevant to their customers. This business model does not worsen situations but goes beyond the current bare minimum demands to become a positive force for society.

## 5. Discussion

This study examined the circumstances under which SMEs are likely to engage in sustainable innovation. Due to the similarity in understanding sustainable innovation in different contexts, this study clarified the role of internal and external environments in SMEs' sustainable innovation.

### 5.1 Sustainable innovation concepts

The literature suggests that more companies are starting to integrate sustainability dimensions into their innovation process and engage in sustainable innovation (Boons and Lüdeke-Freund, 2013; Hansen *et al.*, 2009; Nidumolu *et al.*, 2009). Rexhepi *et al.* (2019) contend that SMEs are more active in open innovation than larger organizations. According to Toska *et al.* (2021), SMEs are geared towards developing an entrepreneurial attitude and have developed innovation after entering the family firm.

In line with the literature, the empirical findings of this study showed that all of the companies that provided data for this study were committed to pursuing sustainable innovation and convinced that driving sustainable innovation can transform their businesses and industries (Kilkis, 2018). However, the extent they engage in sustainable innovation varies depending on the industry. All case firms linked sustainable innovation with sustainability strategy and broader corporate strategy to guide their work in this field. These results support Ketata *et al.*'s (2015) argument that sustainable innovation is strongly connected to its holistic and long-term objectives. Moreover, SMEs often have a long-term perspective on sustainability and identify tremendous societal pressure to engage in sustainability-related activities.

Despite an increasing interest in the field, sustainable innovation is still an emerging concept that lacks a general conceptual consensus (Adams *et al.*, 2016; Boons and Lüdeke-Freund, 2013; Schiederig *et al.*, 2012). As a result, sustainable innovation remains a vague concept with no clear definition or authoritative guidance about how a company should work with sustainable innovation. Each case examined in this study had a different way of understanding and defining sustainable innovation, leading to their approaches. Their varying foci in their sustainable innovation work could be explained by the fact that they operate in different sectors.

According to this study, sustainable innovation for SMEs refers to how environmental, social and financial innovation are integrated into company strategy and operating system. The integration starts with idea generation and extends through research and development to commercialization. Sustainable innovation applies to products, services, technologies, new businesses and organization model development.

### 5.2 Factors for sustainable innovation

Currently, firms feel increased pressure to engage in society, and some feel greater responsibility. In line with this trend, companies have begun to investigate sustainable innovation. However, the concept has been discussed using many different terms, resulting

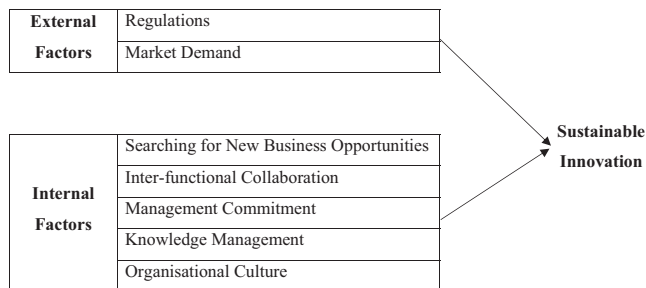
in a lack of conceptual consensus in the literature (Le Bas, 2016; Silvestre and Țircă, 2019). Therefore, a combination of internal and external factors is required for SMEs to foster sustainable innovation. The combination is presented in Figure 1.

The external factors of significance found in this study were regulations and incentives or pressures from various stakeholders to which companies respond. Internal factors were related to companies' internal preconditions and features and the extent to which they facilitated sustainable innovation. External factors were categorized into regulations and market demand. Regulations represent the "push factor", driving SMEs to act at the forefront of new regulations and innovativeness. Market demand comprises different stakeholder requests that force companies to invest in sustainable innovation and collaboration. Customer preferences are crucial because corporations need to respond to their increasing demand for sustainable solutions.

Internal factors also play a substantial role in promoting SMEs' sustainable innovation (Berisha, et al., 2020). For instance, Ejupi-Ibrahimi et al. (2020) argue that small enterprises are motivated to protect and preserve their legacy business for the next generation. In addition, Toska et al. (2021) argue that the next generations are also motivated to continue their family businesses. In this study, five primary internal factors were identified as essential enablers of sustainable innovation. First, searching for new business opportunities relates to the sustainable innovation benefits of cost reduction, differentiation, competitive advantage and new market opportunities. Second, inter-functional collaboration considers cooperation among different business units to strengthen a company's innovation capacity. Third, management commitment plays a significant role in providing the company vision, competencies and clear directions for sustainable innovation. Fourth, investment in knowledge management must also be emphasized. Managing knowledge means formalizing the processes, policies and tools to manage and develop the organization's intellectual assets, transforming the accumulated knowledge into value and tangible benefits for the organization and its stakeholders. Finally, an innovation-friendly and sustainability-driven culture are essential factors to motivate employees to invest their time and energy into sustainable innovation.

### 6. Conclusion

The scientific relevance of this study lies in integrating sustainable innovation research in the context of SMEs. Previous research has examined sustainable innovation and how it can change the way companies operate and the business landscape, especially in the face of increasing global challenges such as climate change, humanitarian crises and resource scarcity. However, there has been limited exploration of how SMEs perceive and engage in sustainable innovation and the factors that drive sustainable innovation development



Source: Authors work

**Figure 1.**  
Underlying factors  
impacting  
sustainable  
innovation in SMEs



outside of large firms. This study empirically explored the concept of sustainable innovation in the context of SMEs to understand underlying factors related to sustainable innovation.

It has been found that sustainable innovation requires broad perspectives and extensive change in the organization. The literature does not elaborate on what types of change must be made in that transition. However, empirical findings suggest that transitioning towards sustainable innovation requires a mindset change for employees, customers and the industry. Although sustainable innovation will be an important topic in the future, it is not yet a fixed and static concept with clear boundaries. SMEs now work with sustainable innovation using their own methods and under different frameworks. As a result, the concept of sustainable innovation in SMEs will continue to evolve; how the industry defines and engages in sustainable innovation will likely influence other companies in the same industry. However, a lack of a common understanding will arguably inhibit the overall popularisation of the sustainable innovation concept.

Finally, the study identified several factors that influence sustainable innovation in the context of SMEs. Some of these factors are external and beyond the control of SMEs. Other factors are internal; SMEs can control and manage these factors. Organizational culture is one of the main factors driving sustainable innovation in SMEs. Innovation in SMEs depends on the capabilities of the firms and their employees, including integrated work teams, cooperation, conditions favourable to achieving consensus, articulation of activities, commitment to the company's objectives, coherence and planning.

### *6.1 Theoretical contribution*

In conducting a qualitative multiple case study, this research developed an understanding of sustainable innovation and the underlying factors driving sustainable innovation in SMEs. Some crucial insights enrich the knowledge in this field. The study's theoretical framework identified five internal factors that drive sustainable innovation. Although these factors are separate, they are found to harmonize with and enhance each other. While SMEs cannot control external factors, they do influence SMEs; SMEs must adapt to and cope with these factors' effects.

The study's contribution is the addition of more in-depth knowledge about how each internal and external factor affects sustainable innovation development within SMEs. A clear vision and strong commitment from management can influence the allocation of organizational resources to this goal. The pursuit of sustainable innovation is also recognized as a moral obligation, where large companies are driven to act upon global challenges and adapt their business operations accordingly. The moral obligation is integrated into corporate culture and can extend to SMEs.

### *6.2 Managerial implications*

Some managerial implications have also been suggested. To make a clear and strong business case for sustainable innovation, firms must develop a strong culture that motivates them to engage and collaborate cross-functionally. The organization's culture is the key to enabling the development of sustainable innovation, encouraging an open and entrepreneurial culture so that employees across the organization adopt the mindset that sustainable innovation requires. Moreover, SMEs should try to reduce centralization, delegate more power to foster better cross-functional collaboration and enhance the speed of sustainable-innovation implementation. Developing more effective tools and platforms to improve knowledge flow for sustainable innovation to motivate employees is also recommended.

### *6.3 Limitations and suggestions for further research*

The primary limitation of this study is the possibility of generalization beyond this research context. Since firms operate in different industries, results cannot be generalized on statistical



grounds. Instead, the focus has been on understanding SMEs' general drivers of sustainable innovation. Another limitation is that the study data were collected and captured at a specific point in time. However, sustainable innovation is a process from a long-term perspective; longitudinal data may be needed to explore this field thoroughly. Future research could test quantitatively the factors identified in this study to expand the study's scope. Depending on the company's size, identified factors may have different effects on driving sustainable innovation. It would be interesting to test the factors identified by this study in the context of large organizations.

## References

- Abbas, J., Zhang, Q., Hussain, I., Akram, S., Afaq, A. and Shad, M.A. (2020), "Sustainable innovation in small medium enterprises: the impact of knowledge management on organizational innovation through a mediation analysis by using SEM approach", *Sustainability*, Vol. 12 No. 6, p. 2407.
- Adams, R., Jeanrenaud, S., Bessant, J., Denyer, D. and Overy, P. (2016), "Sustainability-oriented innovation: a systematic review", *International Journal of Management Reviews*, Vol. 18 No. 2, pp. 180-205.
- Arnold, M.G. and Hockerts, K. (2011), "The greening Dutchman: Philips' process of green flagging to drive sustainable innovations", *Business Strategy and the Environment*, Vol. 20 No. 6, pp. 394-407.
- Ayuso, S., Rodríguez, M.Á., García-Castro, R. and Ariño, M.Á. (2011), "Does stakeholder engagement promote sustainable innovation orientation?", *Industrial Management and Data Systems*, Vol. 111 No. 9, pp. 1399-1417.
- Berisha, B., Ramadani, V., Gërguri-Rashiti, S. and Palalić, R. (2020), "The impact of innovative working behaviour on employees' working performance", in Leitão, J., Nunes, A., Pereira, D. and Ramadani, V. (Eds), *Intrapreneurship and Sustainable Human Capital*, Springer International Publishing, Cham, pp. 37-49.
- Biju, P.L., Shalij, P.R. and Prabhushankar, G.V. (2017), "An evaluation tool for sustainable new product development using analytic hierarchy process approach", *International Journal of Innovation and Sustainable Development*, Vol. 11 No. 4, pp. 393-413.
- Boons, F. and Lüdeke-Freund, F. (2013), "Business models for sustainable innovation: state-of-the-art and steps towards a research agenda", *Journal of Cleaner Production*, Vol. 45, pp. 9-19.
- Boons, F., Montalvo, C., Quist, J. and Wagner, M. (2013), "Sustainable innovation, business models and economic performance: an overview", *Journal of Cleaner Production*, Vol. 45, pp. 1-8.
- Bos-Brouwers, H.E.J. (2010), "Corporate sustainability and innovation in SMEs: evidence of themes and activities in practice", *Business Strategy and The Environment*, Vol. 19 No. 7, pp. 417-435.
- Bossink, B. (2013), *Eco-Innovation and Sustainability Management*, Routledge, New York, NY.
- Braun, V. and Clarke, V. (2006), "Using thematic analysis in psychology", *Qualitative Research in Psychology*, Vol. 3 No. 2, pp. 77-101.
- Bruns, H.C. (2013), "Working alone together: coordination in collaboration across domains of expertise", *Academy of Management Journal*, Vol. 56 No. 1, pp. 62-83.
- Bucherer, E., Eisert, U. and Gassmann, O. (2012), "Towards systematic business model innovation: lessons from product innovation management", *Creativity and Innovation Management*, Vol. 21 No. 2, pp. 183-198.
- Carrillo-Hermosilla, J., Del Río, P. and Könmölä, T. (2010), "Diversity of eco-innovations: reflections from selected case studies", *Journal of Cleaner Production*, Vol. 18 Nos 10/11, pp. 1073-1083.
- Charoensukmongkol, P. (2020), "The efficacy of cultural intelligence for adaptive selling behaviors in cross-cultural selling: the moderating effect of trait mindfulness", *Journal of Global Marketing*, Vol. 33 No. 3, pp. 141-157.

- Dana, L.P., Kumar, S., Pandey, N. and Sureka, R. (2021a), "The journal of small business management: a bibliometric overview of 1996–2019", *Journal of Small Business Management*, Vol. 59 No. sup1, pp. 215-236.
- Dana, L.P., Salamzadeh, A., Ramadani, V. and Palalic, R. (2021b), "Understanding contexts of business in western Asia, land of bazaars and high-tech booms", World Scientific Publishing.
- Del Brío, J.Á. and Junquera, B. (2003), "A review of the literature on environmental innovation management in SMEs: implications for public policies", *Technovation*, Vol. 23 No. 12, pp. 939-948.
- Ejupi-Ibrahimi, A., Ramadani, V. and Ejupi, D. (2020), "Family businesses in North Macedonia: evidence on the second generation motivation and entrepreneurial mindset", *Journal of Family Business Management*, Vol. 11 No. 3, pp. 286-299.
- Emerson, R.W. (2015), "Convenience sampling, random sampling, and snowball sampling: How does sampling affect the validity of research?", *Journal of Visual Impairment and Blindness*, Vol. 109 No. 2, pp. 164-168.
- Gammelgaard, B. (2017), "The qualitative case study", *The International Journal of Logistics Management*, Vol. 28 No. 4, pp. 910-913.
- Geels, F.W., Hekkert, M.P. and Jacobsson, S. (2008), "The dynamics of sustainable innovation journeys", *Technology Analysis and Strategic Management*, Vol. 20 No. 5, pp. 521-536.
- Geissdoerfer, M., Bocken, N.M. and Hultink, E.J. (2016), "Design thinking to enhance the sustainable business modelling process—a workshop based on a value mapping process", *Journal of Cleaner Production*, Vol. 135, pp. 1218-1232.
- Georgiou, T., Vrontis, D., Papasolomou, I. and Thrassou, A. (2020), "The process of succession and its impact on sustainability: an empirical study within family wineries in Cyprus", *International Journal of Globalisation and Small Business*, Vol. 11 No. 4, pp. 329-355.
- Gërguri-Rashiti, S., Ramadani, V., Abazi-Alili, H., Dana, L.P. and Ratten, V. (2017), "ICT, innovation and firm performance: the transition economies context", *Thunderbird International Business Review*, Vol. 59 No. 1, pp. 93-102.
- Goffin, K. and Mitchell, R. (2016), *Innovation Management: effective Strategy and Implementation*, Macmillan International Higher Education, London.
- Hansen, E.G., Grosse-Dunker, F. and Reichwald, R. (2009), "Sustainability innovation cube—a framework to evaluate sustainability-oriented innovations", *International Journal of Innovation Management*, Vol. 13 No. 4, pp. 683-713.
- Herrera, M.E.B. (2016), "Innovation for impact: business innovation for inclusive growth", *Journal of Business Research*, Vol. 69 No. 5, pp. 1725-1730.
- Ketata, I., Sofka, W. and Grimpe, C. (2015), "The role of internal capabilities and firms' environment for sustainable innovation: evidence for Germany", *R&D Management*, Vol. 45 No. 1, pp. 60-75.
- Kılıç, Ş. (2018), "Sustainable development of energy, water and environment systems (SDEWES) index for policy learning in cities", *International Journal of Innovation and Sustainable Development*, Vol. 12 Nos 1/2, pp. 87-134.
- Klewitz, J. and Hansen, E.G. (2011), "Sustainability-oriented innovation in SMEs: a systematic literature review of existing practices and actors involved", *Sustainability in Innovation: Innovation Management Challenges*, pp. 505-523.
- Klewitz, J. and Hansen, E.G. (2014), "Sustainability-oriented innovation of SMEs: a systematic review", *Journal of Cleaner Production*, Vol. 65, pp. 57-75.
- Le Bas, C. (2016), "Frugal innovation, sustainable innovation, reverse innovation: why do they look alike? Why are they different?", *Journal of Innovation Economics Management*, No. 3, pp. 9-26.
- Maklan, S., Knox, S. and Ryals, L. (2008), "New trends in innovation and customer relationship management: a challenge for market researchers", *International Journal of Market Research*, Vol. 50 No. 2, pp. 221-240.

- 
- Marotta, G., Nazzaro, C. and Stanco, M. (2017), "How the social responsibility creates value: models of innovation in Italian pasta industry", *International Journal of Globalisation and Small Business*, Vol. 9 Nos 2/3, pp. 144-167.
- Martín-Tapia, I., Aragón-Correa, J.A. and Rueda-Manzanares, A. (2010), "Environmental strategy and exports in medium, small and micro-enterprises", *Journal of World Business*, Vol. 45 No. 3, pp. 266-275.
- Mazzucato, M., Kattel, R. and Ryan-Collins, J. (2020), "Challenge-driven innovation policy: towards a new policy toolkit", *Journal of Industry, Competition and Trade*, Vol. 20 No. 2, pp. 421-437.
- Mousavi, S. and Bossink, B.A. (2017), "Firms' capabilities for sustainable innovation: the case of biofuel for aviation", *Journal of Cleaner Production*, Vol. 167, pp. 1263-1275.
- Nasiri, M., Saunila, M., Rantala, T. and Ukko, J. (2021), "Sustainable innovation among small businesses: the role of digital orientation, the external environment, and company characteristics", *Sustainable Development*, Vol. 30 No. 4, pp. 703-712.
- Nidumolu, R., Prahalad, C.K. and Rangaswami, M.R. (2009), "Why sustainability is now the key driver of innovation", *Harvard Business Review*, Vol. 87 No. 9, pp. 56-64.
- Paramanathan, S., Farrukh, C., Phaal, R. and Probert, D. (2004), "Implementing industrial sustainability: the research issues in technology management", *R&D Management*, Vol. 34 No. 5, pp. 527-537.
- Parker, A.M., Nelson, C., Shelton, S.R., Dausey, D.J., Lewis, M.W., Pomeroy, A. and Leuschner, K.J. (2009), "Measuring crisis decision making for public health emergencies", RAND Corporation, Santa Monica, Calif., TR-712-DHHS. As of 29 June, 2009.
- Perretti, B. (2020), "Economic sustainability of quality wine districts in the South of Italy. The case of culture", *International Journal of Globalisation and Small Business*, Vol. 11 No. 4, pp. 356-372.
- Ramadani, V., Abazi-Alili, H., Dana, L.P., Rexhepi, G. and Ibraimi, S. (2017a), "The impact of knowledge spillovers and innovation on firm-performance: findings from the Balkans countries", *International Entrepreneurship and Management Journal*, Vol. 13 No. 1, pp. 299-325.
- Ramadani, V., Dana, L.P., Gërguri-Rashiti, S. and Ratten, V. (2017b), "An introduction to entrepreneurship and management in an Islamic context", *Entrepreneurship and Management in an Islamic Context*, Springer, Cham, pp. 1-5.
- Ramadani, V., Dana, L.P., Sadiku-Dushi, N., Ratten, V. and Welsh, D.H. (2017c), "Decision-making challenges of women entrepreneurship in family business succession process", *Journal of Enterprising Culture*, Vol. 25 No. 4, pp. 411-439.
- Ramadani, V., Hisrich, R.D., Abazi-Alili, H., Dana, L.P., Panthi, L. and Abazi-Bexheti, L. (2019), "Product innovation and firm performance in transition economies: a multi-stage estimation approach", *Technological Forecasting and Social Change*, Vol. 140, pp. 271-280.
- Rauter, R., Perl-Vorbach, E. and Baumgartner, R.J. (2017), "Is open innovation supporting sustainable innovation? Findings based on a systematic, explorative analysis of existing literature", *International Journal of Innovation and Sustainable Development*, Vol. 11 Nos 2/3, pp. 249-270.
- Reichstein, T. and Salter, A. (2006), "Investigating the sources of process innovation among UK manufacturing firms", *Industrial and Corporate Change*, Vol. 15 No. 4, pp. 653-682.
- Rexhepi, G., Hisrich, R.D. and Ramadani, V. (2019), "Open innovation and entrepreneurship: an overview", in Rexhepi, G., Hisrich, R.D. and Ramadani, V. (Eds), *Open Innovation and Entrepreneurship*, Springer, Cham, pp. 1-7.
- Roome, N. (1994), "Business strategy, R&D management and environmental imperatives", *R&D Management*, Vol. 24 No. 1, pp. 65-82.
- Rosca, E., Arnold, M. and Bendul, J.C. (2017), "Business models for sustainable innovation-an empirical analysis of frugal products and services", *Journal of Cleaner Production*, Vol. 162, pp. S133-S145.
- Royer, S. and Bradley, L. (2019), "Work group support as an undervalued resource of small family businesses", *Journal of Family Business Management*, Vol. 10 No. 1, pp. 1-19.

- Schaltegger, S. and Wagner, M. (2011), "Sustainable entrepreneurship and sustainability innovation: categories and interactions", *Business Strategy and The Environment*, Vol. 20 No. 4, pp. 222-237.
- Schaltegger, S., Lüdeke-Freund, F. and Hansen, E.G. (2012), "Business cases for sustainability: the role of business model innovation for corporate sustainability", *International Journal of Innovation and Sustainable Development*, Vol. 6 No. 2, pp. 95-119.
- Schiederig, T., Tietze, F. and Herstatt, C. (2012), "Green innovation in technology and innovation management—an exploratory literature review", *R&D Management*, Vol. 42 No. 2, pp. 180-192.
- Sharma, S. (2002), "Research in corporate sustainability: what really matters", *Research in Corporate Sustainability: The Evolving Theory and Practice of Organizations in the Natural Environment*, Edward Elgar, Cheltenham, pp. 1-29.
- Silvestre, B.S. and Țîrcă, D.M. (2019), "Innovations for sustainable development: moving toward a sustainable future", *Journal of Cleaner Production*, Vol. 208, pp. 325-332.
- Tellis, W. (1997), "Application of a case study methodology", *The Qualitative Report*, Vol. 3 No. 3, pp. 1-19.
- Thrane, S., Blaabjerg, S. and Møller, R.H. (2010), "Innovative path dependence: making sense of product and service innovation in path dependent innovation processes", *Research Policy*, Vol. 39 No. 7, pp. 932-944.
- Toska, A., Ramadani, V., Dana, L.P., Rexhepi, G. and Zeqiri, J. (2021), "Family business successors' motivation and innovation capabilities: the case of Kosovo", *Journal of Family Business Management*, Vol. 12 No. 4, pp. 1152-1166.
- Tranfield, D., Denyer, D. and Smart, P. (2003), "Towards a methodology for developing evidence-informed management knowledge by means of systematic review", *British Journal of Management*, Vol. 14 No. 3, pp. 207-222.
- Tullio, P.D. and Tarquinio, L. (2021), "The business model for small and medium-sized enterprises—a systematic literature review", *International Journal of Globalisation and Small Business*, Vol. 12 No. 2, pp. 124-152.
- Ukko, J., Nasiri, M., Saunila, M. and Rantala, T. (2019), "Sustainability strategy as a moderator in the relationship between digital business strategy and financial performance", *Journal of Cleaner Production*, Vol. 236, p. 117626.
- Verbong, G., Verhees, B. and Wieczorek, A. (2019), "The role of users in sustainable innovation", *Handbook of Sustainable Innovation*, Edward Elgar Publishing, Cheltenham.
- Veronica, S., Alexeis, G.P., Valentina, C. and Elisa, G. (2020), "Do stakeholder capabilities promote sustainable business innovation in small and medium-sized enterprises? Evidence from Italy", *Journal of Business Research*, Vol. 119, pp. 131-141.
- Wagner, M. and Schaltegger, S. (2003), "Introduction: How does sustainability performance relate to business competitiveness?", *Greener Management International*, No. 44, pp. 5-16.
- Walker, G. and Devine-Wright, P. (2008), "Community renewable energy: what should it mean?", *Energy Policy*, Vol. 36 No. 2, pp. 497-500.
- Weidner, K., Nakata, C. and Zhu, Z. (2020), "Sustainable innovation and the triple bottom-line: a market-based capabilities and stakeholder perspective", *Journal of Marketing Theory and Practice*, Vol. 29 No. 2, pp. 141-161.
- Widya-Hasuti, A., Mardani, A., Streimikiene, D., Sharifara, A. and Cavallaro, F. (2018), "The role of process innovation between firm-specific capabilities and sustainable innovation in SMEs: Empirical evidence from Indonesia", *Sustainability*, Vol. 10 No. 7, p. 2244.
- Yin, Y., Zhang, X., Peng, D. and Li, X. (2009), "Model validation and case study on internally cooled/heated dehumidifier/regenerator of liquid desiccant systems", *International Journal of Thermal Sciences*, Vol. 48 No. 8, pp. 1664-1671.
- Zighan, S. (2020), "Challenges faced by necessity entrepreneurship, the case of Syrian refugees in Jordan", *Journal of Enterprising Communities: People and Places in the Global Economy*, Vol. 15 No. 4, pp. 531-547.

---

Zighan, S., Dana, L.P., Salamzadeh, A., Ramadani, V. and Palalic, R. (2021), "The context for business in Jordan", *Understanding Contexts of Business in Western Asia: Land of Bazaars and High-Tech Booms*, World Scientific Publishing, Singapore, pp. 385-401.

Zighan, S. and Ahmed, E.Q. (2020), "Lean thinking and higher education management: revaluing the business school programme management", *International Journal of Productivity and Performance Management*, Vol. 70 No. 3, pp. 675-703.

---

### About the authors

Dr Saad Zighan is a Senior Lecturer at the University of Petra, teaching Operations Management, Supply Chain Management and Project Management to undergraduate and graduate students. Saad has over 15 years of experience. During his working experience, Saad implemented several administrative and support functions and contributed to developing new ideas and solutions to organize the work flow of several industrial projects.

Dr Tala Abuhussein is an Assistant Professor in the Business Administration Department and Vice Director of the SIQ Business Incubator at the University of Petra, Amman-Jordan. She completed a PhD specializing in Quality Management in Higher Education via Cardiff Metropolitan University in 2017. In addition to teaching, she is actively involved in quality management, audit and international accreditation at the Faculty of Administrative and Financial Sciences. Dr Tala is equally active in research, participating in three EU sponsored projects. To date, Dr Tala's research outputs have focused on quality assurance and management, internal audit, gender-based stereotyping, entrepreneurship, strategic management, religion and culture. Tala Abuhussein is the corresponding author and can be contacted at: [tala.salah@uop.edu.jo](mailto:tala.salah@uop.edu.jo)

Professor Zu'bi Al-Zu'bi is a Full Professor of Operations and Supply Chain Management and visiting professor at the University of Sydney, Business School, Darlington 2008 NSW Australia. Professor Zu'bi M.F. Al-Zu'bi completed BSc and MBA studies in Jordan before undertaking postdoctoral studies at Durham Business School, UK, during which time he became the first Jordanian to receive Fellowship of the Higher Education Academy. Zu'bi returned to Jordan in 2008, and held various positions at the University of Jordan, including chairman of the Business Management Department, Dean of the Business School and Pro-Vice Chancellor for Development and International Relations. He was also Executive Director of the Al-Quds Academy for Scientific Research, Secretary-General of the Jordan Rugby Union. More recently, Zu'bi is a visiting Professor at the University of Sydney Business School.

Nidal Yousef Dwaikat obtained PhD in Industrial Engineering and Management from KTH Royal Institute of Technology, Sweden. He is an Assistant Professor in the Industrial Engineering Department at An-Najah National University ANU, Palestine. He also holds the position of Deputy President for Planning Development and Quality Assurance at ANU.

---

For instructions on how to order reprints of this article, please visit our website:

[www.emeraldgroupublishing.com/licensing/reprints.htm](http://www.emeraldgroupublishing.com/licensing/reprints.htm)

Or contact us for further details: [permissions@emeraldinsight.com](mailto:permissions@emeraldinsight.com)