



Article

# The Effect of Digital Orientation and Digital Capability on Digital Transformation of SMEs during the COVID-19 Pandemic

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**Abstract:** Despite the growing importance of digital transformation, empirical research on the drivers of digital transformation is still lacking, creating a knowledge gap. The purpose of this study is to explore the effect of digital orientation and digital capability on digital transformation, as well as the mediating effect of digital transformation on revenues and business models of SMEs during the COVID-19 pandemic. This paper examines a new conceptual framework designed on resource-based theory perspectives by using survey data of 246 SMEs in Latvia. To achieve the research purpose, this study used a mediation analysis to examine the direct effect of digital orientation and digital capability on digital transformation, as well as to explore the mediating effect of digital transformation on SME outcomes. Our results reveal that both digital orientation and digital capability have direct positive effects on digital transformation. We also found that digital transformation has a positive mediating effect from digital orientation on revenue and business model, as well as from digital capability on revenue. These findings could be useful for policymakers, managers and practitioners to clarify how digital orientation and digital capability intermediated through digital transformation affect the outcomes of SMEs.

**Keywords:** digital transformation; SME; digital orientation; digital capability; mediation analysis; resource orchestration theory; dynamic managerial capabilities theory



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## 1. Introduction

Confidence in digital transformation, being a crucial element of the successful development of companies and economies, is quite widespread amongst policymakers [1–3] and the academic community [4–8]. COVID-19 has fuelled digital transformation across industries by offering companies the opportunity to change their practices fundamentally and to alter strategic vision based on long-term growth and value creation for all stakeholders. At the same time, COVID-19 is a new, unexplored framework that has spurred the digital transformation of companies, accelerating overall digital adoption by three to seven years in a matter of months [9]. Since the pandemic has forced companies to remove many of the obstacles that once stood in their way to digital adoption, such as network security that allows employees to work remotely, companies will find it much easier to work remotely in the future. Companies have already made key investments in order to protect their digital security and have created the technology infrastructure that allows employees to work from their home offices.

However, in the real world, are companies striving to transform? There is still a lot of work ahead. According to the Organisation for Economic Co-operation and Development (OECD) study on digital transformation [1], big data, e-orders, supplier–customer management and e-commerce are still underdeveloped. Similar results are revealed by other surveys [2,3]. Large companies are better positioned to take advantage of new technologies and turn them into smart and sustainable companies [1], but what about small and

medium-sized enterprises that form the backbone of any economy? SMEs are not prompt enough in digital transformation, and the smaller the company, the lower the probability of introducing new digital solutions [2]. Recent EU surveys show that in 2019, 76% of Western European SMEs determined digitalization as a priority, the most common activities were electronic invoicing (60%), application of software to facilitate collaboration (60%) and process monitoring (53%) [10]. At the same time, a survey carried out by SEB Bank (Skandinaviska Enskilda Banken AB) in December 2019 clearly showed that SMEs in the Baltic States occasionally refrain from digitalizing their activities, given that a quarter of respondents sell goods or services on the Internet. Forty-seven percent of SMEs in Latvia and 51% of SMEs in Lithuania recognized digitization as a substantial premise for business development, while in Estonia this indicator is higher—55% [11]. The aforementioned surveys describe the current state of digitalization and expectations of SMEs before the COVID-19 outbreak, but it is necessary to find out how the situation has changed due to the pandemic. COVID-19 certainly made companies relocate their operations online and enforce smart working solutions to continue business during lockdowns and mitigate disruptions in supply. Global business data indicate that up to 70% of SMEs have increased their use of digital technology due to COVID-19 [1].

While the significant impact of digital transformation seems clear, the drivers of digital transformation are unclear, and scientists are increasingly voicing concerns about the productivity of digital investments and their impact on company outcomes [8]. Digital transformation can be characterized as the cultural, organizational and operational change of a company through the gradual and strategic integration of digital technologies, orientation and capabilities at all levels and all functions [4]. In this study, we investigate the effect of digital orientation, as a strategic company orientation focused on the changes brought about by digital technologies [12], and digital capability, as organizational competence, expertise and talent in operating digital technology for developing new products or services [13], on digital transformation.

Given the universal importance of SMEs and their role as the backbone of any economy, the purpose of this study is to explore the effect of digital orientation and digital capability on digital transformation, as well as the mediating effect of digital transformation on revenues and business models of SMEs during the COVID-19 pandemic.

This research is based on the data of an online survey carried out during February–March 2021 amongst owners and managers of 246 companies registered in Latvia, when there was a state of emergency in Latvia.

While academics are focused on digitalization, our understanding of the drivers of SME digital transformation remains surprisingly incomplete. This is remarkable because digital transformation provides SMEs with strategic directions to design and implement specific digital transformation strategies and select appropriate digitalization initiatives to ensure their digital journey. A number of academic studies have confirmed that digital transformation is critical for the modern economy, as it has a wide range of consequences for business [4,5,14,15]. Leveraging digital capabilities and orientation by focusing on improved service delivery and customer integration can add value to the products and services they offer while increasing profitability over the long term [12,16].

We argue that digital orientation and digital capability mediated by digital transformation are driving different and new ways of managerial and organizational alignment that have been overlooked in previous strategic studies and their combinations [12,13,16]. The current empirical research on digital transformation is largely based on case studies, limited question and answer surveys, or historical data on technology investment, with no generalized or longitudinal studies. Thus, deepening knowledge of the relationship between the driving forces and the impact of digital transformation on the performance of SMEs enables longitudinal research that is vital for stakeholders, including SMEs, academia and policymakers. To the authors' knowledge, there are no studies that investigate the mediating effect of digital transformation of SMEs on the relationship that digital orientation and capability have with revenues and business models. In this study, we reveal that

digital transformation mediates digital orientation and digital capability, having a positive effect on SME outcomes.

COVID-19 has recently triggered another crisis; thus, this study complements the literature on digital transformation in the context of COVID-19 with meaningful empirical relationships that digital capability and orientation have with SME transformation.

We found that digital capability and digital orientation have direct positive effects on digital transformation; digital orientation and capability, mediated by digital transformation, have a positive effect on revenue, as well as a more sophisticated business model in the case of a digital orientation. Even if we cannot confirm that digital capability, mediated by digital transformation, has a positive effect on a more sophisticated business model, we found statistically significant direct positive effects from digital capability on digital transformation and from digital transformation on business model sophistication. In addition, we found that digital orientation and digital capability have a direct positive effect on revenue, while no direct positive effect of digital transformation on revenue has been confirmed.

The structure of this paper is as follows: The next section, Section 2, discusses the theoretical background and hypotheses. Section 3 focuses on the data and methodology. The results of data analysis for the measurement model and mediation analysis are provided in Section 4, as are the insights into the hypotheses confirmed. Section 5 discusses the findings, and Section 6 concludes the paper.

## 2. Theoretical Background and Hypotheses

To create a new concept, three requirements need to be taken into account: a characteristic, an appropriate measurement model, and evidence that the indicators measure the proposed concept [17]. We start with conceptualizing digital transformation on the basis of a review of existing literature.

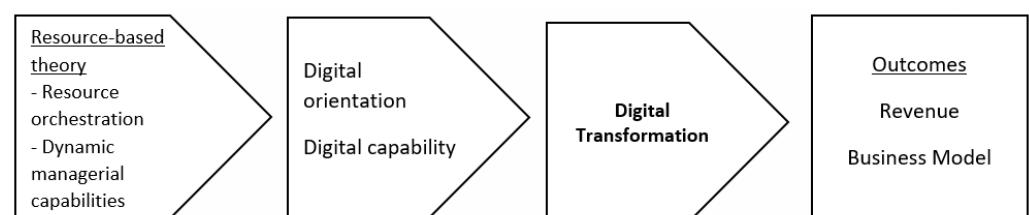
Digital transformation begins with the process of transforming information from a physical format to a digital version known as digitization. Digitization can improve efficiency if digitized data are used to automate processes and make them more accessible, but digitization is not aimed at optimizing processes or data. Companies cannot embark on a digital journey if they do not go through digitization first. The next step is to use digital technology to adapt the business model and provide new opportunities for generating income and creating value; this is called digitalization. It is the process of moving to a digital business [8]. Digitalization includes the process of adapting old business models to new technologies and unlocking the potential of digital technologies to collect data, identify patterns and make smarter business decisions [7]. However, digitalization improves rather than transforms the existing business process, transforming the process from a human-driven event to a software-driven event.

Finally, digital transformation is the integration of digital technology across all areas of the business, revolutionizing the ways of working and delivering value to customers. The entire business model change follows the process of digital transformation, and it needs to be supported by an ecosystem, dedicated digital strategy and digital skills [18]. It is also a cultural change that requires organizations to continually challenge the status quo, experiment and become comfortable with failure [4,19]. Digital transformation is a multidimensional phenomenon, which implies the use and applications of a broad range of technologies for different purposes.

The process of digital transformation is mainly studied in the context of three approaches, namely addressing drivers and objectives that trigger the digital journey, factors of success and implications [15]. Considering that the phenomenon of digital transformation is just emerging and evolving, in this study, we focus on two drivers of transformation, digital orientation and capability. Digital orientation is a strategic company orientation focused on the changes brought about by digital technologies [12], while digital capability is organizational competence, expertise and talent in operating digital technology for developing new products or services [13].

Business managers face a number of resource challenges during digital transformation. New and sometimes very significant investments in the company, employees and customers are demanded in the digital journey. Therefore, to explore the role of digital transformation during the COVID-19 pandemic, we rely on resource-based theory (RBT). Although the RBT of the firm was proposed by Wernerfelt in 1984 [20], there is still no consensus on the definitions of even the basic concepts and the workings of the framework [21], which can be explained by RBT being in an emerging and developmental state. However, its popularity in academia and industry is growing, as the role of RBT is to develop and maintain a competitive advantage by managing resources and capabilities. RBTs, which include theories of resource acquisition and accumulation (such as strategic factor market theory and the competitive lifecycle), theories of the firm (such as the knowledge-based view) and theories of sustainable competitive advantage (such as dynamic capabilities and the relational view), all share a set of basic assumptions. These begin with the view that the firm comprises a bundle of productive resources and capabilities and that heterogeneity in performance across firms stems from an underlying heterogeneity in their resources and capabilities [22].

In our study, to explore the effect of digital orientation and digital capability on digital transformation, we apply two specific perspectives of RBT: resource orchestration and dynamic managerial capabilities approaches [23]. Resource orchestration theory expands on the basis of resource theory and considers the actual role of the manager in the resource management process [23]. The dynamic managerial capabilities (DMC) approach contends that companies need to constantly align, modify and reconfigure their resources and capabilities in a dynamic and volatile environment to ensure sustained innovation and earnings above normal returns [15]. Both theories help us delve deeper into two drivers of digital transformation: digital orientation and capability. Resource orchestration assumes that managers perform an active role in the development of capabilities and resources, thus building the combination of resources, capabilities and managerial foresight leading to various organizational outcomes [23]. DMC embodies the importance of managerial intent, routines and capabilities in influencing the restructuring of a company's resource base [16]. A company's resources include all assets, tangible and intangible, that the company controls and that are conducive to improving its efficiency and effectiveness. Competitive advantage is also an important concept that derives from DMC, as a company has a sustainable competitive advantage when it implements a value creation strategy that is not pursued simultaneously by current or potential competitors [23]. The resource orchestration and dynamic managerial capabilities perspectives are appropriate for investigating business transformation [24]. These perspectives are considered useful in theory because they explicitly address how entrepreneurial and managerial actions contribute to adapting and changing the resources, processes and structures that are required when a company engages in digital transformation through a coherent digital transformation strategy [25]. Thus, we develop a concept linking digital orientation and digital capabilities with digital transformation, applying the perspectives of resource orchestration and dynamic management capabilities (see Figure 1).



**Figure 1.** A framework of the impact of digital orientation and digital capability on digital transformation by SME managers.

### 2.1. Digital Orientation and Digital Transformation

In the literature, digital orientation is proposed as a strategic company orientation focused on the changes brought about by digital technologies such as social networks, mobile applications and digitized processes [12]. At the same time, digital transformation is inherently linked to strategic changes in the business model as a result of the implementation of digital technologies [5]. The nature of digital technology is fundamentally different from non-digital technology [16]. Digital orientation means a business that is more focused on the digital business market, including using digital technologies.

Besides the aspects of technology, digital orientation also covers the strategy that fosters digital transformation and provides a competitive advantage. This view is consistent with research on strategic orientations such as the perspectives of resource orchestration and dynamic management capabilities. According to academic findings, the strategic orientation of companies explains the higher performance of the company because it shapes the way companies transform their businesses and modify resources [12,26]. Kindermann et al. (2020) conclude that one of the digital orientation dimensions defines the digital technology scope as the set of digital technologies that allow the company to realize strategic growth [12]. Drawing on resource-based theory, digitally oriented companies in the context of innovation attain higher levels due to their broader vision and commitment to using new technologies to develop innovative products [16]. With the above rationale and literary support in mind, this current study argues that companies focused on digital orientation are more interested in digital transformation. Therefore, we hypothesize as follows:

**Hypotheses 1 (H1).** *Digital orientation has a positive direct effect on the digital transformation of SMEs during the COVID-19 pandemic.*

### 2.2. Digital Capability and Digital Transformation

Digital transformation is enabled by technology—and due to the pandemic, it is happening faster than ever. According to the theory of dynamic managerial capabilities, digital capability can be viewed as a dynamic capability, described as the ability of companies to create new products and processes and to respond to market evolution [16]. Digital capability is characterized by technology affordances. It includes the efforts of companies in the development and maintenance of procedures that exploit human capital and knowledge assets to interact with a specific set of digital technologies [13]. Business performance is determined by the company's capabilities. The concept of company capability is based on the flexibility and dynamic capabilities of the company, including its digital capability.

However, many companies interested in digital transformation still do not know how to build their IT organizations and develop the tools and talents needed to manage digital information and build and maintain online services and automated processes. From the outset, most companies do not properly realize that many of the critical resources needed to facilitate digital transformation will not be available internally. While it is high time for many sectors to go digital, it can take years to develop the necessary capabilities internally. At the same time, seeking out digital capabilities from the outside is likely to be problematic, but in the long term, this approach can help companies meet the challenges of innovation and better compete online.

The development of capabilities necessary in different areas is one of the imperatives of digital transformation, whereas the variety of capabilities depends on the specific sector and the specific needs of the company [13]. Digital capabilities have a positive impact on digital innovation and, as a result, on digital transformation [7].

Therefore, we hypothesize as follows:

**Hypotheses 2 (H2).** *Digital capability has a positive direct effect on digital transformation of SMEs during the COVID-19 pandemic.*



### 2.3. Digital Transformation as a Mediator

A number of academic studies have confirmed that digital transformation is critical to the modern economy as it has a wide range of business implications [7,27]. It has been shown that embracing digital capabilities and orientation to improve service delivery and customer integration increases the value of the products and services offered while increasing the long-term profitability [28–30]. In addition, scientists noted the positive impact of digitalization on revenue growth, cost reduction and financial performance [15,31].

The digital transformation is a process that changes the entire business model and must be supported by an ecosystem, dedicated digital strategy and digital skills. When evaluating a business model, it is popular to use the business model canvas proposed by Osterwalder and Pigneur [32], which can be grouped into four main business areas: infrastructure, value proposition, customers and financial viability. In this study, we explore two dimensions, namely customers and financial viability, as these dimensions play a special role in transforming the business model due to the growing importance of e-commerce. Several indicators can help measure a company's financial viability: the most commonly used financial viability indicators are revenue, net income, gross margin, working capital, etc. [18]. In this study, we have selected revenue as the most appropriate for measuring the financial viability of SMEs. Firstly, it is one of three metrics, together with the number of employees and assets, for identifying SMEs. Secondly, revenue is a subjective measure of how well a company can use its core business assets and make a profit. Thirdly, revenue is the total amount of income received from the sale of goods or services related to the main activities of the company. Selling goods or services is the backbone of any company's business, while digital transformation has radically changed the way it is done. Khin and Ho [16] argued that digital orientation has a significant beneficial impact on digital innovation, while Yang et al. [33], stated that technological orientation has a positive impact on innovative products. A study conducted by Ardito et al. [34] shows that digital and environmental orientation impact product and process innovation. Based on the Kindermann et al. [12] definition, the concept of digital orientation helps companies develop a foundation for improved performance by aligning the types of digital resources available to them. Therefore, we hypothesize as follows:

**Hypotheses 3 (H3).** *Digital transformation mediates the effect of digital orientation on revenue of SMEs during the COVID-19 pandemic.*

Additionally, Kindermann et al. [12] suggest that companies can overcome strategic challenges associated with the pervasiveness of digital technologies by adopting and maintaining a digital orientation. The business model perspective in the context of sustainability emphasizes the logic of creating value for the organization and its effects and potentially requires new forms of governance, such as cooperatives, public–private partnerships and social business, thereby helping to move beyond narrow horizons [35]. At the same time, the non-financial aspect of the company's sustainability is focused on long-term success and quality aspects of the business. Typical non-financial performance indicators include measures that relate to business models, customer relationships, employees, operations, quality, cycle times and an organization's supply chain. To measure the non-financial performance of SMEs from a client perspective, we chose the sophistication of the business model. The sophistication of the business model, combined with revenue, helps to explore the mediating impact of digital transformation on two aspects of the business model: customers and financial viability.

Digital transformation changes a company's business model and provides opportunities to improve value creation by transforming the way a company does business [18]. Digital orientation has been proven to increase the value of the products and services a company offers, as well as its long-term profitability, by improving service delivery and customer integration [29,36]. Therefore, we hypothesize as follows:

**Hypotheses 4 (H4).** *Digital transformation mediates the effect of digital orientation on business model sophistication of SMEs during the COVID-19 pandemic.*

Real data and surveys show that the overall level of digital adaptation of SMEs [1–3] is low, and SMEs lag significantly behind large companies. An obvious question arises: “Do SMEs believe in the potential of digital transformation and its impact on a company’s performance?”

Financial performance determines whether a company is successfully implementing its business strategy and can be reviewed to identify areas for improvement. Al-Ansary et al. [37] studied the mediating effect of product innovation on the relationship between performance and technology orientation as capability. Results of their research show that technology orientation influences the behavior and tendencies of SMEs in the Dubai market with regard to innovation and that innovation mediates the relationship between technology orientation and business performance. Therefore, we hypothesize as follows:

**Hypotheses 5 (H5).** *Digital transformation mediates the effect of digital capability on revenue of SMEs during the COVID-19 pandemic.*

Khin and Ho [16] identified the positive effect of digital orientation and digital capability on digital innovation, and the mediating effect of digital innovation on financial and non-financial performance affected by technology orientation and digital capability. The research findings of Yasa et al. [38] show that digital capability and digital innovation have a positive and significant effect on business performance, while digital innovation is able to mediate the effect of digital capabilities on business performance. Pham et al. [39] found that companies that put more emphasis on sustainable practices achieve better performance than those without such commitments. Zhang et al. [40] found that the digital transformation of enterprises can help improve the resilience of an organization. Moreover, digital transformation mediated by both exploitative and explorative innovation increases the resilience of enterprises [40]. In their research, Youssef and Lebdaoui [41] have examined how digital orientation and digital capabilities translate into digital innovation and organizational performance, affirming that digital innovation is a mediating factor between digital transformation and organizational performance. Therefore, we hypothesize as follows:

**Hypotheses 6 (H6).** *Digital transformation mediates the effect of digital capability on business model sophistication of SMEs during the COVID-19 pandemic.*

### 3. Methodology

#### 3.1. Data Collection and Sample Characteristics

To collect data to test our hypotheses, we needed to conduct a survey. The survey consisted of 17 statements identified after reviewing the literature on digital transformation in SMEs and 5 company-specific questions related to the company’s size, revenue, business models, economic sector and respondent status/position in the company. The survey was carried out with the assistance of a consulting company and was mainly addressed to various professional associations of small and medium-sized businesses. In addition, the authors also used social networks such as LinkedIn, Twitter and Facebook; oral personal meetings and phone calls; and online communication with SME representatives. The questionnaire was online-based and took place in February–March 2021. The answers were collected using a 7-point Likert scale, which is the most reliable of the Likert scales as it captures the best sentiment of the respondent. In addition, it provides better accuracy on the results and is incredibly useful for the researchers, as well as providing more data points for processing statistical information [18]. The resultant 433 sample participants were fairly balanced between micro-companies (44%), small companies (42%) and medium-sized ones (13%). The sample consists only of SMEs that employ less than 250 employees and have yearly revenues of less than EUR 50 million. The classification of micro, small and medium-sized enterprises by size was based on the number of employees in the company in accordance with the applied methodology of the European Commission [42]. Owners

and managers of SMEs participated in our survey, but given that our research concept is based on managerial behavior, the survey data were narrowed down to the answers of 246 managers of SMEs registered in Latvia. In 2020, about 95,000 active enterprises were registered in Latvia [43], of which about 99% are SMEs [44]. According to Yamane (1967) [45], a representative sample with a confidence level of 90% and  $p = 0.4$ , margin of error = 0.05, for 95,000 companies is 259 companies. In our case, we have 246 small and medium-sized enterprises, which is very close to desired 259, especially given that some of the registered companies are in the process of insolvency and liquidation, which makes our sample representative with a low margin of error. Appendix A in Table A1 contains descriptive statistics for the sample.

### 3.2. Measures

Following the literature review presented in Section 2, we designed our survey instrument. The measures are summarized in Table 1. We measure digital orientation by the level of usage of big data, internet of things, artificial intelligence, robots (drones) and implementation of blockchains. Digital capacity was measured by lack of skills to develop software and usage of software, lack of mathematical and analytical skills, lack of website development skills, lack of digital project management skills, lack of data and database management skills, lack of digital strategy and leadership skills and lack of data entry and processing skills. Digital transformation was measured by optimization of business processes, procedures and costs; aspiration to improve or change business model; direct contact with customers/suppliers/better customer journey; safeguarding the future of the company/its expansion; and creation of new jobs/stronger internalization.

SMEs' revenue was measured by annual revenue. SMEs were asked to report their actual revenue (net turnover) in 2020 with the suggested answers:

- EUR  $\leq 700,000$ ;
- EUR 700,001–2,000,000;
- EUR 2,000,001–8,000,000;
- EUR 8,000,001–10,000,000;
- EUR 10,000,001–40,000,000;
- EUR 40,000,001–50,000,000;
- EUR  $> 50,000,000$ .

As companies reporting revenues larger than EUR 50 million are not SMEs, this group was dropped from our study (only 8 companies). The sophistication of a business model was measured through a combination of different types of business models. We asked SMEs which business models they are using (B2C, B2B and/or B2G); multiple choice was available. In addition, the survey provided space for comments. The scores of the business model were assigned by the authors based on the answers about what types of business models SMEs use; a score of "1" was assigned to B2C, a score of "2" was assigned to B2C and B2G business models, a score of "3" was assigned to B2G, a score of "4" was assigned to B2G and B2B, a score of "5" was assigned to B2B and a score of "6" was assigned to B2B and B2C.

**Table 1.** Measurement items.

Questionnaire Items	Short	Source
<i>Digital orientation</i>		
The usage of big data	do_bg	[7,12,16]
The usage of internet of things	do_iot	
The usage of artificial intelligence	do_AI	
The usage of robots (drones)	do_ro	
The usage of blockchains	do_bc	



Table 1. Cont.

Questionnaire Items	Short	Source
<i>Digital capability</i>		
Lack of skills to develop software and usage of software	dc_so	[7,16,24]
Lack of mathematical and analytical skills	dc_ma	
Lack of website development skills	dc_ws	
Lack of digital project management skills	dc_pr	
Lack of data and database management skills	dc_da	
Lack of digital strategy and leadership skills	dc_le	
Lack of data entry and processing skills	dc_in	
<i>Digital transformation</i>		
Optimization of business processes, procedures and costs; aspiration to improve or change business model	dt_op	[4,6,8,18]
Direct contact with customers/suppliers/better customer journey	dt_bm	
Safeguarding the future of the company/its expansion	dt_cl	
Creation of new jobs/stronger internalization	dt_fu	
Yearly revenues	dt_jo	
<i>Business model sophistication</i>	FV	
<i>Business model/models</i>	BM	

Source: developed by the authors.

### 3.3. Mediation Analysis

To achieve the research purpose, this study used a mediation analysis to examine the direct effect of digital orientation and digital capability on digital transformation, as well as to explore the mediating effect of digital transformation on SME outcomes. To screen data, profile respondent firms and run statistical tests, SPSS version 26 was used. Mediation analysis was performed using the Hayes PROCESS v4.0 module [46]. Direct effects and indirect effects can be estimated in models with a single mediator and multiple mediators (parallel and serial), two- and three-way interactions in mediation models, as well as indirect effects in models with a single mediator (in our case—digital transformation). Additionally, we used the bootstrapping method to test the significance of the effects. We checked whether the mediation process was moderated by digital transformation.

Several models were analyzed using a two-step process, starting with the measurement model and moving on to the mediation model. The results of common method variance tests will be provided before we discuss the mediation and measurement model results.

## 4. Results

To evaluate the reliability of the sample, common method variance was assessed first. The existence of common method variance was tested by Harman's single factor test, by using an unrotated factor solution. The first factor accounted for only 28.69% of the total variance (less than 50%), and the first five factors accounted for 72.25%; therefore, there is no common method bias. Additionally, we based questions on facts and emphasized that we would maintain the confidentiality of the answers gathered. Before publishing the questionnaire, we asked some entrepreneurs and less digitalization-oriented colleagues whether the terms used were clear and easily understandable. We also checked on correlation for common method bias and found that no measurement has higher than 0.8 correlation (Pearson correlation and two-tailed distribution) [47,48].

To test sampling adequacy, the Kaiser–Meyer–Olkin measure was applied, and the result was 0.864, which is above 0.5; therefore, further tests could be implemented. In addition, Bartlett's test of sphericity was significant, with a p-value of less than 0.000.

Communalities extracted were above 0.5, which was a good result (except for the measure of dt\_jobs, where communality extracted was 0.476). The factors were also loaded in a pattern matrix based on constructs.

A convergent validity test and a discriminant validity test were conducted. A convergent validity assessment was conducted using the indicator reliability (outer loadings)

and average variance extracted (AVE) from the data, as well as the composite reliability (CR). All indicators had factorial loadings larger than 0.4, meaning that all factors are important for the construct. Convergent validity was confirmed because all AVE values were larger than 0.5 [49,50]. In addition, the CR values were larger than 0.7, which confirms reliable measurements (see Table 2). Comparing the square root of the AVE values with the correlations of latent variables was used to test discriminant validity [51,52].

**Table 2.** Convergent validity assessment.

Construct	Indicator	Factorial Loading	Average Variance Extracted	Composite Reliability
<b>Digital orientation</b>	do_bd	0.849	0.683	0.915
	do_iot	0.750		
	do_AI	0.876		
	do_ro	0.834		
	do_bc	0.817		
<b>Digital capability</b>	dc_so	0.735	0.613	0.917
	dc_ma	0.809		
	dc_ws	0.757		
	dc_pr	0.771		
	dc_da	0.847		
	dc_le	0.798		
	dc_in	0.760		
<b>Digital transformation</b>	dt_op	0.819	0.650	0.901
	Dt_bm	0.856		
	Dt_cl	0.803		
	Dt_fu	0.913		
	Dt_jo	0.608		
<b>Revenue and business model sophistication</b>	FV	0.732	0.616	0.761
	BM	0.834		

Source: authors' calculations.

As variance extracted for all constructs was higher than correlation squared for other constructs, discriminant validity of constructs was confirmed (see Table 3).

**Table 3.** Component correlation matrix squared.

Component	1	2	3	4
1		0.079	0.007	0.009
2	0.079		0.002	0.060
3	0.007	0.002		0.009
4	0.009	0.060	0.009	

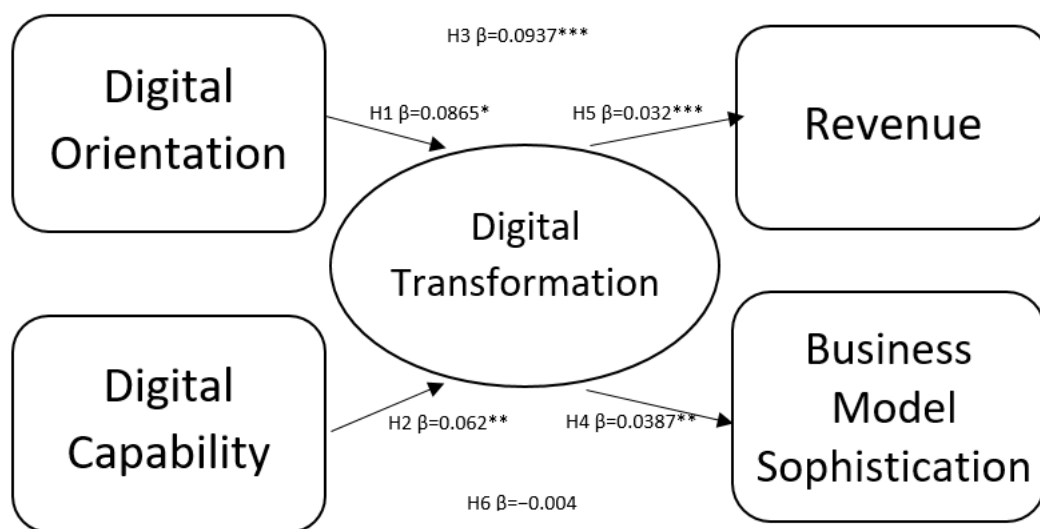
Notes: Extraction method: principal component analysis. Rotation method: Promax with Kaiser normalization. Source: authors' calculations.

As all prerequisites for estimation of the model had been met, the mediation model was being developed using PROCESS by A. Hayes [46]. As this tool allows differentiating between direct and mediated effects, additional results are presented in Table 4. The conceptual results are presented in Figure 2.

**Table 4.** Hypothesis testing results.

Hypothesis	Coefficient	Standard Error	t-Value	p-Value	LLCI	ULCI	Decision
H1. Digital orientation has a positive direct effect on digital transformation of SMEs during the COVID-19 pandemic	0.0865	0.0532	1.6266	0.1001	−0.0183	0.1913	Confirmed
H2. Digital capability has a positive direct mediating effect on digital transformation of SMEs during the COVID-19 pandemic	0.062	0.0322	1.9253	0.0554	−0.0014	0.1255	Confirmed
H3. Digital transformation mediates the effect of digital orientation on revenue of SMEs during the COVID-19 pandemic	0.0937	0.0137	6.8468	0.000	0.0668	0.1207	Confirmed
Digital orientation (DO) has a positive direct effect on revenue	0.094	0.0138	6.817	0.000	0.0669	0.1212	DO affects revenue
Digital transformation (DT) has a positive direct effect on revenue	−0.0033	0.0165	−0.1975	0.8436	−0.0358	0.0293	DT does not affect revenue
H4. Digital transformation mediates the effect of digital orientation on business model sophistication of SMEs during the COVID-19 pandemic	0.0387	0.0204	1.8967	0.0591	−0.0015	0.079	Confirmed
Digital transformation has a positive effect on business model sophistication (BM)	0.06	0.0243	2.4673	0.0143	0.0121	0.1079	DT affects BM
H5. Digital transformation mediates the effect of digital capability on revenue of SMEs during the COVID-19 pandemic	0.032	0.0088	3.6181	0.0004	0.0146	0.0494	Confirmed
Digital capability (DT) has a positive direct effect on revenue	0.0319	0.0089	3.5787	0.0004	0.0144	0.0495	DC affects revenue directly
H6. Digital transformation mediates the effect of digital capability on business model sophistication of SMEs, fuelled by COVID-19	−0.004	0.0125	−0.3244	0.7459	−0.0286	0.0205	Not confirmed
Digital capability has a positive direct effect on business model sophistication	−0.0082	0.0124	−0.6564	0.5122	−0.0326	0.0163	DC does not affect BM
Digital transformation has a positive direct effect on business model sophistication	0.0661	0.0245	2.7006	0.0074	0.0179	0.1144	Digital transformation directly affects BM

Source: authors' calculations.



**Figure 2.** Structural model. Notes: \* significant at  $p \leq 0.1$ , \*\* significant at  $p \leq 0.05$ , \*\*\* significant at  $p \leq 0.01$ .

## 5. Discussion

### 5.1. The Effect of Digital Orientation and Capability on Digital Transformation

As results suggest, digital orientation has a positive direct effect on digital transformation ( $\beta = 0.0865$ ,  $p = 0.1$ ), and therefore H1 can be confirmed, but the effect is weak. Within social sciences and abstract terms such as digital transformation, and results that use survey data as inputs, thresholds can be relaxed to accommodate less diverse and disperse construct variables [53]. Our finding is consistent with the findings of Khin and Ho [16], who found that digital orientation has a significant beneficial impact on digital innovation, as well as the findings of Yang et al. [33], who found that technological orientation has a positive impact on innovative products. Our study complements the findings of Khin and Ho [16] and Yang et al. [33] that digital orientation also has a positive direct effect on digital transformation. Companies characterized as digitally oriented tend to implement digital technologies in all functional areas and embrace digital initiatives promptly through commitment and appropriate thinking. The digital orientation has implications for the development and acquisition of new skills, competencies and knowledge, which are important resources that could facilitate the digital transformation.

Our analysis confirms that digital capability has a positive direct effect on digital transformation ( $\beta = 0.062$ ,  $p < 0.1$ ), and H2 can be confirmed. This is in line with the study results of Khin and Ho [16] showing that digital capability has a positive effect on digital innovation. Moreover, Yasa et al. [38] confirmed that digital capabilities effect digital innovation. At the same time, Saputra et al. [13] found that digital capability plays a strategic role in supporting top management in applying ambidextrous leadership in leading organizations during turbulent times. Ahmed et al. [54] argue that digital platform capability is positively associated with the agility of SMEs and that all three intellectual capital dimensions (i.e., human, organizational and relational capital) mediate this relationship. While other studies have confirmed the importance of digital orientation and/or capability to influence digital innovation or company performance, these studies do not fully capture the driving force behind digital orientation and digital capability influencing the digital transformation of SMEs.

### 5.2. The Mediating Effect of Digital Transformation

The mediating effect of digital transformation from digital orientation on revenue (H3) is confirmed ( $\beta = 0.0937$ ,  $p < 0.01$ ). In addition, we found that digital orientation has a positive and direct effect on revenue ( $\beta = 0.094$ ,  $p < 0.01$ ), while there was no evidence that digital transformation has a positive direct effect on revenue. This shows that SMEs

must not only improve their digital orientation, but also perform digital transformation to have a positive effect on revenue and fulfill the ultimate goal of the owners (increase the owners' wellbeing). H4 is also confirmed ( $\beta = 0.0387$ ,  $p < 0.05$ ), meaning there is a digital orientation effect on the business model sophistication, which is mediated by digital transformation. In addition, digital transformation has a positive direct effect on business model sophistication ( $\beta = 0.06$ ,  $p < 0.01$ ).

The results of the study of Ardito et al. [34] demonstrate that digital and environmental orientations have a positive direct effect on product and process innovation performance. In accordance with Kindermann et al. [12], the digital orientation idea aids in defining the types of digital resources that must be aligned in order to develop a foundation for improved performance. Moreover, according to Kindermann et al. [12], adopting and maintaining a digital orientation can help businesses better handle the strategic challenges that come with the pervasiveness of digital technology. Previous studies have confirmed that digital orientation directly or indirectly affects the performance of companies; however, there has been no evidence that digital transformation mediates this effect.

H5 is also confirmed ( $\beta = 0.032$ ,  $p < 0.01$ ), signifying that there is a positive effect of digital capability on revenue, and it is mediated by digital transformation. In addition, digital capability also directly has a positive effect on revenue ( $\beta = 0.0319$ ,  $p < 0.01$ ). We found a statistically insignificant mediating effect of digital transformation from digital capability on the business model sophistication ( $\beta = -0.004$ , not significant), resulting in H6 being rejected. In addition, we cannot confirm that digital capability has a direct positive effect on business model sophistication. However, digital transformation itself has a direct positive effect on business model sophistication ( $\beta = 0.0661$ ,  $p < 0.01$ ). Our findings reveal that even if we cannot confirm the mediating effect of digital transformation from digital capability on business model sophistication, digital transformation can still have a direct positive effect on it.

Lenka et al. [25] identified and explained how digitalization capabilities enable value co-creation with customers through perceptive and responsive mechanisms. Verhoef et al. [14] posited that digital transformation requires specific organizational structures and bears consequences for the metrics used to calibrate performance. Yasa et al. [38] claim that digital innovations enhance business performance in positive and significant ways and that digital innovations facilitate the impact of digital capabilities on business performance. Khin and Ho [16] assert that if a company is able to improve digital capabilities in managing its digital technology, it has a higher possibility of developing innovative digital solutions that will later improve the company's business performance. In addition, Kindermann et al. [12] describe digital technology scope as the collection of digital technologies that enable a company to achieve strategic growth. Previous research has focused on the fragments of the digital transformation process, analyzing the impact of digital innovation or transformation on company outcomes or factors influencing digital transformation, while this research complements the mediating role of digital transformation.

In addition, since the onset of the COVID-19 pandemic, there has been a dramatic increase in the use of digital solutions and online commerce by SMEs. As the crisis continues, these changes will last for a long time, and the attraction of resources will be irreversible. Priyono et al. [4] studied how SMEs are adapting to the effects of the COVID-19 pandemic, using digital technologies to assist businesses in transforming their business models, and found that degrees of digital transformation vary according to the context of the firm. Our study highlights the direct positive effect of digital orientation and digital capability on digital transformation, as well as the mediating effect of digital transformation on SME outcomes during the COVID-19 pandemic.

The results of the study provide empirical evidence supporting the conceptual framework, since all hypotheses, except H6, have been confirmed. This means that two specific perspectives of resource-based theory can be used to study the drivers and mediating effect of the digital transformation of SMEs during the COVID-19 pandemic: resource orchestration and dynamic management capabilities.



## 6. Conclusions

In the past few years, the world has been leaning more and more towards the digital realm, mostly because of a younger, more technologically dependent generation. Digital transformation, according to politicians and academics, is a critical aspect in the development and modernization of businesses and economies in general. Thus, there are benefits for both industries and society. Digital transformation is not only an imperative, but also an opportunity for countries to increase their economic, social and environmental benefits. In this study, we explore the effect of digital orientation and digital capability on digital transformation, as well as the mediating effect of digital transformation on revenues and business models of SMEs during the COVID-19 pandemic. Considering the need for digital transformation in resource management, the conceptual framework was developed on two specific perspectives of resource-based theory: resource orchestration and dynamic managerial capabilities theories. The conceptual framework first examines the effect of digital orientation and digital capability on digital transformation. Next, we check the effect of digital orientation and digital capability on revenue and business model sophistication mediated by digital transformation.

This study's contribution to academic literature and socio-political debate is fourfold. Firstly, we propose a new conceptual framework highlighting the link of digital transformation to both drivers and performance during the COVID-19 pandemic. Verification of our conceptual framework provides empirical evidence for the relationship between driving factors and the influence of digital transformation on SME revenue and business model sophistication during the COVID-19 pandemic, thereby also filling a gap in the literature.

Secondly, we believe our study will expand the literature on digital transformation by deepening knowledge about how the positive impact of digital transformation on the performance of SMEs has been amplified, in particular, by identifying the impacts of digital orientation and digital capability mediated by digital transformation on the performance of SMEs.

Thirdly, this study adopts such new terms as digital orientation and digital capability, which could be expanded and become key constructs in the concept of digital transformation. The concepts of digital orientation and digital capability have been built on two specific perspectives of resource-based theory: resource orchestration and dynamic managerial capabilities theories in relation to the need for digital transformation in resource management.

Fourthly, the findings of this study can also be useful internationally. Latvia is a small open economy; it might not necessarily appear of particular importance on a global scale, yet, in the context of SMEs and their struggle for digital transformation, the small size of an economy is not necessarily a disadvantage.

The practical implications of this research can be directed mainly at policymakers and managers of SMEs. Extensive scientific research proves that digital transformation does not start by itself; in different sectors of the national economy, there are various triggers that launch this process. Since our research shows the relationship between digital orientation, digital capability and digital transformation, its practical value for policymakers lies in the possibility of applying the results of this study to initiate the process of digital transformation among SMEs via strengthening their digital orientation and capabilities. Despite the positive trend towards digitalization in general, the digital skills of employees in many SMEs remain relatively low. A considerable number of SMEs are still far away from the idea of digital transformation; hence, triggering is essential. This study not only provides policymakers with the answer to the question of what processes should be supported, but also introduces the rationale why, including the context of revenue and business model sophistication.

Recommendations for SME managers to innovate and build sustainability include the need to harness the benefits of digital transformation for SMEs. SMEs should use more cloud computing and artificial intelligence, which provide a wide range of creative solutions for different industries, especially given their recent higher availability. By focusing on

digital orientation and digital capability, SMEs investing in digital technologies can improve their performance, and our findings can be extremely useful in raising the awareness of SMEs about various aspects of their digital orientation and capability.

The results of this study can be useful for SME managers in understanding the imperative of investing in specific areas to improve digital orientation and digital capabilities. The practical implementation for SME managers is related to changing their perception of an expanded digital orientation and digital capability as an opportunity for survival, and not just a fad.

Our research has a number of limitations. First, while the response rate to our study is acceptable, the survey respondents constitute a part of Latvian SMEs. In future studies of the impact of digital transformation on SME performance, it would be useful to include SMEs from other countries. In addition, the results of this study are based on survey data; case studies would complement this study. Furthermore, we concentrate primarily on supply-side factors of SMEs' digital transformation. To better understand the drivers of digital transformation in SMEs, it is also necessary to examine the demand side, such as consumers' digital skills, distribution channels and socially responsible business models.

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## Appendix A

**Table A1.** Descriptive statistics of survey data.

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis	Percentiles					
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error	Statistic	Std. Error	25	50	75	
do_bd	246	1	6	2.23	0.099	1559	1044	0.155	−0.203	0.309	1000	1500	3000
do_iot	246	1	7	3.19	0.103	1621	0.129	0.155	−0.826	0.309	2000	3000	4000
do_AI	246	1	6	2.25	0.102	1598	0.979	0.155	−0.454	0.309	1000	1000	4000
do_ro	246	1	7	2.29	0.105	1644	0.945	0.155	−0.429	0.309	1000	1000	4000
do_bc	246	1	7	2.37	0.104	1630	0.854	0.155	−0.497	0.309	1000	2000	4000
dt_op	246	1	7	5.17	0.087	1365	−0.626	0.155	0.187	0.309	4000	5000	6000
dt_bm	246	1	7	4.77	0.095	1495	−0.447	0.155	−0.497	0.309	4000	5000	6000
dt_cl	246	1	7	4.85	0.086	1354	−0.648	0.155	0.068	0.309	4000	5000	6000
dt_fu	246	1	7	4.87	0.093	1461	−0.571	0.155	−0.047	0.309	4000	5000	6000
dt_jo	246	1	7	3.93	0.099	1558	0.110	0.155	−0.698	0.309	3000	4000	5000
dc_so	246	1	7	4.07	0.144	2253	−0.287	0.155	−1592	0.309	1750	5000	6000
dc_ma	246	1	7	4.13	0.133	2088	−0.207	0.155	−1446	0.309	2000	5000	6000
dc_ws	246	1	7	4.39	0.133	2080	−0.423	0.155	−1274	0.309	2750	5000	6000
dc_pr	246	1	7	4.13	0.139	2184	−0.294	0.155	−1450	0.309	2000	5000	6000
dc_da	246	1	7	4.05	0.135	2122	−0.132	0.155	−1523	0.309	2000	5000	6000
dc_le	246	1	7	4.15	0.145	2279	−0.315	0.155	−1528	0.309	1000	5000	6000
dc_in	246	1	7	3.40	0.119	1866	0.365	0.155	−1243	0.309	2000	3000	5000
revenue	246	1	6	4.33	0.084	1316	−0.637	0.155	−0.425	0.309	2000	2000	3000
BM0	246	1	7	5.10	0.115	1811	−1314	0.155	0.770	0.309	5000	6000	6000

Source: authors' calculations.

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