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Exploring Strategies for Scaling Digital Transformation Business Models Innovation at the Enterprise Level for Sustainable Competitive Growth

Luper Joseph Noah[1], Jodine Burchell[2], Tammy Corcoran[2]

[1] University of Southern Queensland, Toowoomba, Australia

[2] Columbia Southern University, Orange Beach, Alabama 36561, United States

Abstract

Digital transformation strategy (DTS) is a powerful concept that can be utilized throughout the digital transformation business model innovation of a construction industry business. The purpose of this pragmatic qualitative inquiry is to explore strategies construction industry business leaders adopt to scale innovative digital transformation business models for gaining sustainable competitive growth in the construction industry. Qualitative interviews (n = 10) were conducted with construction industry business leaders representing early and recent adopters of digital transformation of business model innovation practices. Interview data were analysed by examining how digital transformation strategy is applied to scaling digital transformation business models in the Australian construction industry at the enterprise level to gain sustainable competitive growth. The results revealed that digital transformation strategy is widely mentioned among construction industry business leaders; Australian construction industry business leader's perceptions of digital strategy are relatively positive; there are distinctive views on the challenges and opportunities of utilizing digital transformation strategy while applying innovative digital business model; application of digital transformation strategy to scaling innovative digital business model to process, people and technology, and organizational excellence, performance, and growth are the most common prospects; and uncertainty, readiness, data management, and lack of capabilities are the most common digital transformation strategy to business model innovation challenges. The findings of this study may help construction industry business leaders understand the positive impact of utilizing digital transformation to business model innovation while applying digital transformation to business model innovation for gaining sustainable competitive organizational growth.

Keywords: Digital transformation, digital transformation strategy, business model innovation, sustainability, competitive, growth.

Introduction/Background

The emergence of advanced technology has brought about a rethink of how businesses operate. For survival, businesses adopt appropriate strategies and scale innovative digital technologies to transform their current business models (van Tonder et al., 2020). However, studies focusing on strategies for scaling construction industry business model innovation (BMI) at the enterprise level are lacking. The purpose of this study is a) to explore strategies available for construction industry businesses to scale the digital transformation of their business models and b) to examine relationships between the constructs, which include digital transformation strategy, digital transformation, business model innovation, and sustainable competitive growth, which is the goal of digital transformation. Digital technologies and digitalization require digital capabilities and a digital transformation strategy, while business model innovation is best done with digital transformation (van Tonder et al., 2020). This study is contextualized within the construction industry and its business model innovation, focusing on improving customer pain points, using the right resources, and process change to gain sustainable competitive growth.

Construction industry leaders face constant pressure to meet evolving customer needs and expectations in a dynamic business environment, demanding successful innovation for sustainable growth and improved customer, employee, and stakeholder experiences (Carnes et al., 2017). They recognize the importance of scaling digital transformation and reconfiguring existing business models to improve digital capabilities and digital-focused innovation (Christensen et al., 2016; Gallant, 2020). Disruptive innovation involves creating new ventures, companies, and wealth while controlling the destructive process of existing ones. Digital transformation can improve digital capabilities and enable sustainable competitive growth for construction organizations. However, business leaders are unsure of the appropriate strategy for scaling and implementing necessary changes at the enterprise level (Bhattacharya & Momaya, 2021). This research aims to investigate and suggest an appropriate digital transformation strategy through the diffusion of innovation theory lens for implementing and scaling digital transformation at the enterprise level of Australia's construction industry organization business model.

Digital transformation is crucial for future enterprises, with 2020-2021 being a turning point. It has significantly impacted construction processes, manufacturing, e-commerce, distance work, and electronic signatures. However, small construction industry businesses often lack effective strategies and resources for digital transformation, leading to a lack of adoption of new strategic innovations (Bouwman et al., 2019). Organizational leadership and appropriate strategies are needed to overcome these challenges.

The changes in customer behavior, volatile customer demands, and increasing market dynamics, accompanied by an explosion of customer touchpoints and fast-changing competitive and technological dynamics, have increased the emphasis on adopting tested and tried strategies for scaling innovative digital transformation at the enterprise level toward more significant customer satisfaction and sustainable competitive growth (Fuchs & Hess, 2018; Kalaignanam et al., 2021). The lack of adequate digitization and digitalization of the construction industry business model in the Australian construction industry is getting to a critical point and nearing a breaking point. According to Ullah et al. (2021), most construction industry business leaders know advanced technologies that can change their business models and innovate the industry. Yet, the most prevalent barriers are costs, organization policies, awareness, reluctance, user demand, technology integration, government support, and funding. Overall, the highest barrier or risk scores are observed for high software and hardware costs, high complexity of the selected technology dissemination system, and lack of government incentives, R&D support, policies, regulations, and standards (Ullah et al., 2021).

The construction industry, a significant economic contributor, faces challenges in automating processes and operations despite advanced technologies like the Internet of Things and Artificial Intelligence (Robinson et al., 2021; Ullah et al., 2021). Despite global openness to innovation, construction firms are often reluctant to adopt new methods (Suprun & Stewart, 2015). The industry's fragmentation has further exacerbated the issue, with many companies adhering to manual methods. Large corporate construction management organizations still use manual techniques for handling extensive data and site operations (Ceipek et al., 2021; Matzler et al., 2018). The slow

progress in digital transformation in construction can be attributed to a lack of a clear strategy. Despite the importance of choosing an appropriate digital transformation strategy for scaling the digital transformation of business model innovation at the enterprise level (Mallinguh & Zoltan, 2020), limited research has explored this idea within the construction industry context. This research highlights the influence of digital transformation strategy on digital transformation business model innovation for sustainable competitive growth.

Creating and implementing a digital transformation strategy has emerged as a significant concern for many businesses operating in the construction sector; however, the method by which a digital strategy can be created still needs to be discovered (Albukhitan, 2020). Extant literature suggests that not everyone is familiar with this idea; neither research nor practice has consensus on the significant ideas of digital change strategy (Morakanyane et al., 2017). Many digital transformation exercises have failed (Fabac, 2022). A reasonable and all-around strategy is at the core of successful business achievement. Butt (2020) highlights the importance of technology and innovation management in organizational strategies but acknowledges the challenge of low awareness about specific technologies is a drawback that needs further examination.

Scaling innovative technologies can improve efficiency, effectiveness, adaptability, agility, consistency, client experience and reduce costs (Obrenovic et al., 2020). However, the impact of technology innovations on construction business transformation is under-examined (Ardolino et al., 2018). Issues like failure to recognize target objectives and lack of leadership capabilities can lead to curated and price-focused digital transformation efforts. A comprehensive strategy for digital change is crucial; unfortunately, many business leaders have viewed and approached this as mere software installation. Successful digital transformation is not just about technology acquisition and installation but also requires boldness and risk-taking (Kane, 2018; Kane et al., 2015). Organizations should experiment rapidly, frequently, and economically with products, services, productivity, processes, people, strategies, and business models. Employees across all age categories must work for organizations focused on digital progress.

Literature Review

A review of the literature revealed limited knowledge of the strategies construction industry business leaders adopt to scale innovative digital transformation business models for gaining sustainable competitive growth in the construction industry. Roger's (2003) diffusion of innovation theory explores digital transformation strategies, business model innovation, and sustainable competitive growth in the construction sector. It is logical to use this theoretical lens simultaneously as literature confirms the suitability of this approach (Kofford et al., 2020; Kuna-Marszalek & Klysik-Uryszek, 2020; Theodoulidis et al., 2017). It identifies four gaps in existing research: a lack of a comprehensive list of digital transformation strategies, a lack of practical approaches, a need for a systematic theoretical foundation, and a lack of focus on business leaders' experiences. The research aims to develop a conceptual model containing a detailed process and practical approaches for business model innovation in the construction industry, improving the perception of business leaders' success and promoting economically sustainable competitive growth.

Youn et al. (2020) reiterate that the DOI theory, a concept developed by Rogers (2003), explains the diffusion process of innovation among social systems. It is explained by four key elements: the innovation itself, communication channels, time, and the social system. These elements are crucial for construction management scholars to understand the empirical research analysis. To apply the theory correctly, it is essential to examine these elements from the innovation itself (Santos et al., 2015; Wani & Ali, 2015).

Within each element's definition are specific requirements that must be met to properly apply the entire theory (Kaminski, 2011). The theory's four main elements are of interest to construction management scholars. To better understand the empirical analysis of this research, it is essential to take an in-depth look at these four elements by starting with innovation itself.

Adoption of Diffusion of Innovation Theory at Scale

The Diffusion of Innovation Theory, DOI (Rogers, 2003) suggests that there are five different categories of individuals that go through the process of adopting innovation at the enterprise level and that these individuals adopt a new idea by going through five distinct steps: *awareness, interest, evaluation, trial, and adoption* (Al-Rahmi et al., 2019). Celik et al. (2014) developed a mobile learning adoption scale (MLAS) based on Rogers' (2003) Diffusion of Innovations Theory. The scale consists of four sections: innovation-decision process stages, types of m-learning decisions, innovativeness level, and attributes of m-learning. The scale was developed in four stages: literature review, explanatory factor analysis, confirmatory factor analysis, and reliability analysis. The scale yielded valid and reliable scores (Celik et al., 2014).

Diffusion of Innovation in Organizations

Rogers' (2003) diffusion of innovation theory (DOI) posits that communication can occur within a social system where individuals, groups, organizations, or subsystems share a common goal or objective. For over four decades, this theory has gained significant interest from various disciplines, including management, economics, marketing, and sociology. It has emerged as a topic of discussion within the organizational transformation research community and business leaders to understand how new ideas, processes, and products diffuse and spread within and across organizations.

Internal and external factors, such as the construction industry, influence innovation diffusion in an organization. However, Kale and Arditi (2010) argue that the diffusion of innovation models used in prior studies of specific industries, such as the construction industry, are overly restrictive. Adopting new technologies increases knowledge sharing and helps the organization achieve competitive growth. Al-Zoubi (2013) studied the adoption of e-business and discovered that increased technology explicitness and accumulation can support the internal transfer of technological knowledge and the capacity to adopt novel technologies.
Organizational innovation decisions can be optional, collective, or authority. Optional decisions allow employees to choose whether to adopt or reject an innovation. Collective decisions involve joint decision-making among team members. Authority decisions involve a few individuals making decisions on behalf of the organization. Contingency decisions, linked to earlier decisions, lead to the fastest adoption rate. The diffusion of innovation theory evaluates these decisions (Jones et al., 2021).

Diffusion of Innovation in Construction Industry Organization

Innovative digital transformation in the construction Industry means operations, product, and process innovations enabled by emerging technologies that have become a primary condition to withstand the global competition in the market (Brondoni, 2015). Innovations in the construction business can impact products, processes, operations, and business models, impacting value chain players, customers, and suppliers, creating a cyber-physical system connecting people and technologies (Liao et al., 2017). Wang et al. (2016) suggest that innovative digital technologies can facilitate and facilitate communication across all phases of value creation.

With the diffusion of innovation in the construction industry, enabled by emerging technologies, several benefits are expected to improve the industry processes and operations. Specifically, according to Chen et al. (2018), construction production processes will primarily be based on emerging and enabling technologies due to the emergence of digital technologies. Because these technological shifts significantly impact customer behavior, businesses in the construction industry must adopt or fail and may even be forced out of business.

There is no question that several benefits are expected within the construction industry, thanks to the introduction of these innovative technologies. In particular, the new technologies would combine mass customization, shorter lead times, and better product quality to make production processes more adaptable. by combining mass customized

production, shorter lead times, and higher product quality (Chen et al., 2018). Also, the new technologies would allow Australian construction industry organizations to innovate, strengthen, and integrate their supply network, responsiveness, and innovation to stimulate demand. Therefore, the Innovative Digital Transformation Business Model paradigm has become the primary reference for operations, process, and product innovation.

Digital Transformation

Digitization converts analog data into digital format for computer storage, processing, retrieval, and dissemination (Verhoef et al., 2021). It aims to make tasks smarter and more efficient within and outside an organization while maintaining value-creation strategies. Digitalization involves the integration of digital technologies into existing business processes to make them smarter, enhancing customer value and user experiences (Kiron et al., 2017). It is more about process improvements than cost minimization and has permeated nearly every business sector, necessitating a transformation in current business models and structures.
The current global trend informs that digitization and digitalization have become the benchmarks for measuring the quality of service any organization provides. Krause and Pellens (2017) assert that digitization and digitalization are not trends that can be reversed, and businesses can choose to participate. Lipsmeier et al. (2020) add that digitalization permeates all organizational structures, procedures, and systems, not to mention business culture. Tüllmann et al. (2016) state that organizations in the digital era must strategically consider digitalization as part of their business model and offerings to ensure long-term growth and competitiveness (Lipsmeier et al., 2020).

Digital transformation aims to improve an economic entity by transforming processes, operations, and workers' perceptions through data, computing, communication, and connectivity technologies. However, there is no well-defined context-dependent definition (Haffke et al., 2017). Digital transformation can occur in society or industry, and improvement is the operational objective, not just technology implementation (Vial, 2021). This lack of clarity and consistency in digital technologies is a concern that needs further investigation.

Considering the above three elements, the construction business customers' expectations and behaviors have fundamentally changed due to digital transformation and the resulting innovation in business models. As a result, traditional businesses in the construction industry are under much pressure to adjust, disrupting many markets. Based on existing literature, there are three phases of digital transformation. Regarding this conclusion, digitization, digitalization, and digital transformation were identified as underlying building blocks (Bumann & Peter, 2019).

Digital transformation and the resultant business model innovation have generally adjusted customers' assumptions and behavior, coming down on established firms and upsetting various business sectors (Verhoef et al., 2021). Hence, DT has become a business strategic imperative and is no longer an option. Digital transformation not only refers to technological changes but also impacts the business; otherwise, it is not a transformation (Hinings et al., 2018). Also, Matt et al. (2015) maintain that digital transformation leads to changes in existing business models and a multiplicity effect on the processes, products, organizational structures, and management perspectives. On that note, Verhoef et al. (2021) posit that digital transformation requires specific organizational structures or strategies that define the steps for it to succeed and bears ramifications for the metrics used to foster growth.

Digital Transformation Strategy

A digital transformation strategy is required to overcome the challenges business leaders face during a digital transformation process. Becoming a digitally mature organization is more than technology acquisition and implementation; it is a previous idea that has become siloed. Kane et al. (2015) agree, stating that strategy and not technology drives innovative digital transformation of a business model for sustainable competitive growth. In addition, Kane et al. (2015) emphasize the importance of a digital sound strategy and a culture ready for change in reshaping businesses. They highlight the need for risk-taking and attracting and retaining the best talent for a digitally oriented company as adopters of innovation seek sustainable competitive advantage.

The digital age is characterized by rapid advancement, development, innovation, and disruption, necessitating companies to adapt and remain competitive in this rapidly evolving landscape (Albukhitan, 2020). Digital transformation involves more than innovation, resource allocation, or system redesign. To remain competitive, organizations must anticipate changes and prototype innovation strategically. A digital transformation strategy helps business leaders respond to their needs, including ongoing digitalization, future vision, and how to arrive.

To be safeguarded from digital interruption, organizations must foster three central capabilities: mindfulness, informed independent decision, and quick execution. The development of events and execution of a digital transformation strategy has turned into a vital worry for some organizations across several enterprises. Yet, how such a strategy can be created remains an open inquiry.

Prior studies determine that what separates a digital organization from its rivals is a clear digital transformation strategy combined with organizational culture and leadership, poised to drive the planned transformation (Kane, 2018; Kane et al., 2015). A digital transformation strategy aims to create new possibilities for the future instead of simple information technological changes seeking to correct past mistakes (Ghani et al., 2019). On that premise, Ghani et al. (2019) agree that digital transformation aligns business processes and organizational culture with changing needs, particularly in uncertain environments. It requires a fundamental change in decision-making, work execution, and information acquisition. Understanding digital technologies' strategic changes is crucial for organizations (Hess et al., 2016).

Digital transformation aims to increase flexibility, enhance customer-centric processes, and reduce costs (Hofmann & Rüsch, 2017). The critical construct of digital transformation is the customer, and processes must be developed to understand their needs by digitalizing the customer experience (Corver & Elkhuizen, 2014). Products and services must be digitalized by creating an experience when using and adapting the product to satisfy their needs (Mhlungu et al., 2019). To successfully execute this, operations must be digitalized, such as automating and standardizing processes. Internal success factors for digital transformation include keeping up to date with customer needs, adopting a user-centered approach, and digitalizing the value chain. A well-crafted digital transformation strategy can reconfigure the existing business model, offering new products or services, focusing on niche markets, or adding value to the customer experience. Digital strategy is defined as organizational steps and actions crafted by leveraging digital resources to create differential value. Individuals with the necessary skills in artificial intelligence, mobile development, data analysis, cybersecurity, cloud computing, digital strategy development, and data architecture must drive it. Gudergan and Mugge (2017) agree that a clear definition of initiatives related to a digital transformation strategy is crucial for a business model's effective and efficient transformation process. Therefore, business leaders must create a bold digital transformation strategy and enterprise culture that would foster innovation in employees and encourage them to experiment with new technologies within their business models. The next section discusses the methods used in this research study.

Methods

The methodology and design for this study are qualitative and pragmatic inquiry. An exploratory, descriptive research design was adopted to establish the impact of digital transformation strategy on business model innovation for gaining sustainable competitive growth. This study used open-ended, semi-structured interviews with construction industry business leaders who have experience using digital transformation strategies to implement business model innovation within their organizations. Ten participants from various organizations with varying levels and years of experience were interviewed. Data analysis included a thematic analysis.
To navigate the research process, explore the phenomena, and address the organizational complexities of innovative digital transformation, this study considers the following central question:

What strategies do construction industry business leaders use to scale innovative digital transformation business models for gaining sustainable competitive growth at the enterprise level?

The descriptive outcome from this study provides insights for construction industry business leaders in applying digital transformation strategy to business model innovation and overcoming challenges as part of the change journey, addressing a gap in the construction management body of knowledge. As a result of addressing the research questions through pragmatic qualitative research and thematic data analysis, it is anticipated that this will serve as a tool for construction industry business leaders to explore and experiment with business model innovation practices that fit their context and priorities to promote construction business sustainability and organizational growth.

Results and Discussion

Ten construction industry business leaders from different organizations agreed to participate in this research project. Two participants were female, and eight were male. All participants have at least twelve months of experience with digital transformation at the enterprise level, which they gained through applying business model innovation in the context of their various organizations. The categories of participant experiences were created to identify the set of experiences across participants. The demography shows that six participants (60%) had ten or more years of experience. Four participants (40%) had less than ten years of experience working with digital transformation strategy while applying business model innovation within the construction industry business context.
The qualitative textual data was harmonized and coded using an inductive method, with a data scrutiny and analysis cycle. Level 3 coding, axial or thematic coding, involved thoroughly reviewing previous coding levels to develop themes. The textual data was read multiple times, and the five final themes, multiple patterns, and related sub-patterns were discovered when the three coding levels ended. Each research question was followed by a set of aligned themes that support the results. Table 1 provides a comprehensive list of the five themes.

Table 1

Main Themes

Theme	Description
1	Construction industry business leaders use digital transformation strategy while applying business model innovation to challenge the status quo.
2	Construction industry business leaders use digital transformation strategy while applying Business Model Innovation to remodeling people, technology, and Processes.
3	Challenges encountered and strategies to overcome and opportunities arising
4	Business Model Innovation Increases enterprise quality and Performance
5	Business Model Innovation Increases Sustainability, competitiveness, and growth.

The data for this pragmatic qualitative study is mainly textual. Themes were gleaned from the analysis of unstructured textual data from participant qualitative interviews related to digital transformation strategy and business model innovation as applied within each participant's respective construction industry organization. Each theme was further broken down into related patterns and sub-patterns to better describe participant understanding and perceptions. The following sections present the findings by research question and the aligned themes describing participants' experiences applying digital transformation strategies to business model innovation within their respective construction industry organizations. The results from this study support construction industry business leaders in exploring and understanding the research questions of this study more thoroughly.

Theme 1: Business Model Innovation Challenges The Status Quo

Theme 1 focuses on how construction industry business leaders use digital transformation strategies while applying business model innovation to gain sustainable competitive growth and challenge the existing business model or status quo towards services and product remodeling. Several patterns aligned to examining every aspect of the current business model and organizational setting. The aim is to look at the business from a bird's eye and understand where the missing points and management support. Participants recognized that after questioning everything to continue to apply and reflect, it became apparent to some participants how they might use their knowledge to evaluate the value of currently available products and services. The evaluation results of current products and services would then inform needed re- model processes and procedures and efforts to improve those existing ones or to determine an exit strategy where little to no value of a current product or service was evident. Investigating business model innovation within the context of the construction industry organization helped participants understand the value of having management support or buy-in for the proposed change. Also, studying business model innovation within the context of construction industry organizations allowed the participants to understand the real reasons for embarking on a digital transformation journey. Participants reasoned that the motivation for embarking on business model innovation was that they did not want to be left behind in a data-driven economy where everything was being digitalized. The participants also reasoned that undergoing a digital transformation journey enlightened them on creating a learning environment for ideas to flourish and organizational learning.

The data analysis of interviews with participants revealed that it helped them uncover budgetary ideas and carefully consider the cost of employing a digital transformation strategy while applying business model innovation within the construction industry context. Participants discussed the impact of cost and funding on successful business model innovation in the construction industry. They acknowledged the funding uncertainty but expressed interest in innovation from all funding sources. Participant P007 recalled the experience of how private construction industry organizations struggle to get financing.

The participants mentioned that using digital transformation strategy while applying business model innovation in the construction industry started with benchmarking with their competitors to evaluate how their products and services fared against others. It is a time of learning, establishing the appropriate leadership, and seeking management support for the desired change. This theme supports agile thinking and focuses on establishing a digital culture in iterating through the change process.

Theme 2: Business Model Innovation Remodels Processes, People, And Technology

In Theme 2, participants identified organizational remodeling of service focusing on processes, people, and technology capabilities to counter competitors' aggressive digitalization of their organization. Also, the participants cited inspiring innovation across the organization, discovering new talents and human resources, and evaluating and revising partnership strategy. The participants in this study cited three patterns, vision, customer touchpoints, and service offerings, as the motivation for utilizing digital transformation strategy while applying business model innovation, which supports construction businesses in applying into practice a new approach to their existing business.

Focusing on customer touchpoints is crucial for digital transformation, driving continuous feedback loops, and empowering construction industry leaders to understand customer needs and provide expected value. The ways construction industry organizations implement feedback loops vary, as mentioned by Participant P009. Further, participant P003 explained how understanding customer needs has illuminated the value customers find in the organization's services, which helps to inform future remodeling needs. Customer service was pivotal for participants who expressed their desire to serve customers better and differently from their competitors. Participants acknowledged that initial training is significant for construction industry business leaders, but embedding business model innovation across the organization requires ongoing training and practice opportunities for leaders and members. Also, the participants agreed that training is critical for business leaders and staff members so that everyone shares a common foundation for transformation.

The main differentiation of an organization from its competitors is its digital strategies. Participants recalled how the transformation journey was set to distinguish them from their peers in the construction industry. Participants reiterated the need to evaluate current organizational technology platforms and capabilities to ensure the infrastructure can withstand the transformation of the business model. Participants found that construction industry leaders and subordinates need a startup mindset to adopt business model innovation. This involves rethinking the business from a startup perspective, fostering an entrepreneurial mindset, and recognizing opportunities.

Redesign of organizational structure transcends traditional department siloes and, by nature, promotes collaboration across all departments in a construction industry organization, eliminating the long-standing, status quo, internal siloes**.** Participant 5 explained how collaboration across various business units is central to their collaborative design process and structure. The participants indicated that cross-pollination of ideas across the organization increases innovative thinking among project workers and other organizational staff members. Participant P007 described that collaboration and cross-pollination resulted in more significant innovation leaps.

External partnerships with our organization are the primary market for the construction industry business given to our customers. A foundational level of trust between leaders and vendors is essential before rolling out a significant change effort like business model innovation. This is another factor of success, which leaders ensure the organization is ready for and ready to embrace the digital transformation of business model innovation. Ensuring the organization is prepared sets the stage for success.

The participants acknowledged that continuously responding to the ever-shifting market needs requires the construction industry business to remain agile and nimble. Agility and nimbleness were center stage for the participants when the external disruptions beyond their control prompted unprecedented business shutdowns during the global pandemic.

Theme 3: Challenges and opportunities

Theme 3 addresses the challenges construction industry business leaders face in applying and embedding business model innovation practices within their organization. Participants described the challenges, such as the institutional, strategic, and operational barriers slowing down their digital transformation journey. While challenges often impede the progress of the change effort, construction industry business leaders must embrace these obstacles as learning opportunities for improvements toward more success.

Construction industry leaders face financial uncertainty, unexpected disruptions, and unquantifiable uncertainties, making it crucial to monitor and evaluate the shifting landscape of competition to implement business model innovation. Construction industry business leaders also face financial risks and obstacles when adopting business model innovation practices. Working with a strong internal business development team helps assess the market and run different financial models, enabling decision-making to navigate financial risks and uncertainties. Participants expressed energy and were inspired to advance business model innovation. Participant P007 identified how this was not initially something the company paid attention to and what they should have considered earlier in the digital change process.

The other financial challenge that participants mentioned was supporting our staff members in understanding and embracing the need for the company to have a healthy margin to continue the core of its business in the construction industry. Leaders in the construction industry must confront staff members' negative perceptions of "profit-making." In the past, many employees only sometimes knew how business model innovation helps the company stay alive and continue providing a valuable service that meets the needs of the home building industry. Participants also agreed that no business model transformation is devoid of risks and financial responsibility.

The other funding challenges construction industry business leaders face are financial support and incentives to help embed innovation across the organization. For other construction industry business leaders, their perception was a shift from funding uncertainty to a funding opportunity, an opportunity to apply their skills of business model innovation and respond not as followers but as leaders.

The participants acknowledged that business disruptions induced by external factors beyond organizational control prompt an extraordinarily efficient and effective response from the company, given their ability to directly apply their learning and skills in business model innovation practices. Construction industry leaders and staff are pivoting to meet students and staff needs during unprecedented times. Some see this uncertainty as an opportunity to work with financial institutions for a more equitable construction sector. Higher home loan interest rates have led to increased funding uncertainties in the construction industry, posing challenges to business model innovation and providing opportunities for decision-making and planning.

Theme 4: Increases organizational performance

The patterns identified within this theme show how construction industry business leaders aligned business model innovation across all enterprise systems. Participants described how business model innovation increased organizational performance when embedded across the entire organization. Participants perceived that when a digital transformation strategy is used with business model innovation and embedded within each of the structural systems of the construction industry organization, the outcome is increased organizational quality, excellence, and an appropriate culture of innovation within the organization.

Participants recognized that the digital transformation of their current business model brought about a positive change in worker's motivation and overall performance across the enterprise. Alignment of business model innovation practices and support within organizational structures of the construction industry business embodies the strategic systems of the organization. This is critical in moving from a stand-alone to an integrated systems-lens by implementing digital transformation of business model innovation.
Organizational excellence requires commitment from everyone and new business concepts. Participants recognized the importance of embedding a time resources commitment to business model innovation within the strategic planning of a construction industry organization. Participants acknowledged the continuous cycle of challenging existing systems in their work and the development of embedding business model innovation across all organizational systems, including the strategic system. Staff members are crucial organizational assets, and embedding business model innovation within talent systems influences organizational excellence. Creating a culture that views change as an opportunity keeps it dynamic.

Construction industry organizations strategically embed business model innovation into talent systems to retain and grow top talent, aligning hiring with business expectations and skills. The construction industry adapts to customer needs through innovative business models, fostering growth through strategic partnerships, addressing market uncertainties, and enhancing organizational performance.

Another illustration of how business leaders in the construction industry embed business model innovation to promote organizational excellence is aligning business model innovation with internal processes and infrastructure. Participants noted that an ongoing process of reflection within the internal infrastructure had produced a community of learning and sharing throughout the organization, which included and promoted leadership practice and modeling.

Theme 5: Increases Organizational sustainability and growth

The ongoing efforts of construction industry business leaders to embed business model innovation based on digital transformation strategy within the internal framework of standards and processes of their organization collectively result in organizational resilience, sustainability, and growth.

Participants emphasized the importance of incorporating client voice in all their needs, aligning business model innovation with external systems. Despite market uncertainties, their commitment to innovation has led to a deeper understanding of customer needs.

It is important to note that becoming strategic about how to remain competitive in a market-driven environment in the construction industry has also played a role in deepening understanding of customer needs to capture desired value. Delivering value to customers correctly at the correct times is critical to success. At the same time, the recognition by construction industry business leaders that they cannot be everything to and for every customer.

Knowing and articulating the value of the construction industry business to customers and stakeholders allows construction industry business leaders to recognize when partnerships are beneficial and when they are not. Construction industry business leaders bring their training and expertise in business model innovation to the forefront of relationships, internally and externally, that are rooted in meaningful, purpose-driven partnerships. Participants perceive that adopting business model innovation to impact the construction organization increases growth internally and externally.

Adopting digital transformation strategies and business model innovation led to increased profit margins, transforming the construction industry from sustainability to viability. Implementing business mode innovation in construction organizations fosters a culture of innovation, enabling businesses to adapt to new customer engagement methods despite some businesses experiencing overdrive to survive.

According to other participants, a culture of innovation has become a defining advantage for the construction industry, eliminating a culture prone to wastefulness. Implementing the digital transformation strategy on business model innovation was a novel choice. Some participants clarified that they realized that making an innovative change to improve an organization's sustainability and growth requires taking appropriate risks.

Discussion

This study elucidated insights that support construction industry business leaders' efforts to nurture and embed business model innovation into organizational competitiveness, sustainability, and growth. Hence, continuous business model innovation is a journey to thrive in uncertainty and build resilience. Most construction industry organizations are private, so business model innovation diffusion varies considerably among construction industry businesses. Enterprises in every industry want to use digitally driven operations to increase their efficiency, productivity, agility, and operational resilience. Considering the magnitude, capacity, and scope of digitally transforming a business model, construction industry business leaders must embrace business model innovation as a process that is staged and optimized over time, not an isolated event or linear set of activities (Christensen et al., 2016; Mhlungu et al., 2019; Perkin & Abraham, 2021; Peter et al., 2020). From the word go, being sustainable, competitive, and promoting organizational growth within an ever-evolving and ambiguous construction industry landscape requires keen insight to recognize and navigate the layers of complex, interconnected components. Therefore, construction industry business organizations should focus on measures to capture competitive advantage through sustainable business model innovation (Young et al., 2021).

Beyond merely service innovation, business model innovation is a subject of ongoing study interest in business circles. Further research was required due to the need for more writing on value proposals, value creation, and value capture in the private sector, particularly in the context of a business organization in the building industry (Lewandowski, 2017; Moussa et al., 2018). How the construction industry business applies value proposition, value creation, and value capture hinges upon the context of the construction organization, resulting in diversified business models within the construction industry business realm (Christopher & De Vries, 2020; Lewandowski, 2016). The results of this study demonstrate how business model innovation within the construction industry business context focuses on process and structure innovation, in addition to product and service innovation.

Applying business model innovation is incumbent upon construction industry business leaders' acquisition of knowledge and its application towards the planned change. Hock-Doepgen et al. (2021) argued that knowledge management (KM) skills are an essential source of innovation in today's business world, characterized by rapidly evolving communication and information technologies. Therefore, business leaders in the construction industry must acquire the necessary knowledge before adopting the new business model to fully utilize the intended value. This intermediary, learning-focused phase characterized the initial efforts by construction industry business leaders to evaluate and reconfigure resources to identify and develop the organization's transformation capability to evolve from its current business model to a more innovative business model at scale (Christensen et al., 2016; Teece, 2010). Successfully applying business model innovation is incumbent on construction industry business leaders' ongoing acquisition of knowledge. The results from this study highlight the importance of training and practice, alongside the challenge of creating time for continuous learning, potentially inhibiting progress and success of the change effort if left unprioritized or under-prioritized.

Construction industry businesses are active entities, and business model innovation is complicated. Construction industry business leaders and staff in the construction sector frequently possess the necessary technological expertise but frequently need more crucial strategic business insight to manage digital transformation. Considering this, it can be difficult to fully understand novel reconfigurations of value generation, value proposition, and value capture that go beyond an established business model with probable deep roots in the status quo model (Schneckenberg et al., 2017).

The results of this study also show how construction industry business funding plays a key role in why business leaders look to adopt business model innovation and how construction industry business leaders apply digital transformation strategy with business model innovation, which accounts for the variances of business model innovation practices between large organizations and construction industry business organizations that are self-funded. Most construction industry businesses primarily, if not solely, depend on owner funding or contracts for services, products, and programs to generate the revenue needed for continued existence (Stephens & Keane, 2005).

While the drivers for business model innovation are different, interest in business model innovation comes from both ends of the funding continuum, with construction industry business leaders acknowledging that funding transformation will always be a challenge. Despite limited funding availability for some construction industry businesses, there is an increased urgency to proactively adopt a new model for doing business or risk extinction. However, this sense of urgency is not universal for all construction industry businesses. In anticipation, organizations must proactively prepare and be dynamic planners for their future, which may best be described as uncertain. That is where a sound digital transformation strategy becomes imperative (Albukhitan, 2020).

The construction industry's businesses offer diverse services, varying in value proposition due to compliance-driven requirements. Innovation in business models depends on individual funding structures and flexibility (Lewandowski, 2017; Moussa et al., 2018; Schoemaker et al., 2018). The study reveals construction industry business leaders' short- and long-term transformation intentions, aiming for a stronger, resilient, customer service-focused, flexible, accessible, and data-driven organization, reflecting changes impacting stakeholder expectations. Christiansen et al. (2016) and Foss & Saebi's (2017) research highlight the importance of systemic business model innovation in the construction industry. They emphasize the need for flexible and quick organizational design, ensuring value delivery across interconnected layers. This iterative process evolves through knowledge acquisition and experimentation.

The ongoing efforts of construction industry business leaders to embed business model innovation within the internal fabric of their organization woven across all systems in the organization results in engaged and motivated staff that deliver products and services to meet customer needs within construction business expectations. The results from this study show the importance of embedding business model innovation across organization systems, which results in increased organizational excellence alongside organization sustainability and viability.

An embedded culture of business model innovation begins with leadership that prioritizes business model innovation and supports the change effort surrounding it. Nevertheless, the effect of some crisis arose and is still

being felt, presenting an opportunity to capture the responses of construction industry business leaders in applying business model innovation. While much remains unresolved to date, notable and visible accomplishments were made by construction industry businesses leveraging business model innovation practices to address the needs of customers confronting mounting challenges.

Business model innovation led to transformational changes within some construction industry businesses, as highlighted in the results of this study. These outcomes included: a) an embedded culture of business model innovation, b) growth in profit margin, and c) increased efficiency and productivity of the construction industry business as a trusted innovation expert and partner. Current research affirms that the success of a transformational change effort rests upon the shoulders of leaders (Acton, 2021). The work of business model innovation to move the construction industry business from sustainability to viability is ongoing, continually evolving, and never static. Business model innovation provides a sustainable and viable path toward a desired future state of education that hopefully becomes increasingly more just and more equitable, embracing vulnerability and risk for the sake of learning and growing, honoring the transformation of the status quo, and confronting the ever-changing education landscape for what it is and for what it could be.

Implications for Professional Practice

Applying a digital transformation strategy in business model innovation is essential for construction industry organizations. In an increasingly competitive construction industry market laden with unpredictable and ever-shifting external forces, construction industry business leaders look to adopt business model innovation to promote organizational resilience, growth, and performance. The pragmatic qualitative results from this study, affirmed by current literature, highlight positive outcomes for the construction industry business landscape when business model innovation practices become embedded into the culture of the construction organization. Strategic thinking is a mindset that promotes business model innovation, lean start-up methodologies, and agile development in digital entrepreneurship (Ghezzi & Cavallo, 2020). It involves knowledge management capacity, understanding innovative digital change strategies, and strategic decision-making. Quality leadership and organizational learning are crucial for survival. Construction industry leaders should focus on growing, sharing, and preserving knowledge related to business model innovation. Systemic thinking involves transforming an organization into a cohesive system, promoting flexibility and accountability. Redesigning the Human Resources department's structure and processes can help adopt business model innovation. Hiring the right people requires defining the necessary knowledge, skills, and talents. Construction industry leaders should provide resources to foster innovative thinking and ensure agility in response to market needs and crises. Creating a research and development fund can motivate and encourage innovation.

Recommendations and Conclusions

This study explores the role of digital transformation strategies in business model innovation in the construction industry. It examines the perceptions of construction industry leaders and their values derived from adopting these strategies. The study emphasizes the importance of agility and continuous learning among business leaders and the workforce. It also highlights leaders' challenges in implementing these strategies and the need for increased enterprise buy-in. The study also highlights the need for a learning organization that leverages the knowledge of its business leaders and staff. Future research should explore the components of an effective learning system that supports digital transformation strategy while applying business model innovation. Advanced technologies such as artificial intelligence, IoT, VR, UAV, and blockchain technology are used to gain a competitive advantage in the construction industry. Future research should explore the profound implications of digital transformation strategy on the construction industry business and how emerging technologies influence supply chains, production, customization, resources, and efficiency. It also highlights the importance of digitalization in the construction industry, as it offers routes to growth and resilience. Further research will reveal areas that require further investigation and analysis.

Conclusion

This pragmatic qualitative study explored how construction industry business leaders utilize digital transformation strategy to apply business model innovation to meet strategic business and technological demands and promote sustainability and organizational growth. Construction industry leaders face complexity and chaos due to uncertain structures arising from business model innovation, aiming for organizational survival, evolution, development, and adaptation.
The study explores the perceptions of construction industry business leaders regarding the application of business model innovation. It identifies five themes: challenging the current status quo, utilizing digital transformation strategies to improve processes, people, and technology, addressing challenges and opportunities, enhancing organizational quality and performance, and enhancing sustainability, competitiveness, and growth.

This study provides insights into the construction industry's digital transformation business model innovation efforts. It contributes to limited research on this topic and offers lessons learned from construction industry leaders. The findings support scaling and strengthening innovation efforts and provide a starting point for exploring digital transformation strategies in the construction sector.

This study highlights the application of digital transformation strategy in business model innovation for construction industry leaders, enhancing sustainability, competitiveness, and organizational growth in a complex, ever-evolving industry influenced by customer touchpoints, market uncertainties, and economic variables. Business model innovation in the construction industry is not universally applicable, but principles can transform business structures, processes, networks, and profit models for sustainable competitive growth. However, there are gaps in literature specific to this context.

References

Acciaro, M., & Sys, C. (2020). Innovation in the maritime sector: Aligning strategy with outcomes. *Maritime Policy & Management*, *47*(8), 1045-1063. https://doi.org/10.1080/03088839.2020.1737335

Achtenhagen, L., Melin, L., & Naldi, L. (2013). Dynamics of business models–strategizing, critical capabilities and activities for sustained value creation. *Long Range Planning*, *46*(6), 427-442. https://doi.org/10.1016/j.lrp.2013.04.002

Acton, K. S. (2021). School leaders as change agents: Do principals have the tools they need? *Management in Education*, *35*(1), 43-51. https://doi.org/10.1177/0892020620927415

Afuah, A. (2014). *Business model innovation: Concepts, analysis, and cases*. routledge.

Agag, G., & El-Masry, A. A. (2016). Understanding consumer intention to participate in online travel community and effects on consumer intention to purchase travel online and wom: An integration of innovation diffusion theory and tam with trust. *Computers in Human Behavior*, *60*, 97-111. https://doi.org/10.1016/j.chb.2016.02.038

Ahmad, A., Alshurideh, M., Al Kurdi, B., Aburayya, A., & Hamadneh, S. (2021). Digital transformation metrics: A conceptual view [Article]. *Journal of Management Information & Decision Sciences*, *24*(7), 1-18. https://www.proquest.com/openview/2958d727c54c1f342780b50d8067e980/1?pq-origsite=gscholar&cbl=38743

Ahmad, N., Mahmood, A., Han, H., Ariza-Montes, A., Vega-Muñoz, A., Din, M. U., Iqbal Khan, G., & Ullah, Z. (2021). Sustainability as a "new normal" for modern businesses: Are SMEs of Pakistan ready to adopt it? *Sustainability*, *13*(4). https://doi.org/10.3390/su13041944

Akoum, I. (2016). Research, development, and innovation in Malaysia: Elements of an effective growth model. *Asian Economic and Financial Review*, *6*(7), 390-403. https://doi.org/10.18488/journal.aefr/2016.6.7/102.7.390.403

Al-Rahmi, W. M., Yahaya, N., Aldraiweesh, A. A., Alamri, M. M., Aljarboa, N. A., Alturki, U., & Aljeraiwi, A. A. (2019). Integrating technology acceptance model with innovation diffusion theory: An empirical investigation on students' intention to use e-learning systems. *IEEE Access*, *7*, 26797-26809.

Albukhitan, S. (2020). Developing digital transformation strategy for manufacturing. *Procedia Computer Science*, *170*, 664-671.

Aliasghar, O., & Rose, E. L. (2017). Where to search for process innovations? Academy of Management Proceedings, DOI: 10.5465/AMBPP.2017.11253abstract.

Almaazmi, J., Alshurideh, M., Al Kurdi, B., & Salloum, S. A. (2020). The effect of digital transformation on product innovation: A critical review. International Conference on Advanced Intelligent Systems and Informatics.

AlNuaimi, B. K., Singh, S. K., Ren, S., Budhwar, P., & Vorobyev, D. (2022). Mastering digital transformation: The nexus between leadership, agility, and digital strategy. *Journal of Business Research*, *145*, 636-648.

Alshurideh, M., Salloum, S. A., Al Kurdi, B., Monem, A. A., & Shaalan, K. (2019). Understanding the quality determinants influencing the intention to use the mobile learning platforms: A practical study. *International Journal of Interactive Mobile Technologies*, *13*(11).

AlTaweel, I. R., & Al-Hawary, S. I. (2021). The mediating role of innovation capability on the relationship between strategic agility and organizational performance. *Sustainability*, *13*(14), 7564.

Andersen, T. C. K., Aagaard, A., & Magnusson, M. (2022). Exploring business model innovation in SMEs in a digital context: Organizing search behaviors, experimentation, and decision-making. *Creativity and Innovation Management*, *31*(1), 19-34.

Ardolino, M., Rapaccini, M., Saccani, N., Gaiardelli, P., Crespi, G., & Ruggeri, C. (2018). The role of digital technologies for the service transformation of industrial companies. *International Journal of Production Research*, *56*(6), 2116-2132.

Aversa, P., Furnari, S., & Haefliger, S. (2015). Business model configurations and performance: A qualitative comparative analysis in formula one racing, 2005-2013 [Article]. *Industrial & Corporate Change*, *24*(3), 655-676. https://doi.org/10.1093/icc/dtv012

Bajpai, A., & Misra, S. C. (2022). A framework for continuation of digitalization in construction: A pls-sem approach. *Engineering, Construction and Architectural Management*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/ECAM-03-2022-0230

Bashir, M., Yousaf, A., & Verma, R. (2016). Disruptive business model innovation: How a tech firm is changing the traditional taxi service industry. *Indian Journal of Marketing*, *46*(4), 49-59.

Batarseh, F. S., Usher, J. M., & Daspit, J. J. (2017). Collaboration capability in virtual teams: Examining the influence on diversity and innovation. *International Journal of Innovation Management*, *21*(04), 1750034.

Baxter, G., Beard, L., Beattie, G., Blake, M., Greenhall, M., Lingstadt, K., Nixon, W. J., & Reimer, T. (2021). Covid-19 and the future of the digital shift amongst research libraries: An rluk perspective in context. *New Review of Academic Librarianship*, *27*(3), 322-348.

Bhattacharya, S., & Momaya, K. (2021). Actionable strategy framework for digital transformation in aeco industry. *Engineering, Construction, and Architectural Management*.

Bocken, N. M., & Geradts, T. H. (2020). Barriers and drivers to sustainable business model innovation: Organization design and dynamic capabilities. *Long Range Planning*, *53*(4), 101950. https://doi.org/10.1016/j.lrp.2019.101950

Bouncken, R. B., Kraus, S., & Roig-Tierno, N. (2021). Knowledge-and innovation-based business models for future growth: Digitalized business models and portfolio considerations. *Review of Managerial Science*, *15*(1), 1-14.

Bouwman, H., Nikou, S., & de Reuver, M. (2019). Digitalization, business models, and SMEs: How do business model innovation practices improve the performance of digitalizing SMEs? *Telecommunications Policy*, *43*(9), 101828.

Brodny, J., & Tutak, M. (2021). Assessing the level of digital maturity of enterprises in the central and eastern european countries using the mcdm and shannon's entropy methods. *PLoS One*, *16*(7), e0253965.

Brondoni, S. M. (2015). Global networks, outside-in capabilities, and smart innovation. *Symphonya. Emerging Issues in Management*(1), 6-21.

Bumann, J., & Peter, M. (2019). Action fields of digital transformation–a review and comparative analysis of digital transformation maturity models and frameworks. *Digitalisierung und andere Innovationsformen im Management*, *2*, 13-40.

Butt, J. (2020). A conceptual framework to support digital transformation in manufacturing using an integrated business process management approach. *Designs*, *4*(3), 17.

Carayannis, E. G., Sindakis, S., & Walter, C. (2015). Business model innovation as lever of organizational sustainability. *The Journal of Technology Transfer*, *40*(1), 85-104.

Carlos, R., Amaral, D. C., & Caetano, M. (2018). Framework for continuous agile technology roadmap updating. *Innovation & Management Review*, *15*(3), 321-336.

Carnes, C. M., Chirico, F., Hitt, M. A., Huh, D. W., & Pisano, V. (2017). Resource orchestration for innovation: Structuring and bundling resources in growth- and maturity-stage firms. *Long Range Planning*, *50*(4), 472-486. https://doi.org/10.1016/j.lrp.2016.07.003

Ceipek, R., Hautz, J., De Massis, A., Matzler, K., & Ardito, L. (2021). Digital transformation through exploratory and exploitative internet of things innovations: The impact of family management and technological diversification. *Journal of Product Innovation Management*, *38*(1), 142-165.

Celik, I., Sahin, I., & Aydin, M. (2014). A reliability and validity study of the mobile learning adoption scale was developed based on the diffusion of innovations theory. *Online Submission*, *2*(4), 300-316.

Cennamo, C., Dagnino, G. B., Di Minin, A., & Lanzolla, G. (2020). Managing digital transformation: Scope of transformation and modalities of value co-generation and delivery. *California Management Review*, *62*(4), 5-16.

Chen, J., Zhang, R., & Wu, D. (2018). Equipment maintenance business model innovation for sustainable competitive advantage in the digitalization context: Connotation, types, and measuring. *Sustainability*, *10*(11), 3970. https://doi.org/10.3390/su10113970

Christensen, C. M., Hall, T., Dillon, K., & Duncan, D. S. (2016). Know your customers' jobs to be done. *Harvard Business Review*, *94*(9), 54-62.

Christopher, L. A., & De Vries, M. (2020). Selecting a scaled agile approach for a fin-tech company. *South African Journal of Industrial Engineering*, *31*(3), 196-208.

Clauss, T., Abebe, M., Tangpong, C., & Hock, M. (2019). Strategic agility, business model innovation, and firm performance: An empirical investigation. *IEEE Transactions on Engineering Management*, *68*(3), 767-784.

Corver, Q., & Elkhuizen, G. (2014). A framework for digital business transformation. Cognizant business consulting benelux. In.

da Costa Filho, J. R., Penha, R., da Silva, L. F., & Bizarrias, F. S. (2022). Competencies for managing activities in agile projects. *Global Journal of Flexible Systems Management*, 1-22.

da Silva, L. R. F. (2021). Scaling agile at enterprise to enable and accelerate the digital transformation. In *Digital Transformation and challenges to data security and privacy* (pp. 463-476). IGI Global.

Domingos, J. P., Oliveira, J. D., & Faria, F. S. (2022). The impact of digital transformation on construction companies' diversified strategy. https://www2.deloitte.com/ce/en/pages/real-estate/articles/the-impact-of-digital-transformation-on-construction-companies-diversified-strategy.html

Donthu, N., & Gustafsson, A. (2020). Effects of COVID-19 on business and research. *Journal of Business Research*, *117*, 284-289. https://doi.org/10.1016/j.jbusres.2020.06.008

Dubois, A., & Gadde, L.-E. (2002). The construction industry as a loosely coupled system: Implications for productivity and innovation. *Construction Management & Economics*, *20*(7), 621-631.

Enholm, I. M., Papagiannidis, E., Mikalef, P., & Krogstie, J. (2021). Artificial intelligence and business value: A literature review. *Information Systems Frontiers*, 1-26.

Erceg, V., & Zoranović, T. (2020). Required competencies for successful digital transformation. *Economy*, *66*(3), 47-54. https://doi.org/10.5937/ekonomika2003047E

Fabac, R. (2022). Digital balanced scorecard system as a supporting strategy for digital transformation. *Sustainability (2071-1050)*, *14*(15), 9690-N.PAG. https://doi.org/10.3390/su14159690

Foss, N. J., & Saebi, T. (2018). Business models and business model innovation: Between wicked and paradigmatic problems. *Long Range Planning*, *51*(1), 9-21.

Franceschinis, C., Thiene, M., Scarpa, R., Rose, J., Moretto, M., & Cavalli, R. (2017). Adoption of renewable heating systems: An empirical test of the diffusion of innovation theory. *Energy*, *125*, 313-326. https://doi.org/10.1016/j.energy.2017.02.060

Fuchs, C., & Hess, T. (2018). Becoming agile in the digital transformation: The process of a large-scale agile transformation.

Gallant, R. J. F. (2020). *Innovation-driven growth in heavy equipment firms* (Publication Number 28028791) [D.B.A., Walden University]. ProQuest Dissertations & Theses Global: The Humanities and Social Sciences Collection. Ann Arbor. https://www.proquest.com/dissertations-theses/innovation-driven-growth-heavy-equipment-firms/docview/2434727634/se-2?accountid=33337

Geissdoerfer, M., Vladimirova, D., & Evans, S. (2018). Sustainable business model innovation: A review. *Journal of Cleaner Production*, *198*, 401-416.

George, G., & Bock, A. J. (2012). *Models of opportunity: How entrepreneurs design firms to achieve the unexpected*. Cambridge University Press.

George, G., Merrill, R. K., & Schillebeeckx, S. J. (2021). Digital sustainability and entrepreneurship: How digital innovations are helping tackle climate change and sustainable development. *Entrepreneurship theory and practice*, *45*(5), 999-1027.

Ghani, N. A., Hamid, S., Hashem, I. A. T., & Ahmed, E. (2019). Social media big data analytics: A survey. *Computers in Human Behavior*, *101*, 417-428.

Ghezzi, A., & Cavallo, A. (2020). Agile business model innovation in digital entrepreneurship: Lean startup approaches. *Journal of Business Research*, *110*, 519-537. https://doi.org/https://doi.org/10.1016/j.jbusres.2018.06.013

Ghosh, B., Prasad, R., & Pallail, G. (2021). The right time for the automation advantage? Now! https://www.accenture.com/us-en/blogs/software-engineering-blog/the-automation-advantage

Gobble, M. M. (2018). Digital strategy and digital transformation. *Research-Technology Management*, *61*(5), 66-71.

Gudergan, G., & Mugge, P. (2017). The gap between practice and theory of digital transformation. Proceeding Hawaii International Conference of System Science, Hawaii.

Haffke, I., Kalgovas, B., & Benlian, A. (2017). The transformative role of bimodal it in an era of digital business.

Hampel, C. E., Tracey, P., & Weber, K. (2020). The art of the pivot: How new ventures manage identification relationships with stakeholders as they change direction. *Academy of Management Journal*, *63*(2), 440-471. https://doi.org/10.5465/amj.2017.0460

Hanrahan, J. A. M. (2021). *From survive to thrive: Business model innovation within the educational service agency—a qualitative study* Concordia University Chicago].

Harahsheh, A., Houssien, A., Alshurideh, M., & Mohammad, A. (2021). The effect of transformational leadership on achieving effective decisions in the presence of psychological capital as an intermediate variable in private Jordanian universities in light of the corona pandemic. In *The effect of coronavirus disease (COVID-19) on business intelligence* (pp. 221-243). Springer.

Hess, T., Matt, C., Benlian, A., & Wiesböck, F. (2016). Options for formulating a digital transformation strategy. *MIS Quarterly Executive*, *15*(2).

Hill, N. S., & Bartol, K. M. (2016). Empowering leadership and effective collaboration in geographically dispersed teams. *Personnel Psychology*, *69*(1), 159-198.

Hinings, B., Gegenhuber, T., & Greenwood, R. (2018). Digital innovation and transformation: An institutional perspective. *Information and Organization*, *28*(1), 52-61.

Hock-Doepgen, M., Clauss, T., Kraus, S., & Cheng, C.-F. (2021). Knowledge management capabilities and organizational risk-taking for business model innovation in SMEs. *Journal of Business Research*, *130*, 683-697. https://doi.org/10.1016/j.jbusres.2019.12.001

Hofmann, E., & Rüsch, M. (2017). Industry 4.0 and the current status as well as future prospects on logistics. *Computers in Industry*, *89*, 23-34.

Hosseini, M. R., Bosch-Sijtsema, P., Arashpour, M., Chileshe, N., & Merschbrock, C. (2018). A qualitative investigation of perceived impacts of virtuality on the effectiveness of hybrid construction project teams. *Construction Innovation*. https://doi.org/10.1108/CI-10-2016-0052

Jacob-Agwu, U., & Bessant, J. (2021). Sustainable business models: A systematic review of approaches and challenges in manufacturing [Article]. *Modelos de Negócios Sustentáveis: Uma Revisão Sistemática de Abordagens e Desafios na Manufatura.*, *25*(3), 1-18. https://doi.org/10.1590/1982-7849rac2021200202.en

Jones, M. D., Hutcheson, S., & Camba, J. D. (2021). Past, present, and future barriers to digital transformation in manufacturing: A review. *Journal of Manufacturing Systems*, *60*, 936-948. https://doi.org/10.1016/j.jmsy.2021.03.006

Kaasinen, E. (2005). User acceptance of location-aware mobile guides based on seven field studies. *Behavior & Information Technology*, *24*(1), 37-49.

Kalaignanam, K., Tuli, K. R., Kushwaha, T., Lee, L., & Gal, D. (2021). Marketing agility: The concept, antecedents, and a research agenda. *Journal of Marketing*, *85*(1), 35-58. https://doi.org/10.1177/0022242920952760

Kaminski, J. (2011). Diffusion of innovation theory Canadian Journal of Nursing Informatics, 6(2). Theory in nursing informatics column. https://doi.org/https://cjni.net/journal/?p=1444

Kane, G. C. (2018). A three-step process for scaling digital innovation [Research]. *Big Idea: Digital Leadership*. Retrieved February 27, 2022, from https://sloanreview.mit.edu/article/a-three-step-process-for-scaling-digital-innovation/

Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2015). Strategy, not technology, drives digital transformation [Research]. *Becoming a Digitally Mature Enterprise*. Retrieved March 25, 2022, from https://sloanreview.mit.edu/projects/strategy-drives-digital-transformation/

Keiningham, T., Aksoy, L., Bruce, H. L., Cadet, F., Clennell, N., Hodgkinson, I. R., & Kearney, T. (2020). Customer experience-driven business model innovation. *Journal of Business Research*, *116*, 431-440. https://doi.org/10.1016/j.jbusres.2019.08.003

Kindermann, B., Beutel, S., Garcia de Lomana, G., Strese, S., Bendig, D., & Brettel, M. (2021). Digital orientation: Conceptualization and operationalization of a new strategic orientation. *European Management Journal*, *39*(5), 645-657. https://doi.org/10.1016/j.emj.2020.10.009

Kiron, D., Unruh, G., Reeves, M., Kruschwitz, N., Rubel, H., & ZumFelde, A. M. (2017). Corporate sustainability at a crossroads. *MIT Sloan Management Review*, *58*(4).

Klammer, A. (2021). Embracing organizational unlearning as a facilitator of business model innovation. *International Journal of Innovation Management*, *25*(06), 2150061. https://doi.org/10.1142/S1363919621500614

Klos, C., Spieth, P., Clauss, T., & Klusmann, C. (2021). Digital transformation of incumbent firms: A business model innovation perspective. *IEEE Transactions on Engineering Management*. https://doi.org/10.1109/TEM.2021.3075502

Kofford, S., Clark, A., & Jones Christensen, L. M. (2020). Barriers to imitation in strategic CSR: Organizational authenticity and the resource-based view. Academy of Management Proceedings, DOI: 10.5465/AMBPP.2020.21329abstract.

Kohli, R., & Melville, N. P. (2019). Digital innovation: A review and synthesis. *Information Systems Journal*, *29*(1), 200-223. https://doi.org/10.1111/isj.12193

Koscheyev, V., Rapgof, V., & Vinogradova, V. (2019). Digital transformation of construction organizations. IOP Conference Series: Materials Science and Engineering.

Krause, S., & Pellens, B. (2017). *Betriebswirtschaftliche implikationen der digitalen transformation*. Springer-Verlag.

Kuna-Marszalek, A., & Klysik-Uryszek, A. (2020). *CSR and socially responsible investing strategies in transitioning and emerging economies* (A. Kuna-Marszalek & A. Klysik-Uryszek, Eds.). IGI Global.

Kuncoro, W., & Suriani, W. O. (2018). Achieving sustainable competitive advantage through product innovation and market driving. *Asia Pacific Management Review*, *23*(3), 186-192. https://doi.org/10.1016/j.apmrv.2017.07.006
Lewandowski, M. (2016). Designing the business models for circular economy—towards the conceptual framework. *Sustainability*, *8*(1), 43. https://doi.org/10.3390/su8010043

Liao, S.-H., Hu, D.-C., & Ding, L.-W. (2017). Assessing the influence of supply chain collaboration value innovation, capability, and competitive advantage in Taiwan's networking communication industry. *International Journal of Production Economics*, *191*, 143-153. https://doi.org/10.1016/j.ijpe.2017.06.001

Lipsmeier, A., Kühn, A., Joppen, R., & Dumitrescu, R. (2020). Process for the development of a digital strategy. *Procedia CIRP*, *88*, 173-178.

Llach, J., Marimon, F., del Mar Alonso-Almeida, M., & Bernardo, M. (2013). Determinants of online booking loyalties for the purchasing of airline tickets. *Tourism Management*, *35*, 23-31.

Loebbecke, C., & Picot, A. (2015). Reflections on societal and business model transformation arising from digitization and big data analytics: A research agenda. *The journal of strategic information systems*, *24*(3), 149-157. https://doi.org/10.1016/j.jsis.2015.08.002

Mallinguh, E., & Zoltan, Z. (2020). Map of the existing research on business innovation, funding, and policy framework. *Journal of Entrepreneurship, Management and Innovation*, *16*(2), 161-202. https://doi.org/10.7341/20201626

Malmqvist, J., Hellberg, K., Möllås, G., Rose, R., & Shevlin, M. (2019). Conducting the pilot study: A neglected part of the research process? Methodological findings supporting the importance of piloting in qualitative research studies. *International Journal of Qualitative Methods*, *18*, 1609406919878341. https://doi.org/10.1177/1609406919878341

Martek, I., Hosseini, M. R., Shrestha, A., & Edwards, D. J. (2019). Barriers inhibiting the transition to sustainability within the Australian construction industry: An investigation of technical and social interactions. *Journal of Cleaner Production*. https://doi.org/10.1016/j.jclepro.2018.11.166

Martins, L. L., Rindova, V. P., & Greenbaum, B. E. (2015). Unlocking the hidden value of concepts: A cognitive approach to business model innovation. *Strategic Entrepreneurship Journal*, *9*(1), 99-117. https://doi.org/10.1002/sej.1191

Matarazzo, M., Penco, L., & Profumo, G. (2020). How is digital transformation changing business models and internationalization in made in Italy SMEs? *Sinergie Italian Journal of Management*, *38*(3), 89-107. https://doi.org/10.7433/s113.2020.06

Matt, C., Hess, T., & Benlian, A. (2015). Digital transformation strategies. *Business & Information Systems Engineering*, *57*(5), 339-343.

Matzler, K., von den Eichen, S. F., Anschober, M., & Kohler, T. (2018). The crusade of digital disruption. *Journal of Business Strategy*. https://doi.org/10.1108/JBS-12-2017-0187

McDonald, R. M., & Eisenhardt, K. M. (2020). Parallel play: Startups, nascent markets, and effective business-model design. *Administrative Science Quarterly*, *65*(2), 483-523. https://doi.org/10.1177/0001839219852349

Merschbrock, C., & Munkvold, B. E. (2015). Effective digital collaboration in the construction industry – a case study of bim deployment in a hospital construction project. *Computers in Industry*, *73*, 1-7. https://doi.org/10.1016/j.compind.2015.07.003

Mhlungu, N. S., Chen, J. Y., & Alkema, P. (2019). The underlying factors of a successful organizational digital transformation. *South African Journal of Information Management*, *21*(1), 1-10. https://hdl.handle.net/10520/EJC-1693a0fd5a

Mikalef, P., Pappas, I. O., Krogstie, J., & Giannakos, M. (2018). Big data analytics capabilities: A systematic literature review and research agenda. *Information Systems and e-Business Management*, *16*(3), 547-578. https://doi.org/10.1007/s10257-017-0362-y

Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative data analysis: A methods sourcebook and the coding manual for qualitative researchers* (B. S. U. Elmar Hashimov, Ed.) [Book]. Sage Pubishing. https://doi.org/https://doi.org/10.1080/10572252.2015.975966

Morakanyane, R., Grace, A. A., & O'Reilly, P. (2017). Conceptualizing digital transformation in business organizations: A systematic review of literature. *Bled eConference*, *21*. https://doi.org/10.18690/978-961-286-043-1.30

Müller, J. M. (2019). Business model innovation in small-and medium-sized enterprises: Strategies for industry 4.0 providers and users. *Journal of Manufacturing Technology Management*.

Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2017). Digital innovation management: Reinventing innovation management research in a digital world. *Mis quarterly*, *41*(1).

Newman, A., Round, H., Bhattacharya, S., & Roy, A. (2017). Ethical climates in organizations: A review and research agenda. *Business Ethics Quarterly*, *27*(4), 475-512.

Nikmehr, B., Hosseini, M. R., Martek, I., Zavadskas, E. K., & Antucheviciene, J. (2021). Digitalization as a strategic means of achieving sustainable efficiencies in construction management: A critical review. *Sustainability*, *13*(9), 5040.

Nuryakin. (2018). Competitive advantage and product innovation: Key success of batik smes marketing performance in indonesia. *Academy of Strategic Management Journal*, *17*(2), 1-17.

Nuseir, M., Aljumah, A., & Alshurideh, M. (2021). How the business intelligence in the new startup performance in uae during covid-19: The mediating role of innovativeness. In *The effect of coronavirus disease (COVID-19) on business intelligence* (pp. 63-79). Springer.

Obrenovic, B., Du, J., Godinic, D., Tsoy, D., Khan, M. A. S., & Jakhongirov, I. (2020). Sustaining enterprise operations and productivity during the COVID-19 pandemic: Enterprise effectiveness and sustainability model. *Sustainability*, *12*(15), 5981.

Papadonikolaki, E., Krystallis, I., & Morgan, B. (2020). *Digital transformation in construction-systematic literature review of evolving concepts*. https://discovery.ucl.ac.uk/id/eprint/10113245

Pappas, I. O., Mikalef, P., Giannakos, M. N., Krogstie, J., & Lekakos, G. (2018). Big data and business analytics ecosystems: Paving the way towards digital transformation and sustainable societies. *Information Systems and e-Business Management*, *16*(3), 479-491. https://doi.org/10.1007/s10257-018-0377-z

Parida, V., Sjödin, D., & Reim, W. (2019). Reviewing literature on digitalization, business model innovation, and sustainable industry: Past achievements and future promises. In: Multidisciplinary Digital Publishing Institute.

Perkin, N., & Abraham, P. (2021). *Building the agile business through digital transformation*. Kogan Page Publishers.

Peter, M. K., Kraft, C., & Lindeque, J. (2020). Strategic action fields of digital transformation: An exploration of the strategic action fields of swiss SMEs and large enterprises. *Journal of Strategy and Management*. https://doi.org/10.1108/JSMA-05-2019-0070

Pinto Filho, J. B. A., Lacerda, T. B., & de Lemos Meira, S. R. (2022). Digital [business| transformation] strategy: A systematic review: Could companies benefit from a consolidated road to transformation? 2022 17th Iberian Conference on Information Systems and Technologies (CISTI), DOI: 10.23919/CISTI54924.2022.9820039.

Porter, M. E. (1985). Technology and competitive advantage. *Journal of Business Strategy*. https://doi.org/10.1108/eb039075

Porter, M. E. (1997). Competitive strategy. *Measuring Business Excellence*. https://doi.org/10.1108/eb025476

Powell, T. C. (2001). Competitive advantage: Logical and philosophical considerations. *Strategic Management Journal*, *22*(9), 875-888. https://doi.org/10.1002/smj.173

Rachinger, M., Rauter, R., Müller, C., Vorraber, W., & Schirgi, E. (2018). Digitalization and its influence on business model innovation. *Journal of Manufacturing Technology Management*. https://doi.org/10.1108/JMTM-01-2018-0020

Rahman, S., & Oh, A. (2020). Integrated model to analyze FDI role in success of commercialization of high-tech innovations in Asia. *International Journal of Economics Development Research (IJEDR)*, *1*(1), 3-18. https://doi.org/10.37385/ijedr.v1i1.28

Rajabion, L., Shaltooki, A. A., Taghikhah, M., Ghasemi, A., & Badfar, A. (2019). Healthcare big data processing mechanisms: The role of cloud computing. *International Journal of Information Management*, *49*, 271-289. https://doi.org/10.1016/j.ijinfomgt.2019.05.017

Ramkumar, S., Mueller, M., Pyka, A., & Squazzoni, F. (2022). Diffusion of eco-innovation through inter-firm network targeting: An agent-based model [Article]. *Journal of Cleaner Production*, *335*. https://doi.org/10.1016/j.jclepro.2021.130298

Riss, U. V., Maus, H., Javaid, S., & Jilek, C. (2020). Digital twins of an organization for enterprise modeling. The Practice of Enterprise Modeling: 13th IFIP Working Conference, PoEM 2020, Riga, Latvia, November 25–27, 2020, Proceedings 13, DOI: 10.1007/978-3-030-63479-7_3.

Robinson, J., Harrison, P., Shen, J., & Wu, F. (2021). Financing urban development, three business models: Johannesburg, shanghai, and london. *Progress in Planning*, *154*, 100513. https://doi.org/10.1016/j.progress.2020.100513

Rogers, E. M. (2003). *Diffusion of innovation* (5th ed.). Free Press by Simon & Schuster.

Rueckel, D., Mühlburger, M., & Koch, S. (2020). An updated framework of factors enabling digital transformation. *Pac. Asia J. Assoc. Inf. Syst.*, *12*, 1. https://doi.org/10.17705/1PAIS.12401

Sánchez, F., & Hartlieb, P. (2020). Innovation in the mining industry: Technological trends and a case study of the challenges of disruptive innovation. *Mining, Metallurgy & Exploration*, *37*(5), 1385-1399.

Santos, P. F. A. A., Gonçalves, C. A., & Afonso, T. (2015). A theoretical and methodological framework for analyzing structural and relational aspects of diffusion of innovations among organizations. *Revista Gestão & Tecnologia*, *15*(3), 5-28.

Schaebs, D. S. (2022). The digital transformation of public authorities: Creating an agile structure and streamlining government presence using the example of tax offices [Article]. *Managing Global Transitions: International Research Journal*, *20*(1), 327-342. https://doi.org/10.26493/1854-6935.19.327-342

Schallmo, D., Williams, C. A., & Boardman, L. (2017). Digital transformation of business models—best practice, enablers, and roadmap. *International Journal of Innovation Management*, *21*(08), 1740014.

Schallmo, D. R. (2016). *Jetzt digital transformieren*. Springer.

Schneckenberg, D., Matzler, K., & Spieth, P. (2022). Theorizing business model innovation: An organizing framework of research dimensions and future perspectives. *R&D Management*, *52*(3), 593-609.

Schneckenberg, D., Velamuri, V. K., Comberg, C., & Spieth, P. (2017). Business model innovation and decision making: Uncovering mechanisms for coping with uncertainty. *R&D Management*, *47*(3), 404-419.

Sebastian, I. M., Ross, J. W., Beath, C., Mocker, M., Moloney, K. G., & Fonstad, N. O. (2020). How big old companies navigate digital transformation. In *Strategic information management* (pp. 133-150). Routledge.

Šepeľová, L., Calhoun, J. R., & Straffhauser-Linzatti, M. (2021). Sharing economy business models: Informational services innovation and disruption in Uber and Airbnb. *Developments in Information & Knowledge Management for Business Applications: Volume 2*, 521-540. https://doi.org/10.1007/978-3-030-76632-0_18

Shibeika, A., & Harty, C. (2015). Diffusion of digital innovation in construction: A case study of a UK engineering firm. *Construction Management and Economics*, *33*(5-6), 453-466.

Sjödin, D., Parida, V., Jovanovic, M., & Visnjic, I. (2020). Value creation and value capture alignment in business model innovation: A process view on outcome-based business models. *Journal of Product Innovation Management*, *37*(2), 158-183. https://doi.org/10.1111/jpim.12516

Snihur, Y., & Zott, C. (2020). The genesis and metamorphosis of novelty imprints: How business model innovation emerges in young ventures. *Academy of Management Journal*, *63*(2), 554-583. https://doi.org/10.5465/amj.2017.0706

Steiber, A., & Alänge, S. (2020). Corporate-startup collaboration: Effects on large firms' business transformation. *European Journal of Innovation Management*, *24*(2), 235-257.

Stewart, I., & Fenn, P. (2006). Strategy: The motivation for innovation. *Construction Innovation*. https://doi.org/10.1108/14714170610710703

Suprun, E. V., & Stewart, R. A. (2015). Construction innovation diffusion in the Russian Federation: Barriers, drivers and coping strategies. *Construction Innovation*.

Svoboda, P., Ghazal, T. M., Afifi, M. A., Kalra, D., Alshurideh, M. T., & Alzoubi, H. M. (2021). Information systems integration to enhance operational customer relationship management in the pharmaceutical industry. The International Conference on Artificial Intelligence and Computer Vision.

Teece, D., Peteraf, M., & Leih, S. (2016). Dynamic capabilities and organizational agility: Risk, uncertainty, and strategy in the innovation economy. *California Management Review*, *58*(4), 13-35.

Teece, D. J. (2018). Dynamic capabilities as (workable) management systems theory. *Journal of Management & Organization*, *24*(3), 359-368. https://doi.org/10.1017/jmo.2017.75

Theodoulidis, B., Diaz, D., Crotto, F., & Rancati, E. (2017). Exploring corporate social responsibility and financial performance through stakeholder theory in the tourism industries. *Tourism Management*, *62*, 173-188.

Thompson, A. A., Strickland, A. J., & Gamble, J. E. (2021). *Crafting and executing strategy*. McGraw-Hill US Higher Ed USE.

Tüllmann, C., Prasse, C., Sagner, D., & Piastowski, H. (2016). Sustainably optimize processes through digitalization. *Future Challenges in Logistics and Supply Chain Management; Fraunhofer IML: Dortmund, Germany*.

Turk, Ž., & Klinc, R. (2017). Potentials of blockchain technology for construction management. *Procedia Engineering*, *196*, 638-645. https://doi.org/10.1016/j.proeng.2017.08.052

Ullah, F., Qayyum, S., Thaheem, M. J., Al-Turjman, F., & Sepasgozar, S. (2021). Risk management in sustainable smart cities governance: A toe framework. *Technological Forecasting and Social Change*, *167*, 120743.

van Tonder, C., Schachtebeck, C., Nieuwenhuizen, C., & Bossink, B. (2020). A framework for digital transformation and business model innovation [Report]. *Management: Journal of Contemporary Management Issues*, *25*(2), 111. https://doi.org/10.30924/mjcmi.25.2.6

Vaska, S., Massaro, M., Bagarotto, E. M., & Dal Mas, F. (2021). The digital transformation of business model innovation: A structured literature review. *Frontiers in Psychology*, *11*, 539363. https://doi.org/10.3389/fpsyg.2020.539363

Venkatraman, N. (1994). It-enabled business transformation: From automation to business scope redefinition. *Sloan Management Review*, *35*, 73-73.

Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Qi Dong, J., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, *122*, 889-901. https://doi.org/10.1016/j.jbusres.2019.09.022

Vial, G. (2021). Understanding digital transformation: A review and a research agenda. *Managing Digital Transformation*, 13-66.

Wagner, M. (2021). *The world through eyes: Diffusion theory in public relations*. Pennsylvania State University. https://sites.psu.edu/mwagnercomm473/diffusion-theory-in-public-relations/

Wamba, S. F., Gunasekaran, A., Akter, S., Ren, S. J.-f., Dubey, R., & Childe, S. J. (2017). Big data analytics and firm performance: Effects of dynamic capabilities. *Journal of Business Research*, *70*, 356-365.

Wang, H.-L. (2014). Theories for competitive advantage.

Wang, S., Wan, J., Li, D., & Zhang, C. (2016). Implementing smart factory of industrie 4.0: An outlook. *International journal of distributed sensor networks*, *12*(1), 3159805.

Wani, T. A., & Ali, S. W. (2015). Review & scope in the study of adoption of smartphones in India. *Journal of General Management Research*, *3*(2), 101-118.

Weerdt, C. d., Hamilton, A., Stokvis, K., & Weeks, P. (2020). Agile delivery of capital projects [Research]. *Insights*. https://www.mckinsey.com/capabilities/operations/our-insights/agile-delivery-of-capital-projects

Westerman, G., Calméjane, C., Bonnet, D., Ferraris, P., & McAfee, A. (2011). Mit center for digital business and capgemini consulting 1–68.

Wilden, R., Gudergan, S. P., Nielsen, B. B., & Lings, I. (2013). Dynamic capabilities and performance: Strategy, structure and environment. *Long Range Planning*, *46*(1-2), 72-96.

Wu, J.-H., & Wang, S.-C. (2005). What drives mobile commerce?: An empirical evaluation of the revised technology acceptance model. *Information & Management*, *42*(5), 719-729.

Ylinen, M. (2021). Incorporating agile practices in public sector IT management: A nudge toward adaptive governance [Article]. *Information Polity: The International Journal of Government & Democracy in the Information Age*, 1-21. https://doi.org/10.3233/ip-200269

Yoo, Y., Boland Jr, R. J., Lyytinen, K., & Majchrzak, A. (2012). Organizing for innovation in the digitized world. *Organization Science*, *23*(5), 1398-1408.

Yopan, M., Kasali, R., Balqiah, T. E., & Pasaribu, M. (2022). The role of digital leadership, customer orientation, and business model innovation for IoT companies. *International Journal of Business*, *27*(2).

Young, D., Hutchinson, R., & Reeves, M. (2021). The green economy has a resource scarcity problem. *Harvard Business Review*. https://hbr.org/2021/07/the-green-economy-has-a-resource-scarcity-problem
Yu, J., & Moon, T. (2021). Impact of digital strategic orientation on organizational performance through digital competence. *Sustainability*, *13*(17), 9766. https://doi.org/10.3390/su13179766

Zahoor, N., Golgeci, I., Haapanen, L., Ali, I., & Arslan, A. (2022). The role of dynamic capabilities and strategic agility of b2b high-tech small and medium-sized enterprises during covid-19 pandemic: Exploratory case studies from Finland. *Industrial Marketing Management*, *105*, 502-514. https://doi.org/10.1016/j.indmarman.2022.07.006

Zaoui, F., & Souissi, N. (2020). Roadmap for digital transformation: A literature review. *Procedia Computer Science*, *175*, 621-628. https://doi.org/10.1016/j.procs.2020.07.090

Zeverte-Rivza, S., & Gudele, I. (2021). Digitalization in times of covid-19 - the behavioral shifts in enterprises and individuals in the sector of bioeconomy [Article]. *Economic Science for Rural Development Conference Proceedings*(55), 42-51. https://doi.org/10.22616/ESRD.2021.55.004

Zomorrodian, A. (2017). New trends on strategic planning: Virtual environment, tech innovation, globalization & organizational performance. *Tech Innovation, Globalization & Organizational Performance (March 4, 2017)*.