

Management and Sustenance of Digital Transformations in the Irish Microbusiness Sector: Examining the Key Role of Microbusiness Owner-Manager

Anuragini SHIRISH, Shirish SRIVASTAVA, Niki PANTELI

Despite the economic and societal significance of microbusinesses (MBs), digital transformation (DT) efforts in the MB sector have been rather sporadic. Further, prior DT studies have primarily examined large- and mid-sized organizations, leaving a perceptible void in the literature. In this paper, we leverage the unique context of MBs and recognise the key role of microbusiness owner-managers (MBOMs) for the management and sustenance of DT initiatives. Specifically, we theorise the influence of MBOMs' DT readiness in terms of their growth and technology mindsets contributing to their DT learning resources and processes. Drawing on qualitative data from a series of structured interviews and focus groups with MBOMs and other key stakeholders in the Irish MB digital ecosystem, we identify three MBOM digital transformer archetypes comprising unique configurations of MBOMs' growth and technology mindsets, namely: champion digital transformers, emerging digital transformers, and aspiring digital transformers. For each of these archetypes, we explore the different learning capabilities and mechanisms through which MBOMs manage and sustain their digital transformation efforts. Our findings offer theoretical contributions to the fields of digital transformation in microbusinesses, digital leadership, and digital capabilities. Our study also has significant implications for policy and practice.

Keywords: digital transformation; mindset; microbusiness; readiness; owner-manager; learning

Introduction

“We will focus on SMEs as they are lungs of the economy . . . By 2025, we want to double the share of SMEs using advanced cloud services and big data. SMEs should get help in using key technologies like big data, cloud, blockchain, or AI” —T. Berton, European Commissioner¹

The success of digital transformation² (DT) efforts for firms, large and small, remains an exception rather than a rule (McKinsey, 2021). Nevertheless, most of the DT literature has focused on larger firms, leaving a significant knowledge gap in DT efforts within smaller firms, including the microbusiness (MB) sector. MBs comprise a class of small and medium enterprise category (SMEs) that typically have fewer than 10 employees and fewer resources (OECD, 2021a). They represent about 93% of all businesses in Europe (European Commission, 2019). Their economic significance is also shown through a survey that predicted that by 2024 small businesses, through their digital transformation (DT) efforts, have the potential to add over 2.3 trillion USD to the global GDP, which would be key for post-pandemic economic recovery (CISCO, 2020). Despite this huge potential, researchers, practitioners, and policy makers often struggle to understand why only some MBs are successful in embracing emerging technologies to improve their business processes, whilst others are unable to initiate or sustain DT initiatives (Mandviwalla & Flanagan, 2021; OECD, 2021a).

¹ Extract of a speech made by the EU Commissioner, “EU SME Strategy as a driver of Europe’s Recovery,” an event organised by Eurochambres, Business Europe, and SMEunited, September 23, 2020.

² Digital transformation is defined as “a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies” (see Vial, 2019, p. 118).

Evidently, MBs suffer from several long-term structural barriers such as lack of digital infrastructure, finance, and internal skills, which have resulted in their systematic exclusion from the digital economy (OECD, 2021b; ILO, 2021; Osmundsen et al., 2018; WTO, 2021). But given that, despite these challenges, few MBs are able to initiate and sustain DT efforts, it is theoretically and practically relevant to examine the micro foundations that can help MBs to leverage digital technologies successfully (Scuotto et al., 2011). Such an understanding not only advances knowledge about DT in the MB sector but also furthers the ambitious plans of the European Commission and other governments to onboard MBs into the digital economy and reap the associated benefits.

Prior research has shown that DT effectiveness varies significantly with firm size and sector, underscoring the need for a more focused, context-based understanding of the phenomenon (Goel & Donaldson, 2021; Mandviwalla & Flanagan, 2021; Park & Mithas, 2020; Soluk & Kammerlander, 2021). Although, there is an emerging body of DT literature situated in the context of large- and mid-sized organisations (Carroll, 2020; Gregory et al., 2019; Legner et al., 2017), little is known about DT initiation and sustenance in the MB sector, which we believe is largely dependent on the *digital readiness* of the MB enterprise. However, the context of MBs is significantly different from that of larger organisations (Kamal, 2015).

Although MBs have a small-size advantage that allows them to be agile, MBs operate with limited resources (e.g., time, money, labour, knowledge) and may lack the necessary digital competences to successfully undertake DT efforts (CISCO, 2020; Drnevich & West, 2021; Eze et al., 2021; Troise et al., 2022). Moreover, in the context of MBs, the MB owner (who is also often the sole business manager) is the key actor, who offers the potential for the creation of MB digital capabilities. Because DT orchestration is highly dependent on the MB Owner-Manager (MBOM), the digital

readiness of the MB enterprise is often synonymous with the digital readiness of the MBOM—their individual orientation in relation to the broader ecosystem in which MBs operate (Reuschke, et al., 2021, Penco et al., 2022; Lemaire et al., 2021. Bai et al., 2021). Given that the *DT readiness of the MBOM* is critical for the success of DT initiatives in MBs, in this research, we try to better understand not only the constituents of an MBOM’s DT readiness but also the mechanisms through which the MBOM’s DT readiness influences the management and sustenance of DT efforts in MBs.

MBOMs often operate in dynamically changing environments imbued with multifarious uncertainties and disruptions (Mandviwalla & Flanagan, 2021, Chan et al., 2020). Hence, MBOMs should have a resilient mindset aimed at continuous growth and improvement (Mandviwalla & Flanagan, 2021, Hadjielias et al., 2022). However, MBOMs are often so involved in managing day-to-day operations that this strategic goal can easily be overlooked (Greenbank, 2001; Rastrollo-Horrillo, 2021). Clearly, in addition to having a “growth-oriented perspective”, MBOMs should also have a “technology-oriented mindset” to identify and act on the opportunities that emerging technologies can offer for their specific business context. Hence, we contend that the DT readiness of MBOMs comprises two mutually dependent mindset attributes—a *growth mindset* that can propel the learning capabilities needed for orchestrating DT, and a *technology mindset* that can recognize and leverage the relevant emerging technological opportunities offered by the environment. However, the mechanisms through which MBOMs’ DT readiness contributes to the management and sustenance of DT efforts in MBs is not well understood. Given the highly contextual nature of MBs and the lack of academic research around this topic, in our study we address the following research question:

RQ: How does the DT readiness of MBOMs influence the management and sustenance of DT efforts in microbusinesses?

To address this question, we use a qualitative research design. We collect our data from a sample of Irish MBOMs and their ecosystem partners promoting DT for MBs. MBOMs from Ireland have been found to adopt digital technologies faster for their business continuity and growth (CISCO, 2020) and are performing better than their counterparts in the UK and the US (Bourke & Roper, 2019). Moreover, through our prior university and industry collaboration experiences, we noted an ethos and willingness amongst Irish policy makers to experiment and innovate³. This offered us an ideal setting to make a real contribution towards building an inclusive digital economy through our research efforts. We leverage phenomenon-based (Fisher et al., 2021) and context-specific (Bamberger, 2008; Johns, 2006) theorization to explore the mindsets as well as the experiences and practices of social actors involved in MB DT efforts (Carroll et al., 2021). Specifically, we examine and unpack the mechanisms through which our sampled MBOMs orchestrate their DT efforts.

Our study makes three major contributions. First, we extend the limited DT and MB literature by conceptualizing the DT readiness of MBOMs as a function of two factors, namely, growth and technology mindsets. Second, we contribute to the DT leadership and capabilities literature by identifying different MBOM DT archetypes, and subsequently demonstrate the emergence of specific MBOM learning capabilities for each of the archetypes during their DT efforts. Third, we explicate how learning mechanisms enacted by each of the MBOM DT archetypes impact the development of their learning capabilities. Together, these learning resources and processes influence the management and sustenance of DT efforts in MBs. Further, our research offers several

³ The national business ecosystem partners are driven by a culture of learning driven by generosity of spirit and communitarian approach, often referred to as Meitheal

significant policy implications for governments aiming to enable the inclusion of marginalized MBs in the digital economy.

The paper is structured as follows; first we review relevant literature on DT and identify gaps in relation to the MB sector; we then present the characteristics of MBs, discuss the important role they play in the economy and society at large, expand on our conceptualization of DT readiness, and present our initial research framework. This is followed by the methods section and discussion of our findings. We conclude the paper with theoretical and practical implications stemming from our study.

Background Literature and Theoretical Framework

Digital Transformation in Organisations

Recent work has distinguished DT from prior waves of IS innovations, presenting digital transformation as “a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies” (see Vial, 2019 p. 118). Other recent studies such as Mandviwalla & Flanagan (2021) use a similar definition of DT. Hence, digital transformations can be viewed as strategic changes needing technological capabilities and other structural, processual, and cultural changes within organisations aimed at extending organisations’ business models, carried out through digital technologies such as social media, cloud computing, mobile, analytics, and other emerging technologies (Chanias et al., 2019; Dwivedi et al., 2015).

DT efforts often result in changed products and processes, improved customer engagement, and new organisational structures to provide digital-based services (Carroll et al., 2021; Matt et al., 2015; Müller et al., 2016; Sebastian et al., 2020). However, there is considerable heterogeneity in such transformations across firms due to varying levels

of digital maturity, adaptability, and leadership involvement for DT efforts (Fletcher and Griffiths; 2020; Spieth et al., 2021, Soto et al., 2021), which may be due to differences in how DT processes and mechanisms are enacted within firms of varying sizes.⁴ In general, DT research points to the need for a supporting digital strategy (Srivastava et al., 2021; Westerman & Bonnet, 2015), an organisational culture that encourages innovation and collaboration (Kane et al., 2015; Srivastava & Shainesh, 2015), and an able digital leadership (Engesmo & Panteli, 2021; Kontić & Vidicki, 2018). However, prior DT studies have primarily focused on the context of large organisations. Nevertheless, even within the context of large organisations, management and sustenance of DT efforts is poorly understood (Carroll, 2020; Rowe, 2018; Vial, 2019). Moreover, the literature has yet to fully grasp the challenges faced by SMEs in orchestrating DT efforts. Though some research has examined DT in the context of SMEs and family businesses (Li et al., 2018; Müller et al., 2018; Soluk & Kammerlander, 2021), there is a clear need for a more directed research attention to understanding DT efforts in the specific context of MBs.

Unique Digital Transformation Challenges in the Microbusiness Context

MBs represent about 75% of all firms in the United States (Headd, 2017), and about 90% of all businesses in Ireland (Bourke & Roper, 2019). Although the use of digital technologies amongst MBs can help in the achievement of various social, economic, and human developmental goals (Kamal, 2015; Mandviwalla & Flanagan, 2021; Wolcott et al., 2007), little research attention has been devoted to understanding the management and sustenance of DT efforts in the specific context of MBs.

Prior research has highlighted that MBs differ from large firms in various ways. MBs are small businesses with limited resources. Though “smallness” could mean more agility, MBs generally do not have the requisite personnel and expertise to weigh their

⁴ We thank one of the anonymous reviewers for highlighting this aspect.

DT efforts in relation to their present and future business needs (Mandviwalla & Flanagan, 2021). MBs may lack specialized managerial knowledge including digital competencies to swiftly undertake and manage the intended DT efforts (Eze et al., 2021; Drnevich and West, 2021; Troise et al., 2022). Their small size also influences their capabilities and reach related to their strategic ability, management control and interaction with the business environment (Rastrollo-Horrillo, 2021), customers and competition (Zimmerman et al., 2002), and personalization (Litz & Stewart, 2000). Moreover, due to local structural and financial constraints, many MBs cannot grow as much as large- and medium-sized firms (Beck et al., 2004) and may not have growth and digitization as priority items on their business agenda (Greenbank, 2001; Taylor & Murphy, 2004).

Digital Transformation Motives for Microbusinesses

In contrast to DT efforts in large organisations, MBs are generally not driven by internal motivators such as a strategic need or an evolving business logic (Sabherwal & Chan, 2001; Teo et al., 2006; Teo et al., 2011). Sophisticated DT value propositions enumerated in recent IS literature apply mostly to larger firms (Nehme et al., 2015; Srivastava et al., 2021; Vial, 2019). Clearly, in the context of MBs, DT may trigger different meanings to the concerned social actors in the ecosystem than in the context of larger organisations.

Because of their small size, the DT motivation for MBs generally emanates from external events or influences. The limited MB literature identifies some of these external DT motivators as the recent push due to the pandemic, loss of income, and disruptive technology trends (Mandviwalla & Flanagan, 2021). In the specific context of COVID-19, MBs had to quickly leverage digital channels to reach their customers. Hence, the DT focus of MBs during the pandemic was restricted to business survival by engaging, selling, and delivering their products and services online, rather than transformational proactive DT initiatives (Mandviwalla & Flanagan, 2021). However, in addition to

external DT motivators, because of the small size of MBs, DT initiatives in MBs could also be significantly influenced by the personal characteristics of the MBOMs.

Key Role of the MB Owner-Manager (MBOM) in Digital Transformation

The smallness and the uniqueness of the MB sector leads to an extreme dependence of MBs on the knowledge base of MBOMs for both business- and technology-related functions (Chan et al., 2020; Rastrollo-Horrillo, 2021). Regardless of the industry sector that a specific MB caters to, MBOMs play a critical role for any transformation efforts in all MBs, including DT. Hence, to understand DT efforts in MBs, it is essential to understand the way MBOMs learn and engage in DT initiatives.

MBOMs are generally limited in their ability to unlearn, learn, and assimilate new knowledge related to both technology and business functions (Kelly et al., 2020). Though short-duration trainings can help MBOMs to temporarily surmount their lack of knowledge, deeper attitudinal learning issues may need to be addressed to orchestrate successful DT efforts (Kamal, 2015; Qureshi & Xiong, 2017; Soluk & Kammerlander, 2021). Hence, it is important to explicitly consider the personal resources of MBOMs, such as their motivational, cognitive, affective, and behavioural beliefs in relation to DT efforts. Such an insight can help us understand the depth and intentionality of local knowledge loss, which is essential for any new knowledge gain through learning and adaptation in a sustainable manner (Conboy & Fitzgerald, 2004; Klammer & Gueldenberg, 2019; Tsang & Zahra, 2008).

An MBOM's lack of confidence in going digital, various cognitive constraints, and lack of decision clarity can serve as significant barriers to MBs' DT efforts (Mandviwalla & Flanagan, 2021; Matthews, 2007). The fear of losing known benefits over promised gains from the unknown digital solutions is seen as a tough choice for most entrepreneurs including MBOMs (Gleasure, 2015; Mandviwalla & Flanagan, 2021). As

such, some MBOMs may be resistant to change and prefer the status quo. This can also impact their learning, which in turn will have a negative impact on MBs' DT efforts requiring openness to change. However, such presumptions about MBOMs have not been explored in depth by prior research.

It is also possible that MBOMs may see digital technologies as a solution to all their business needs and sometimes make wrong digital choices in haste. Such problems are attributed to their lack of the environmental scanning skills needed to harness the most relevant solutions for the niche MB context, which has relatively less support from the business ecosystem (Mandviwalla & Flanagan, 2021). Moreover, the DT punctuation process is much sharper in the case of incumbent MBs, so their digital tool usage could become stagnant after their initial DT efforts (Mandviwalla & Flanagan, 2021). Evidently, lack of continuous unlearning and relearning from ongoing digital experiences can become a key cognitive barrier to DT.

Prior knowledge management and DT literature also alludes to some of these notions on differences in learning capabilities and learning processes for better performance and innovation through DT efforts in the SME sector (Ghobadian & Galleary, 1997; Sparrow, 2005, de Bem Machado, Secinaro, Calandra, & Lanzalonga, 2022, Zia, 2022). Moreover, a recent study has called for deeper engagement of scholars in understanding not only technology readiness but also MBOMs' readiness to successfully enact DT among microbusinesses (Jafari-Sadeghi et al., 2023). But this study is limited to understanding the micro foundations of international SMEs in a less digitally developed economy context. We expand the MB DT micro foundations perspective to investigate the human factors that inhibit or enable DT amongst locally focused (not international) MBs competing in digitally advanced landscapes.

Pursuant to the above discussion, we contend that studying MBOMs' DT readiness is essential to understand the process of DT in MBs. Such a study can inform how the contextual idiosyncrasies arising from MBOMs' beliefs, skills, and resources can potentially interfere with ongoing DT efforts in MBs. Such an enquiry also addresses calls to disentangle inhibitors and enablers of DT in MBs, to better understand inertia, resistance, culture, and values necessary for MBs to initiate, manage, and sustain DTs (Carroll et al., 2021; Mandviwalla & Flanagan, 2021; Svahn et al., 2017). Thus, examining MBOMs' implicit *technology mindset* and *growth mindset* can offer insights into the extent of new knowledge that may be learned and diffused within the specific MB. Such capability to learn will lead to adaptation and growth through DT practices and ensure their sustenance. In the next section, we draw on the theoretical lens of mindset to further develop the concept of MBOMs' DT readiness.

MBOMs' Digital Transformation Readiness

As mentioned above, in the MB context, *DT readiness* depends upon the MBOM's belief towards use of digital technologies, and their belief in the potential to grow one's personal abilities and competences (IT or managerial) to continuously engage with and learn for and from DT processes. Thus, we conceptualize an MBOM's DT readiness as consisting of a *growth mindset* and a *technology mindset* (Dweck, 2013; Yeager & Dweck, 2012).

Growth Mindset: Growth mindset captures one's implicit belief about one's personal resources in the context of learning and is considered to be unidimensional, with growth mindset on one end of the spectrum and fixed mindset on the other (Burnette et al., 2013; Yeager & Dweck, 2012). Growth mindset, as opposed to fixed mindset, reflects a belief in the malleability of an individual's basic personal traits and resources, such as intelligence and ability (Dweck & Yeager, 2019). The dominant mindset of an individual can be used to predict their decisions, judgements, reactions, and responses in different

situational contexts (Dweck et al., 1995; Solberg et al., 2020). Recently, growth mindset interventions have become particularly popular in the education sector to increase academic performance (Yeager et al., 2019). Growth mindset theory has also been used to study leadership (Chase, 2010), consumer preferences (Murphy & Dweck, 2016), employee engagement, and the potential for transformational leadership (Caniëls et al., 2018).

An MBOM with a fixed mindset believes that no basic attributes can be substantially improved or changed with time. Such individuals tend to look for ways to validate their current levels of competence and avoid situations where they could look incompetent (Murphy & Dweck, 2016). Consequently, they like to function in a status-quo mode because low competence contexts are viewed as low performance scenarios. Such individuals are usually not open to criticism or feedback. This makes them withdraw from situations that impose learning requirements to initiate substantial changes to the status-quo (Solberg et al., 2020). In contrast, an MBOM with a growth mindset believes that all basic attributes can be substantially improved or changed with time. Such individuals tend to look for ways to increase their competence levels and are open to feedback, focus on innovation, and are easy to collaborate with (Murphy & Dweck, 2016). Growth mindset MBOMs exert substantial efforts to learn proactively and continue such efforts, despite failures or challenges that they may encounter on the way (Solberg et al., 2020).

It must be noted that individuals may have different mindsets about different abilities (Gunderson et al., 2017). Therefore, growth mindset can also be domain specific, such as a digital growth or fixed mindset, which has been recently examined in the IS literature (Solberg et al., 2020). We posit that growth mindset represents an independent but related component of technology mindset.

Technology Mindset: Technology mindset captures the implicit belief of an individual in relation to technology use. It describes the specific combinations of attributes and characteristics related to an individual's needs and motivations for using technologies for different purposes (Walsh et al., 2016). In the literature, technology mindset has also been considered as a multidimensional construct describing an individual's IT culture. The more IT acculturated a user is, the more self-determined their IT usage becomes, and the more inclined the user is to use emerging technologies proactively (Walsh & Gettler-Summa, 2010). Research has also identified different IT user clusters such as studious, disciplined, and constrained (Walsh et al., 2016), each having a differential impact on IT governance within an organisation (Walsh et al., 2010).

MBOMs' Digital Readiness and Learning, and MBs' Digital Transformation

We posit that an MBOM's digital readiness comprises both growth and technology mindsets, which together and independently influence the MBOM's emotional, motivational, and metacognitive adaptation to DT challenges (King et al., 2012; Van der Beek et al., 2017; Yeager and Dweck, 2020). A recent study has shown that the two mindsets collectively impact employee engagement with DT initiatives (Solberg et al., 2020). MBOMs are the key change agents and orchestrators of DT within MBs, where they are required to seamlessly integrate business and IT functions during DT transitions. There is also an expectation that MBOMs must act proactively to acquire new knowledge and learn quickly from their mistakes so they can handle inherent DT-linked uncertainties. Therefore, *MBOMs' DT readiness* becomes an important antecedent to the development of learning capabilities and adaptation of MBs during DT efforts (Kelly et al., 2020; Spieth et al., 2021).

DT is an evolutionary change process that depends not only on the effective use of digital technologies by social actors but also on a leader's ability to continuously renew

their knowledge and competence to strategize, govern, and manage DT effectively (Mithas, 2016). Thus, the mindset of MBOMs in relation to their personal learning resources, such as technology self-efficacy and technical or managerial competences, is vital to the management and sustenance of DT efforts. Hence, we posit that the DT readiness of MBOMs provides an amenable environment for unlearning, learning, and relearning possibilities, which is expected to facilitate and sustain DT efforts in MBs (Solberg et al., 2020). Based on the discussion in the prior sections, we formulate the preliminary theoretical model (Figure 1) which paves the way for a deeper theoretical enquiry into the subject.

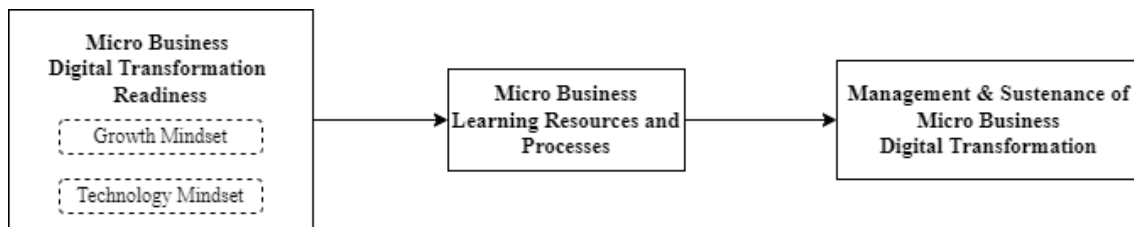


Figure 1: Preliminary Research Framework

Research Design and Methodology

Due to the exploratory nature of our study, we adopted a qualitative research approach. Our primary data came from 28 research participants engaged with MB DT initiatives in Ireland, 19 of the research participants being MBOMs and 9 MB mentors and business innovation facilitators. Data were collected between October and December 2021 using structured interviews with all individual participants, followed by four focus groups (three with MBOMs and one with mentors and facilitators). Although our unit of analysis is MBs, we recognise the key role of MBOMs in managing MBs. Hence, in our research we included MBOMs and other ecosystem participants (mentors and facilitators) who can provide information on how MBs enact DT initiatives.

With regards to the sampling strategy, at an early stage of this project, we relied upon a nodal partner (boundary spanning agent) between MBs and Local Enterprise Offices (LEOs). LEOs are entrusted with the task of supporting MBs in Ireland through training and mentoring activities. To better contextualize our research, we provide details about the Irish MB ecosystem, describing the key players and the key policy-level initiatives in Appendix 1.

Our nodal partner acted as a gatekeeper for our data collection efforts. S/he helped us to generate a list of 30 MBs based on our inclusion and exclusion criteria. Our nodal partner is also officially registered as a mentor in the panel maintained by several LEOs in Ireland. This link enabled us to tap diverse participants for our study. Following a call for participants, we were able to invite MBOMs who had undertaken or were planning to undertake digital transformation initiatives and had registered to seek business support advice services from one of the LEOs in Ireland.

Out of 30 potential MBOMs that we initially contacted to take part in this study, 20 MBOMs agreed to participate. One MBOM who initially agreed could not eventually participate in our data collection effort due to professional contingencies. Details about the MBOMs who participated in our study are presented in Table 1.

Table 1. Microbusiness Owner-Managers (MBOMs) - Study Participant Details

Participant Code	Age (Years)	Gender	Founding Year of MB	Sector	Industry Details	Total No. of Employees	Base Location and its Characteristics (Rural/Urban Town/Urban City)	
P1	40-50	F	2015	Tertiary	Florist to a 7-star hotel	5	Adare, Limerick	Urban town
P2	30-40	F	2009	Tertiary	Physiotherapist	4	Castletroy, Limerick	Urban city
P3	40-50	M	1995	Secondary	Flooring retail and fit	5	Urlingford, Kilkenny	Urban town

P4	50-60	M	2011	Secondary	Gas analysers supply and calibration	4	Patrickswell, Limerick	Urban town
P5	50-60	M	2016	Tertiary	Jewellery manufacturer and wholesaler	4	Raheen, Limerick	Urban city
P6	40-50	M	2008	Tertiary	Financial Advisor	1	John St, Limerick	Urban city
P7	50-60	F	1998	Tertiary	Forensic and environmental engineering	10	Trim, Meath	Urban town
P8	40-50	M	2007	Secondary	Building Maintenance services	9	Cork City	Urban city
P9	40-50	M	2016	Secondary	Window blinds manufacture and fit	3	Murroe, Limerick	Rural
P10	50-60	F	2002	Tertiary	Private school	8	Limerick city	Urban city
P11	30-40	F	1997	Tertiary	Education	4	Youghal, Cork	Urban city
P12	30-40	M	2012	Secondary	Light engineering	4	Clonmel, Tipperary	Urban town
P13	40-50	M	2012	Secondary	Light engineering and injection moulding	6	Limerick city	Urban town
P14	40-50	M	1996	Secondary	Commercial Air conditioning installation and maintenance	10	Limerick city	Urban city

P15	30-40	F	2018	Tertiary	Strategic Marketing consultant	1	Walkinstown, Dublin	Urban city
P16	30-40	F	2002	Tertiary	Company secretarial service (formations and tax filing etc)	6	Limerick city	Urban city
P17	30-40	F	1980	Secondary	Pressure welding mostly for pharma industry	10	Thurles, Tipperary	Urban town
P18	40-50	M	2020	Secondary	Garment embroidery and print	7	Cork City	Urban city
P19	40-50	M	2013	Secondary	Maintenance services (electrical)	3	Mallow, Cork	Urban town

Initially, structured interviews were conducted to gather data on MBOMs' activities and digital experience. MBOMs were asked questions about their demographic information, company details, digital technologies used, sector of activity, and the number of employees in their MBs. We also asked open-ended questions that allowed the participants to describe their experience using digital technologies in their respective MBs, and their perceptions about the importance of DT efforts for MBs in Ireland. Further, we asked them to rate on a Likert scale of 1 to 5 (extremely low to extremely high) their general interest in technological innovations, their comfort-level in using digital technologies when no help is available, and their attitude towards technology use. We also asked the MBOMs about the extent to which their specific MBs have well-developed digital policies, mechanisms, infrastructure, and practices in place. All this information was useful in setting the stage for the three focus groups that were subsequently conducted with the MBOMs.

MBOM focus groups were aimed at gaining deeper insights into a variety of opportunities and challenges that MBs are confronted with while undertaking DT efforts. The focus groups were guided by questions (see Appendix 2) on the motives and enablers for DT in MBs along with the experienced challenges. Follow-up questions on how MBs manage and sustain DT efforts were also posed. Research participants were encouraged to relate anecdotes to buttress their viewpoints. Focus groups were conducted online by two of the co-authors. Each of the focus groups lasted between 2 and 2.5 hours. All focus groups were recorded with the permission of the participants. They were later transcribed by an automatic transcription tool and manually corrected by one of the researchers before conducting data analysis. Participation in the initial interviews and focus groups was voluntary. Further, the participants were assured that the collected data would be anonymised and that the results would be reported only in a masked form for research purposes. All the research participants signed a formal consent form allowing the authors to respect ethical requirements of data collection.

After three focus groups with the MBOMs, we reached theoretical saturation as no new themes emerged. To gain a holistic understanding of the topic, we also sought to include the perspectives of mentors and facilitators, who had rich experience working with different MBs and were professionally associated with different LEOs. For this we conducted a fourth focus group comprising only facilitators and mentors. The sample for the fourth focus group was generated using a snowball sampling technique. After starting with initial recommendations from our nodal contact, we also approached senior management teams from government agencies such as Enterprise Ireland (national-level business support structure) and LEOs from different parts of Ireland. Members of LEOs from Cork, Carlow, Meath, and Clare were represented in our facilitator and mentor

sample. Table 2 provides details about the participants in the facilitator and mentor focus group.

Table 2. Microbusiness (MB) Facilitators & Mentors – Study Participant Details

Participant Code	Age (Yrs)	Gender	Role (to provide business support services to all types of businesses including MBs)	Experience in this Role (Years)	Skills/Experience Domain and Association Level	Location
P20	30-40	Male	Facilitator	6	Strategy and Project Management- Enterprise Ireland Centre of Excellence (National level)	Shannon, Clare
P21	40-50	Male	Facilitator	3	Senior Government Business Advisors (Local)	Cork City
P22	40-50	Male	Facilitator	9	LEO head (Local)	Carlow
P23	40-50	Female ⁵	Facilitator	21	Senior Government Business Advisor	Navan, Meath
P24	40-50	Male	Facilitator	7	Senior Government Business Advisors	Ennis, Clare
P25	50-60	Male	Mentor	7	Lean and Digital Transformation (Connected to most LEO's but very active within LEO's at Limerick, Tipperary)	Limerick City
P26	60-70	Male	Mentor	40	Lean and Digital Transformation (Connected to most LEO's but very active with LEO Monaghan)	Monaghan Town
P27	50-60	Male	Mentor	3	Lean and Business Mentoring in General	Waterford City

⁵ Although there is only one female represented in the mentor/facilitator panel the possibility of any gender bias is limited due to the elevated professional experience of the female respondent. Moreover, the focus groups were led by female researchers, which should neutralize any hesitancy or alienation that may be perceived in such situations. Further, the opinions of both the female and several male respondents were not significantly different from each other in our data set.

					(Connected mostly to LEO Waterford)	
P28	40-50	Male	Mentor	2	Lean and Digital Transformation (Connected mostly to LEO Kildare)	Kildare Town

Facilitators and mentors were included in our sample to enrich our initial MBOM sample pool for two specific reasons: (1) to include diverse actors who are both experienced and experts in the MB sector, allowing us to tell a holistic story about actual DT practices with greater confidence, and (2) to provide the study participants (facilitators and mentors) a unique opportunity to reflect and offer collective suggestions to improve current DT practices and empowerment strategies from a practice-oriented ecosystem perspective. This provided us with the potential to make valuable contributions to practice in addition to theory.

We also collected details about the digitalisation levels for the sampled MBs pre- and post-pandemic (Table 3) to assess the extent to which digitalisation efforts were influenced by external factors⁶ such as the COVID-19 pandemic. The research data was collected during the fall of 2021. It is interesting to note that the COVID-19 pandemic did not emerge as the reason for the initiation of DT efforts, but it did accelerate the digitalisation plans for some of the MBs. We observe most MBs in our sample had already begun their digital transformation journey in a gradual fashion before the pandemic.

Table 3. Level of implementation of digital technologies and growth before and after the pandemic

Participant Code	Digital Technologies Implemented	Firm's pre-pandemic digitalisation level perceptions	Firm's post pandemic digitalisation level perceptions	Presence of Growth Strategy

⁶ We would like to thank one of the anonymous reviewers for making this suggestion as our analysis helped us in reinforcing the influence of MBOMs in MB DT initiatives and helped us further contextualize our findings.

P1	S	Low	Low	Emerging
P2	W, S, M, DA, C, CA, E	Medium	Medium	Yes
P3	W, S, C, CA, E	Low	Low	Yes
P4	W, S, M, C, CA, E	Low	Low	Yes
P5	W, S, M, C, CA	Low	Low	Yes
P6	W, S, M, C, CA	Medium	Medium	Yes
P7	W, S, M, DA, C, CA	High	High	Yes
P8	W, M, C, CA	Medium	Medium	Yes
P9	S, M, C	Low	Low	Emerging
P10	W, M, C, CA, E	Low	Low	Yes
P11	W, S, M, DA, C, CA, E	High	High	Yes
P12	S, M, C	Low	Low	Emerging
P13	W, S, M, C, CA	Low	Low	Yes
P14	W, S, M, C, CA	Low	Low	Emerging
P15	W, S, M, DA, C, CA	Medium	Medium	Yes
P16	W, S, M, C, CA	Low	Low	Yes
P17	W, S, M, C, CA	Low	Low	Yes
P18	W, S, M, C, CA, E	Medium	Medium	Yes
P19	W, S, M, C, CA.	Low	Low	Yes

Note: Digital Technologies Implemented: Website (W), Social Media (S), Mobile (M), Data Analytics (DA), Cloud (C), Cloud for Accounting (CA), E-commerce/Online Sales (E)

Analytical Approach

Our analytical approach was guided by thematic analysis (Braun & Clarke, 2006). This approach allows researchers to remain open to emergent themes, which are inductively abstracted from the data. NVivo (2021 version) was used for coding the transcripts and

data analysis. Adhering to the guidelines of the thematic analysis approach (Braun & Clarke, 2006), two of the authors inductively analysed the data, first independently and then collectively. During this process, the six phases of thematic analysis were followed: familiarization with data, initial code generation, theme search, theme review, theme definition and naming, and writing-up (Braun & Clarke, 2006).

Phase 1 involved an iterative reading of all the data including interview data and focus group transcripts. This helped to develop familiarity with the data whilst enabling us to assess whether the available data could help develop a coherent story. In Phase 2, driven by the theoretical concept of DT readiness of MBOMs comprising growth and technology mindsets, we sought to identify the presence and valence of the two mindsets among the study participants. This was done by analysing data on MBOMs' perceptions, attitudes, and beliefs related to the use of digital technologies in their organisations. During this phase, we focused on MBOMs' adaptability, learning beliefs, actions taken during DT, and evidence for managing and sustaining DT efforts. In addition, in this phase, having checked and agreed on our initial coding, the two authors worked together, contributing to the identification of the two recurring codes, notably growth and technology mindsets of the MBOMs.

In Phase 3, guided by our dataset and influenced by the overarching research question of the study, further categorization of the data was done. In this phase, we were able to identify different categories of MBOMs based on the degree of growth and technology mindsets. This led to the identification of three MBOM digital transformer archetypes in our dataset, namely: champion digital transformers, emerging digital transformers, and aspiring digital transformers. The emergent categories of MBOMs were thereafter reviewed and verified by the third author (Phase 4), and when agreement was reached, we proceeded to investigate factors linked to the different archetypes

contributing to the emergence of learning capabilities and the associated learning mechanisms that are crucial to DT efforts in the context of MBs (Phase 5). Throughout the analysis process, we adopted a “theory-driven” approach (Braun & Clarke, 2006) whereby we used our specific research question and the proposed theoretical model in Figure 1, contributing to the findings write-up (Phase 6). Figure 2 provides the data analysis process flowchart. We elaborate on our findings in the subsequent subsections.

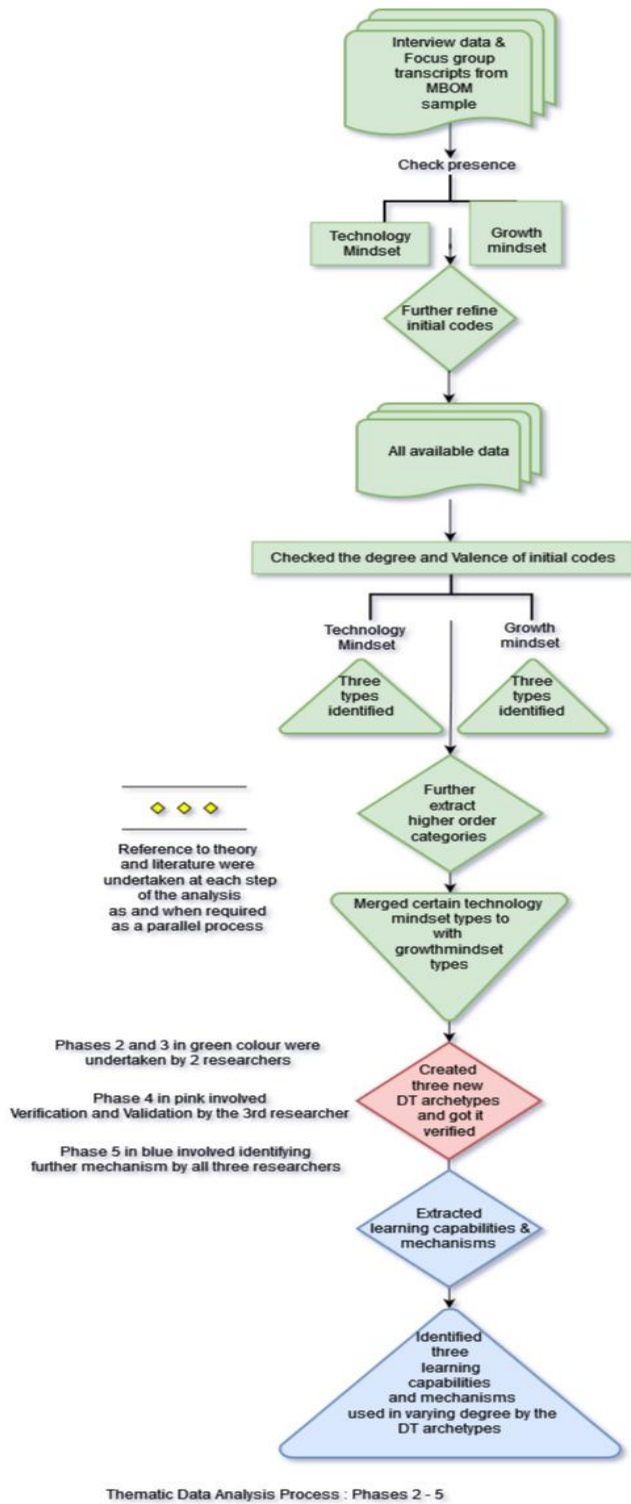


Figure 2: Data Analysis Process

Results

We observed significant differences in DT readiness among the participating MBOMs in terms of both their growth and technology mindsets. Based on the differences in their

levels of growth mindset, we classified the MBOMs into three categories of growth mindset: *high-, medium- and low-growth mindsets*. Similarly, based on the differences in their levels and nature of IT use perceptions, the MBOMs were classified as having *proactive, reactive, and passive technology mindsets*. MBOMs' growth and technology mindsets are expected to guide their potential DT efforts.

Growth and Technology Mindsets of MBOMs

MBOMs' growth mindsets: An MBOM with a "high-growth mindset" believes that all basic attributes can be substantially improved or changed with time. Such MBOMs would tend to look for ways to increase their competence levels and are open to feedback, easy to collaborate with, and focus on innovation (Murphy & Dweck, 2016). In contrast, MBOMs with "low-growth mindset" are more inclined to having closer to a fixed mindset about their attributes in relation to the environment around them. While high-growth mindset MBOMs would exert substantial efforts to learn proactively and continue such efforts despite failures or challenges that they may encounter on the way to growth, low-growth mindset individuals would not be keen to do so (Solberg et al., 2020). "Medium-growth mindset" MBOMs are cautious in their outlook and may act according to a particular situation. Such MBOMs may not always display enthusiasm to learn, but nonetheless may like the idea of growth.

MBOMs' technology mindsets: The "proactive technology mindset" MBOMs are keen to learn about technologies and appear to be highly self-deterministic in their IT usage. Such MBOMs are expected to have high levels of IT self-efficacy. Building on prior IT culture literature, many of the characteristics of the proactive technology mindset MBOMs were similar to the studious IT user cluster (Walsh et al., 2010). The "reactive technology mindset" MBOMs learn as and when the situation requires, and they appear to be moderately less self-deterministic in their IT usage. Such MBOMs switch to either

proactive or passive mindsets depending on the context and their IT needs satisfaction. Reactive MBOMs are expected to have medium levels of IT self-efficacy. Many of the characteristics of the reactive technology mindset MBOMs were similar to the disciplined IT user cluster (Walsh et al., 2016; Walsh et al., 2010). In contrast to the previous two technology mindsets, the “passive technology mindset” MBOMs avoid learning situations and are generally constrained in their IT usage. Passive MBOMs are expected to have low levels of IT self-efficacy. Many of the characteristics of the passive technology mindset MBOMs were similar to the constrained IT user cluster (Walsh et al., 2016; Walsh et al., 2010).

Archetypes of MBOM digital transformers

Using the above attributes of growth and technology mindsets, we identified three significant MBOM digital transformer archetypes in our dataset: *champion digital transformers*, *emerging digital transformers*, and *aspiring digital transformers*. In Table 3, we summarize the characteristics of the three MBOM digital transformer archetypes emerging from our data and provide exemplary quotes for each of the two mindset attributes. Our analysis revealed that in our sample of 19 MBOMs, we had 14 champion digital transformers, 4 emerging digital transformers, and 1 aspiring digital transformer.

Table 4: MBOM Digital Transformer Archetypes

MBOM	Digital Transformation Readiness	
Digital Transformer Archetype	Growth Mindset	Technology Mindset

<p>Champion Digital Transformers</p>	<p><i>High level of growth mindset</i></p>	<p><i>Proactive-technology mindset</i></p> <ul style="list-style-type: none"> - Attributes like studious IT User - High level of self-determination for DT - High level of positive IT affect - Above average IT self-efficacy - Global IT need - Identified regulation with motivation to know - No impact of educational level – both low and high education level profiles
	<p><i>“Failure is a part of us. You can roll something out and it can be embarrassing when you’re saying to the lads (customers⁷), three months later, we’re parking (stopping to use the specific digital solution) that after a while we’re parking that too now and then you go back to the drawing board and come out six months later, another one (new digital solution) and they’re (customers) going, there he goes again. With another one. But it’s part of it. You’re going to fail. A lot at this, but overall, it’s, it’s the way to go (DT efforts).” (P8)</i></p>	<p><i>“We would use a lot of digital processes and we’re always on the lookout to make our current processes more efficient and better, but also looking out for more opportunities to digitally transform . . . is quite addictive.” (P2)</i></p> <p><i>“We have mechanical engineering company here in Tipperary, . . . the big thing for us is if we don’t look for the efficiencies that digitization brings to the table, we just fall behind. So it’s really to remain competitive, efficient. . . we’re competing against much larger contractors as well. So we have to have the same efficiencies and the same level of service that they have. So, we recently updated all of our software, our accounting software and we did a bit. . . . So we’re always looking for various enhancing our efficiencies.” (P17) [Self-determination, high growth mindset and willingness to unlearn and learn during digital transformation]</i></p> <p><i>“We moved from paper time sheets to digital and it made a huge difference to our tracking of jobs. . . . I think we need to up our game on digital technologies to improve our competitiveness.” (P19) [Willingness to learn and improve, intrinsically motivated to use digital technologies]</i></p> <p><i>“We were always using digital processes for everything.” (P11)</i></p>

⁷ Non-italicized portions in the quote within brackets here and elsewhere have been added by the authors to contextualize and clarify relevant portions of the interview quotes.

Emerging Digital Transformers	Medium level of growth mindset	<p>Reactive-technology mindset</p> <ul style="list-style-type: none"> - Attributes like disciplined IT User - Medium level of self-determination for DT - Medium level of positive IT affect - Medium to low level of IT self-efficacy - Contextual IT need - Mostly identified regulation with motivation to know - Medium education level profiles
	<p><i>“I have had a fear of learning (dropped out of college) . . . now it’s new kind of learning... I just need to drive on and bring the partner-owner (on broad towards DT), which is kind of dragging him up from the Stone Age. Really, he doesn’t like change. He doesn’t want . . . he doesn’t mind change, but not too quick. So I’ve already put a few ideas (digital solutions) to him and he’s told me, slow down. So, I give him till the new year, we will go back to him again (to progress on the DT efforts).” (P14)</i></p>	<p><i>“I would always embrace digitization, even though I find it difficult. I keep dragging myself along with it and keep kicking and screaming because I know it’s for the benefit of my company.” (P9)</i></p> <p><i>“I’m waiting for January. It’s like what P4 said, there is more to it, you know, since making the move and then procrastination about it, and then you revert back to your old habits on what you’re doing. . . . We were in a business group, there is XYZ (a mentor) who joined in there in the last couple of months. . . . we meet every Friday morning. So that’s how I found out about it (possibility to seek project-based mentoring for digital transformation from local bodies). . . . So it has just been running the business ourselves for the last whatever, 23 years, and I suppose you try to change but it’s difficult to change.” (P3)</i></p>
Aspiring Digital Transformers	Low level of growth mindset	<p>Passive-technology mindset</p> <ul style="list-style-type: none"> - Attributes like constrained IT User - Low level of self-determination for DT - Low level of positive IT affect - Low level of IT self-efficacy - Situational push as IT need - External regulation as motivation - Low education level profiles
	<p><i>“If I had a magic wand, I would actually take what’s in my head and actually complete it. And, you know, whether it’s a different aspect of the business or a new business altogether (with respect to DT efforts) . . . and forget about the in-between bit where I have to be involved in creating it.” (P1)</i></p>	<p><i>“My fear of technology makes this 10 times harder to use digital technologies to improve my business.” (P1)</i></p>

Learning Resources and Processes for MBOMs: Learning Capabilities and Learning Mechanisms

For understanding the efficacy of DT efforts in MBs, it is essential to understand the *learning capabilities* and *learning mechanisms* of the MBOMs and how they contribute to the management and sustenance of DT. Consequently, in this section we first examine learning capabilities of different MBOM DT archetypes by delving deeper into their DT readiness characteristics. Next, we examine the different learning mechanisms in relation to MBOMs' learning capabilities.

MBOM Learning Capabilities for Different Types of MBOM Digital Transformers

Champion digital transformers and their learning capability. Champion digital transformers are those with a high-growth mindset and are similar to studious IT users (Walsh et al., 2016; Walsh & Gettler-Summa, 2010; Walsh et al., 2010). Usually, they accept mistakes, grow from past experiences, and are not afraid to experiment with new technologies. Such MBOMs are generally more motivated to reach their goal and have effective learning practices. They tend to be proactive, often self-initiating the learning process without any push from outsiders. Champion digital transformers are usually at ease with engaging in DT efforts and look beyond the obvious tangible benefits. DT efforts are viewed as an opportunity to improve the business by tapping into the right digital resource. Thus, these MBOMs find it easier to assimilate digital technology into their business. Because of a high level of growth mindset, they are motivated to learn and adapt to using digital technologies.

Champion digital transformers are intrinsically motivated to use new technologies and it is easy for them to trust new technologies. As dedicated learners with high levels of self-efficacy, they may become experts even with little or no IT training. They generally self-train themselves in their free time to reach more significant levels of

knowledge. Such highly driven learning motivation, self-determination, and adaptive capability for undertaking DT efforts were echoed by the respondents in this category:

And the fact that we were to switch online [during pandemic lockdown], and everything was available to us to track payments coming in from parents, and it was all in one place—that made a huge difference to us. Now, obviously, it didn't happen overnight, it was a process of gradual change [unlike natural evolution]. . . . In our case, it was a process of gradual change over a very short period of time. So, in many respects, we rewrote the word of evolution and that continues today. . . . Being digital is just absolutely critical to us to be organised. . . . Digital transformation has saved my business. . . . Had we not transferred over to digital online learning, we wouldn't be here today. (P10)

Emerging digital transformers and their learning capability. Emerging digital transformers are those with a medium-growth mindset and are similar to disciplined IT users (Walsh et al., 2010; Walsh and Gettler Summa, 2010; Walsh et al., 2016). Usually, they avoid making mistakes, but they try to learn from their past experiences. However, they are not forthcoming in adopting and experimenting with new technologies unless really needed. Such MBOMs are generally less motivated to reach their goal if it involves substantial changes to their current business, and they may have less effective learning practices. They tend to be reactive, not self-initiating, in their learning process. They need an external push from outsiders or an intrinsic compelling business need (such as survival or power needs) to drive their DT efforts. Due to their limited knowledge, these MBOMs would be less empowered compared to champion digital transformers to reach their goals. Emerging digital transformers are usually not very at ease in engaging with DT efforts and look for tangible rewards, evidence, or benefits. DT efforts may be viewed as an opportunity to improve business by tapping into the right digital and human resources only if there is a compelling business need. Thus, emerging digital transformer MBOMs find it less easy to assimilate digital technologies into their business. Because of a medium level of growth mindset, their motivation to learn and adapt to using digital technologies is conditional on the possible satisfaction of a compelling contextual need.

Emerging digital transformers are intrinsically motivated to use new technologies under certain circumstances and it is not necessarily easy for them to trust new technologies. However, as disciplined learners with medium levels of self-efficacy, they tend to become competent with relevant IT training. They do not generally self-train to gain IT knowledge but are not extremely averse to learning situations. Such a contextual learning motivation and a lesser degree of self-determination and adaptive capability for undertaking DT efforts were echoed by respondents in this category:

*I suppose, honestly, for me within our own company, I am [the roadblock], even though I implemented [some digital tools] going under the Lean program, and I really appreciate what XYZ [mentor] has done for us. **I'm reluctant to change some things and I'm a procrastinator**, and like we're right in the middle of trying to implement the new system for the lab. **And I find myself falling back into the old habits and just putting the short note on something and not following through on it. I do procrastinate, so I think I'm the stumbling block within our organisation, to be quite honest, because I'm reluctant to change.** (P4)*

Another respondent commented that he continues with the DT process as it makes him look more professional compared to his competitors, expressing:

***I would always embrace digitization, even though I find it difficult. I keep dragging myself along with it and keep kicking and screaming because I know it's for the benefit of my company. And I have been passed comments that I look a bit slicker, more faster than other companies that come in with their invoice book and write down the measurements, I come in with my tablet, type in the measurements and it's all looks very professional and that's all down to the digitization side of it through XYZ mentor, so I definitely would say digital transformation helps me.** (P9)*

Aspiring digital transformers and their learning capability. Aspiring digital transformers have lower levels of growth mindset and are similar in many respects to constrained IT users (Walsh et al., 2010; Walsh and Gettler-Summa, 2010; Walsh et al., 2016). They may lack capacity-ability beliefs, strategy beliefs, capacity-effort beliefs, and have helplessness beliefs (Pelletier et al., 1997; Walsh et al., 2010). Usually, they are afraid to make mistakes and are also averse to experimenting with new technologies. Such MBOMs are generally the least motivated to reach an uncertain goal and may not have effective learning practices. They tend to be passive and do not easily initiate the self-

learning process even in the presence of external incentives such as funding and expertise. Aspiring digital transformers are usually not at ease in engaging with DT efforts. Though DT is viewed as a threat, such MBOMs aspire to improve their business by leveraging appropriate digital and human resources. Because of a low level of growth mindset, they find it hard to assimilate new digital technologies into their business by self-learning and adaptation.

Aspiring digital transformers are generally externally driven, and it is not easy for them to trust new technologies. They are less capable learners with low levels of self-efficacy and rely on external expertise instead of self-training. Such low learning motivations and lack of self-determination and adaptive capability for understanding DT efforts were expressed during the focus groups:

Making and sending wedding flower proposals is a major part of what we do. My fear of technology makes this 10 times harder to use digital technologies to improve my business. . . . For me it is just taking the fear out and just kind of getting on to the next level. . . . You know, just simplifying things for myself and just kind of knowing, you know that things are in hand, if you know, and maybe if that means bringing somebody else on board and maybe that, you know, I don't know what exactly that means. Yes, it's actually defining what it is that I needed to achieve and what I need systems to do. It is the biggest thing for me. (P1)

Following from these examples, it emerges that aspiring digital transformers have a lower propensity to learn, and they find it hard to unlearn existing business processes. Thus, they develop low levels of learning capabilities during DT efforts.

When asked about how they can overcome their knowledge gaps, aspiring digital transformers acknowledged the need for continuous support from a trusted mentor for managing and sustaining DT initiatives. For them, attending a training programme to become self-competent was a daunting endeavour. Thus, their propensity to learn and adapt to DT in a self-deterministic manner is rather limited.

Aspiring digital transformer MBOMs view DT as a way to solve specific situational IT-based business problems. For them, DT is not viewed as an opportunity to

develop internal competencies through learning that can address broader issues in managing MBs. Progressing from situational digital needs to global MB digital needs would lead to better digital leadership and managerial capabilities development (Walsh et al., 2010). Reliance on trusted coaches and mentors appeared to be prominent in their transformational journey:

*Because it's such a minefield for me and I'm very hands on. I work huge, silly hours, I mean, when it comes down to it, **I am very, very hands on in the business. I probably don't know. I don't have the support systems around me that I need, and that's what XYZ [Business Coach] will be extremely useful to me. And you know, he's able to point me in the right direction with maybe people that can be of help to me. And so, yeah, it's knowing the right people and getting the right information, you know. (P1)***

Digital Transformer Archetypes and Learning Process Mechanisms

Clearly, continuous learning by MBOMs is imperative for successful DT efforts. Although in the previous section, we presented what may appear to be a static view on the learning capabilities of different MBOMs to understand the distinct characteristics of each DT archetype, we acknowledge that learning is essentially a dynamic process. As such, the learning capabilities of different archetypes need to be continuously augmented to manage and sustain ongoing DT efforts. The fast-changing pace of the technological landscape and evolving technological applications call for the need to understand how MBOMs develop and leverage their learning capabilities.

To understand the *mechanisms* through which MBOMs manage their learning capabilities, we analysed the data with a view to unpack the different learning mechanisms that MBOMs undertake to upgrade their learning capabilities. We unpacked three learning mechanisms, which are also related to MBOMs' DT readiness. These learning mechanisms are *exposure, experience, and expertise*. These mechanisms also influence the learning capability of MBOMs, which in turn is related to their DT efforts.

In this section, we describe the three identified learning mechanisms and examine how they are leveraged by the three identified digital transformer archetypes.

Exposure Learning Mechanism

The exposure learning mechanism is vicarious learning by MBOMs through either a proactive or accidental exposure to a variety of DT-related learning instances. This learning mechanism had minimum impact on the learning capability of most MBs. However, this mechanism did help in providing macro-level insights and was instrumental in removing some of the initial inhibitions to adopt new methods and technologies. The exposure learning mechanism was leveraged by all three digital transformer archetypes observed in our data, namely the *champion digital transformers*, the *emerging digital transformers*, and the *aspiring digital transformers* (Table 5). Although all three MBOM digital transformer archetypes in our sample used this learning mechanism, champion digital transformers and emerging digital transformers used it as a “planned adaptation mechanism” for their DT efforts, while aspiring digital transformers used it as an “accidental learning mechanism”. Despite this difference, we noticed that champion digital transformers and emerging digital transformers were also open to accidental knowledge gains through any possible exposure that they may stumble upon.

Table 5. Exposure Learning Mechanism for Digital Transformer Archetypes

Exposure Learning Mechanism	Exemplary quotes
Champion Digital Transformers:	<p><i>“I’m not digital minded, but I didn’t know what [DT] was . . . And I asked someone, and they said, Yeah, you should go on that (State-sponsored digital program), and that’s it. That’s kind of like giving birth—without that, I don’t know how it would have started.” (P8)</i></p> <p><i>“I see the people in the business networks as my colleagues. So if I need something, if I need advice, be it on a digital tool or a CRM tool, or, you know, whatever it is, that’s, that’s my first port of call. . . . Training as well (expertise effect) . . . there’d be a lot of kind of introduction training through the LEOs and at a higher level than in Enterprise Ireland (expertise effect) . . . but it just gives you enough of a starting point to kind of go, Yes, this is for me or</i></p>

	<p><i>no, I need to look somewhere else.</i>” [exposure/experience effect]. (P15)</p> <p><i>“It was Limerick Enterprise Office who had sent out an email about some things that we could have done (Lean program). . . . We said, We could we do something here? . . . Well, the XYZ (mentor of the program) took out of the paperwork system and into the digital era that we kind of didn't think that we'd even start to actually do. So that's how we got help on it (DT).” (P13)</i></p>
Emerging Digital Transformers	<p><i>“I kind of know from different fellows what they do. But it's just trying to learn from them and then just trying to find out from someone else.” (P14)</i></p> <p><i>“I haven't started the journey, really. And so basically, I am looking forward to just listening to a few of the guys do and what they're saying.” (P3)</i></p> <p><i>“Rather than it coming from always the top down on, here's what we're doing next. I've gone to them (employees) and asked, And how can we make your life easier? If we make their life easier, they make us more money. So they've come up with a few ideas (DT efforts), and we're trying to put them and put them into place now going forward.” [case of planned exposure] (P14)</i></p>
Aspiring Digital Transformers	<p><i>“[MBs] know their own business very well; it is easier to do nothing until somebody hands in to them a readymade solution which may or may not work.” (P27)</i></p>

Experience Learning Mechanism

The experience learning mechanism is the immersive first-hand learning undertaken by MBOMs through a planned or a chance learning initiative for DT. This learning mechanism had a significant impact on the learning capability of the MBOMs in our data. It helped them develop management competencies and paved the way for them to initiate, manage, and sustain DT efforts. The experience learning mechanism was leveraged largely by *champion digital transformers*, some *emerging digital transformers*, but not as much by the *aspiring digital transformers* (Table 6).

Primarily, this mechanism was implemented as a planned activity. The knowledge gained from such proactive experiences was deeper for the champion digital transformers because they volunteered and learnt of their own volition. Champion digital transformers did not wait for planned DT efforts; they constantly sought new experiences. On the

contrary, the emerging digital transformers mostly learned when they had to learn through a planned DT experience, event, or situation—such as a failed DT effort or a successful one initiated by an external mentor. Although the aspiring digital transformers had a propensity to gain experience, there was insufficient evidence in our data to back the actual use of this learning mechanism. It appears that aspiring digital transformers may prefer to outsource digital transformation projects as opposed to taking them as a learning experience and planning the encounter. Hence, the use of this learning mechanism was limited for aspiring digital transformers.

Table 6. Experience Learning Mechanism for Digital Transformer Archetypes

Experience Learning Mechanism	Exemplary Quotes
<p>Champion Digital Transformers</p>	<p><i>“It’s very daunting when you’re starting out on that road, Well, I found it daunting when we were starting to get in place, but I think once you get the core thing right, whatever you need, for us it was the time management system or whatever it would be for any other business, like once you get that bit right, it’s easy to build on from that, but then . . . it becomes more natural. And that been our experience anyway.” (P2)</i></p> <p><i>“After you implemented a digital tool, you need to check if you are getting what you expected; that is how you get the buy in from employees.” (P16)</i></p> <p><i>“To own a business you need to be a problem solver . . . and you have to aim to resolve it at least by 98%—as a business owner none of us is afraid to fail—to try something (DT efforts) and fail is far better than not try at all.” (P18)</i></p>
<p>Emerging Digital Transformers</p>	<p><i>“I see the benefits as well [using a digital note taking tools implemented by a consultant, an experience event], I’m just being very honest here and saying that sometimes it’s easier just to scribble a note or a sticker on something rather than going to the trouble of inputting the information digitally and doing correctly. And even though I see the benefit of others, quite honestly, because I can see this, now, this is our busiest time of the year, and I know myself that I’ve done things that put us backwards, rather moves us forwards. If that makes sense.” [reluctant to learn from experiences] (P4)</i></p>
<p>Aspiring Digital Transformers</p>	<p><i>“I am very, very hands on in the business. I probably don’t know [to implement digital technologies and bring about the intended changes]. I don’t have the support systems around me that I need, and that’s what xyz (mentor) will be extremely useful to me.” [May</i></p>

	prefer to outsource digital transformation project as opposed to taking it as a learning experience and plan the encounter] (P1)
--	--

Expertise Learning Mechanism

The expertise learning mechanism is MBOMs’ purposive focus to acquire DT-related contextual and domain knowledge through a planned learning initiative. The directed nature of this learning mechanism ensures that it has a significant impact on the learning capability of MBOMs. It helps develop competencies that pave the way for successful DT efforts by taking into consideration the specifics of the particular MB sector.

Because of its proactive nature, this mechanism was usually adopted by champion digital transformers (Table 7). It is expected that higher levels of DT readiness contribute to appropriate DT-related learning choices. While most MBOMs used this learning mechanism through formal training programmes, some shared their expertise with others to gain a complementary expertise in return. By participating in DT-related problem-solving activities with others, MBOMs could also build their expertise on the latest technological developments. Acquiring expertise in DT-related subjects provided the MBOMs the necessary background for learning about related competencies. Thus, the expertise learning mechanism for MBOMs serves as a resource for continuous DT-related knowledge development.

Table 7. Expertise Mechanism for Digital Transformer Archetypes

Expertise Learning Mechanism	Exemplary Quotes
Champion Digital Transformers	<p><i>“By continuing to engage and collaborate with other organisations [gaining expertise through mentoring others] and to try and improve our company on a general sense, we work on having a mind on digitization all of the time, we were able to get nuggets or, you know, discovered little things that we can work on, discover projects, problems.” (P11)</i></p> <p><i>“Before I started on the [formal digital initiative programme] [expertise effect], I just admit that I was absolutely lost. I was running a business. I had loads of ideas and just absolutely no idea or way to get them out and to get them into the business and get them working for me. And I would have just been, a lot of stress and. And.</i></p>

	<p><i>I just, I didn't know where to go. . . . I went on the course . . . that was a good few years ago now. And I just don't know how I would function without it, it's transformed our business, transformed turnover, transformed profits, transformed the service we give to our customers. It's just been unbelievable.” (P8)</i></p> <p><i>“I'm a bit of a geek when it comes. I like tech. I like researching IT, I like looking into it, so it definitely helps. I suppose it's helped me to try and evolve the business from a digital transformation point of view.” [Self mastery-expertise effect] (P18)</i></p>
Emerging Digital Transformers	<p><i>“I didn't even know that there was government back [funds and digital initiative programmes] that could help us on this journey to get to digitization.” (P14)</i></p> <p><i>“So me going back to learning stuff is something I didn't want to do. So, I would rather learn how to use a tool [applied experience] than rather learn how to use a laptop for good [formal program].” (P9)</i></p> <p><i>“By continuing to engage and collaborate with other organizations [a planned experience effect] and to try and improve our company on a general sense, we work on having a mind on digitization all of the time, we were able to get nuggets or, you know, discovered little things that we can work on, discover projects, problems.” [Path to better learning and better digital transformation management and sustenance] (P11)</i></p>
Aspiring Digital Transformers	<p><i>“Look, instead of you going and doing a course, I probably would be saying that it would be better if I could bring somebody in, that would do one on one walking through different systems, walking through different apps or whatever.” (P1)</i></p>

In summary, from the analysis above, we observe that “champion digital transformers” proactively developed *all three learning mechanisms* on a continuous basis to manage and sustain their DT efforts. We notice a sense of confidence through appropriation of several learning mechanisms to make self-deterministic choices during DT. Self-reported evidence also shows that MBs managed by champion DT transformers had better digital assimilation policies, mechanisms, and practices, a proxy to understand how DT is managed and sustained.

The “emerging digital transformers” primarily leveraged *exposure* and *experience learning mechanisms* for their DT-related learning processes. They were context driven and would appropriate different learning mechanisms if they had a compelling reason to

do so. On the contrary, *aspiring digital transformers* did not leverage any specific learning mechanism on a continuous basis to manage their DT efforts. We observe a sporadic use of the *exposure learning mechanism* by them. However, aspiring digital transformers were amenable to adopting the *experience learning mechanism*, provided they were primed by the previous experiences of a trusted third party.

In Table 8 below, we use the self-report digital assimilation levels (current and predicted) for each of the three types of the digital transformers identified in the study and aim to predict the sustainability levels to further show how these learning mechanisms influence the management and sustenance of DT.

Table 8. Digital Transformer Archetype and Management and Sustenance of DT efforts

Digital Transformer Archetype	Champion Digital Transformers	Emerging Digital Transformers	Aspiring Digital Transformers
Observations	Evidence of all three learning mechanisms (exposure, experience, and expertise)	Evidence of two of the learning mechanisms (exposure and experience)	Scant evidence of only one learning mechanism(exposure)
Digital Transformation Management and Sustainability			
Digital Assimilation Levels (self-reported)	High	Medium	Low
Expected Sustainability Levels (development levels of learning mechanism and current digital assimilation levels)	High	Medium	Low

Discussion

Given the huge potential impact of MBs' digital transformation on a nation's economic and social development, we examine the mechanisms for managing and sustaining such initiatives. We set out to identify to what extent the DT readiness of MBOMs influences the management and sustenance of DT efforts in microbusinesses. Firstly, we were able to conceptualise and operationalise DT readiness to include technology and growth mindsets. Moreover, we were able to identify three unique DT archetypes amongst

MBOMs. Further, we theorize the influence of each DT archetype on MBs' learning resources and processes for DT initiatives.

Our study confirms earlier literature on the significance of DT to the MB sector (Mandviwalla & Flanagan, 2021). Through a qualitative study, we extend research in this area by showing that not all MBs are able to leverage the possibilities offered by engaging with DT efforts homogeneously. There are significant differences among MBs' change agents' confidence and level of engagement with DT efforts. Probing this aspect further has allowed us to note that these differences are primarily due to varying levels of DT readiness comprising the growth and technology mindsets of the MBOM.

Through this study we identify three unique digital transformer archetypes comprising unique configurations of MBOMs' growth and technology mindsets. The archetypes identified are champion digital transformer (high-growth mindset and proactive technology mindset), emerging digital transformer (medium-growth mindset and reactive technology mindset), and aspiring digital transformer (low-growth mindset and passive technology mindset). Through a rigorous qualitative analysis comprising structured interviews and focus groups, we delineate the unique attributes of the identified DT MBOM archetypes and their influence on the emergence of learning resources in the form of learning capabilities in MBOMs. Our study provides initial evidence on how MBOMs' DT readiness influences the management and sustenance of DT efforts in MBs by increasing MBOMs' propensity to learn and respond to digital opportunities. These results also resonate with earlier work that theorizes how founders influence organisational culture through their individual beliefs and theories as well as by initiating learning within the organisation (Schein, 1983).

Further developing on the theme of learning processes, we find that the champion digital transformers use a wide range of learning mechanisms to adapt and manage DT

efforts, leading to continuous learning and an increased level of engagement with DT efforts. In contrast, the emerging and aspiring archetypes use a narrower range of learning mechanisms, leading to intermittent, situation-specific learning capability development. This reduces the possibility of building the deeper, holistic managerial and technical competencies required for DT projects. This capability development vulnerability is seen to occur among MBs due to the multifarious constraints under which MBOMs function (Kevill et al., 2021).

MBOM learning mechanisms may be viewed as improvisational actions (individual learning practices) that lead to improvised capabilities (patterns of learning and IT leveraging capability) within MBs (Pavlou & El Sawy, 2010). These can enable the required dynamic digital adaptability for managing and sustaining DT efforts (Soule et al., 2016; Levallet & Chan, 2022). Based on our research findings, we delineate a revised theoretical model (Figure 3) that we believe can be used as the point of departure for future research on DT in the context of MBs.

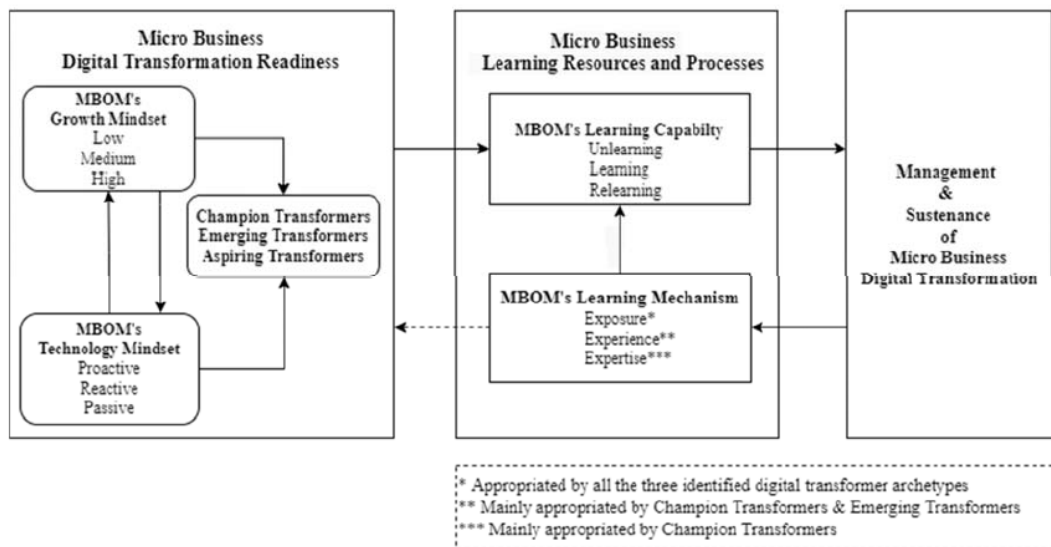


Figure 3: Revised Theoretical Model on Digital Transformation in Microbusinesses

Although our research was conducted within the specific context of Ireland, we believe that our general understanding about MBs and DT efforts can be translated to

other countries. At the same time, as mentioned in Appendix 1, we need to be cognizant that the Irish SME ecosystem is mature; it has encouraged several digitalization policies and incentives in recent years. Ireland has also built several mentorship and training programmes for microbusinesses on lean management. This gradual building of support systems and business improvement culture amongst MBs in a systematic and centralised fashion via LEOs certainly may have led to a favourable climate for DT efforts as well. Based on our study, we find that the majority of MBOMs in our sample are indeed champion digital transformers. Therefore, we posit that there is a two-way influence of country-level context on the results and vice versa, which can be further investigated in a cross-country analysis. Although this research advances the recent calls to investigate DT readiness in developed countries (Jafari-Sadeghi et al., 2023), we need to note that our sample differs from other recent studies. Recent studies have looked at MBs that are international focused or those that transformed due to pandemic pressures (Mandviwalla & Flanagan, 2021; Jafari-Sadeghi et al., 2023, Soluk & Kammerlander, 2021). In addition, it will be interesting to investigate how lean principles that are widely accessible to MBs via dedicated training programmes may contribute to a DT readiness mindset and help sustain DT efforts (Singh et al., 2022). These trainings can solve the identified inconsistent understanding of what is digital transformation and digital strategy within MBs (Soluk & Kammerlander, 2021). Further, we also contribute to the research stream that aims to better understand how the personal readiness of SME managers influences organisational and business resilience (Hadjielias et al., 2022).

Limitations

We acknowledge a few limitations of our work, which can impact our findings and contributions. The lack of a sampling frame did not allow us to use a random sampling method to obtain a true representation of the MBOM population in Ireland—this can

impact the validity of our findings to some extent. Moreover, the exclusive use of focus groups, although useful when a collective voice needs to be captured, can be considered insufficient to capture the individual voices of each MBOM, thereby limiting a more nuanced analysis of our findings. We therefore encourage further research on DT readiness and more specifically on the impact of identified digital transformer archetypes in organisations of different sizes (including large organisations). In addition, different research methods need to be employed for a holistic understanding of the DT phenomenon in MBs. For example, in-depth case studies may allow us to go deeper into the contextual nuances that may inhibit or enable DT in MBs. Research in this area would also benefit by adopting a longitudinal perspective that can account for the ongoing temporal effects on DT. Moreover, it would also be useful to compare DT readiness across different MB sectors and countries to increase the generalisability of our findings. Finally, future studies should seek to explore differences in DT-related capabilities and processes among large, medium, and small firms.

Despite these limitations, our findings summarized in the revised theoretical model presented in Figure 3 have several important theoretical and practical implications.

Theoretical Implications

First, given the significance of MBs for equitable economic development and the contextual idiosyncrasies surrounding MBs, our study is a modest first step in establishing the need for viewing DT initiatives in MBs in a focused manner. Following the tenets of phenomenon- (Fisher et al., 2021) and context-based theorization (Bamberger, 2008; Johns, 2006), we establish the significant role played by MBOMs in MB DT efforts—specifically the associated learning resources and processes. We extend the research on DT in MBs by identifying the MBOM digital transformer archetypes and identifying their

unique characteristics to better understand their emergent learning competencies for DT, a gap that has not been previously explored in IS literature (Carroll, 2020; Vial, 2019). Our study provides answers to some of the questions pertaining to the differential outcomes in DT initiatives across different MBs (Mandviwalla & Flanagan, 2021). Reaffirming the significant role of MBOMs, our study lays out a theoretical framework grounded in DT readiness comprising the growth and technology mindsets of MBOMs as the appropriate lens through which we can understand why some MBOMs seek distant knowledge as opposed to being restricted to local knowledge resources during DT initiatives. In doing so, we also contribute to IS research calls to further understand the *smallness* duality problem of agility versus expertise deficiency during MB DT efforts (Mandviwalla & Flanagan, 2021). Such an enquiry addresses calls to disentangle inhibitors and enablers of DT efforts in MBs to better understand how the associated inertia, resistance, culture, and values can contribute to initiating, managing, and sustaining DTs (Carroll et al., 2021; Mandviwalla & Flanagan, 2021; Svahn et al., 2017).

Second, the conceptualization of MBOM digital transformer archetypes in a parsimonious way allows us to evaluate the growth intentions of the small but significant MB sector. This knowledge can facilitate governments to better invest their resources for initiating DT among the marginalized MBOM archetypes. Our study can also help to design programmes and enable activities to increase the uptake of new digital technologies by MBs. Using the concept of culture creep (Walsh et al., 2010), and taking inspiration from interventions to increase growth mindset (Yeager et al., 2019), future research can examine ways and means to change one category of MBOM digital transformer archetype into another. In our case, moving a marginalized archetype such as the aspiring digital transformers to champion digital transformers would be an ideal strategy to orchestrate sustainable MB DT initiatives.

Third, explicating the actual learning resources and processes of the three archetypes extends our knowledge of the learning mechanisms enacted by MBs during DT efforts while building their learning capabilities. We address calls to understand the practices of digital transformers in general and more specifically for the MB sector (Carroll et al., 2021; Goel & Donaldson, 2021; Mandviwalla & Flanagan, 2021). The three identified learning mechanisms appropriated by MBs—*exposure, experience, and expertise*—can be classified as the micro foundations for the development of learning competencies and capabilities (Schilke et al., 2018; Vial, 2019) for enabling digital innovations within MBs (Nambisan et al., 2017; Shirish et al., 2021). In our context, we note that unlike large firms, MBs are found to significantly benefit from networking opportunities within the sector and from the support they can get through MB-specific government and other industry initiatives that enable MBOMs to learn from each other and get inspiration during their DT journeys.

Fourth, we show the link between DT readiness and the management and sustenance of DT efforts through a learning perspective. We extend the literature that has linked the role of senior leadership, learning, and size to digital assimilation by examining the phenomenon within the MB DT context (Cooper & Molla, 2014; Roberts et al., 2012). In this regard, we were able to find evidence of how the technology mindset of key actors can influence digital assimilation within MBs, unlike some prior studies that showed a non-significant link between the IT knowledge of senior leaders and IT assimilation within larger firms (Armstrong & Sambamurthy, 1999). We posit that this difference is rooted in the contextual difference of MBs compared to mid- and large-sized organisations. Although the outcomes differed for each of the MBOM digital transformer archetypes, the insights gained extend prior DT studies that call for more research on emergent capabilities during DT efforts (Vial, 2019) and on the role of MBOMs for DT

efforts (Mandviwalla & Flanagan, 2021). We note that MBOMs' prior learning capabilities may influence DT-related learning processes (Devins et al., 2005; Vial, 2019). The different DT archetypes and learning mechanisms identified in our study can be used to inform future quantitative and qualitative studies. Our work thus advances the research agenda on DT management and sustainability within the MB sector (Carroll, 2020; Goel & Donaldson, 2021; Mandviwalla & Flanagan, 2021), which we believe has an immense potential to contribute both instrumental and humanistic value to society, especially for post-pandemic recovery (Sarker et al., 2019).

Finally, we contribute to the broad stream of literature on growth mindset (Dweck & Yeager, 2019) and technology mindset, which has been viewed in the IS literature as IT culture (Walsh & Gettler Summa, 2010; Walsh et al., 2010). Further, we contribute to the DT literature by conceptualizing the notion of DT readiness for MBs (Carroll et al., 2021; Delgosha et al., 2020; Gfrerer et al., 2021; Mandviwalla & Flanagan, 2021; Soluk & Kammerlander, 2021). Though recent research recognizes the salience of growth mindsets in the DT context, we have explicitly incorporated the significant role of technology mindsets (Solberg et al., 2020). Although we conceptualized DT readiness comprising growth and technology mindsets for the purpose of examining MBs, we believe that this conceptualization can be extended to other segments of SMEs and even to large organisations. Plausibly, the concept can be used to investigate top management, key change agents, digital leaders, and even end users, to assess their potential engagement, commitment, and adaptability during DT projects. Such future studies will contribute to the nascent digital leadership literature in the context of DT (Engesmo & Panteli, 2021; Hess et al., 2016; Solberg et al., 2020).

Prior literature on technology mindsets was generally restricted to a specific IT tool or to a particular IT usage context (Orlikowski & Gash, 1994; Walsh et al., 2016;

Walsh et al., 2010). However, for DT initiatives the change agent needs to muster both technical and managerial resources. The ability to learn and adapt to new and uncertain environmental changes due to technology changes is an important capability that can enable resource structuring, acquisition, and orchestration within MBs (Pavlou & El Sawy, 2010; Sabherwal & Chan, 2001; Solberg et al., 2020; Teece et al., 1997). Therefore, over and above the incorporation of a general technology mindset that pertains to IT usage, it is important to understand primary beliefs about the ability of digital leaders to seek and strive towards growth in a dynamically changing environment for initiating, managing, and sustaining DT efforts (Engesmo & Panteli, 2021).

Implications for Policymakers and Practitioners

Our study has clear practical implications for policymakers, bureaucrats, mentors, and MBOMs. Delineating the different types of MBOM digital transformer archetypes allows policy makers to reconsider if they should design “one-size-fits-all solutions” or encourage DT initiatives at the industry or sector level based on the SME category. It may be useful to tailor the policy for specific MBOM digital transformer archetypes as they are bound to have unique beliefs, motivations, constraints, and challenges. Especially, inclusion strategies to integrate marginalized digital transformer archetypes such as *emerging* or *aspiring digital transformers* into the digital economy may be practically feasible.

We recommend that policy makers focus on understanding the distribution of current MBs based on their digital transformation readiness levels within a local area before designing plans and digital strategies for MBs. Some inclusion strategies over and above the current support system provided (see bold text in Appendix 1) for MBs that surfaced during the focus groups and interviews were: (1) Opportunity for planned and

accidental networking events coupled with awareness events to slowly build a community of MBs that is interested in undertaking DT initiatives. The sense of community support is vital for MB growth and sustenance. Enhanced exposure to successful DT initiatives will lead to more experience, which will drive MBOMs' interest in participating in programmes designed to upskill themselves, thereby ensuring the sustainability of MB DT efforts. (2) Introduction of a buddy system, especially between champion digital transformers and emerging or aspiring digital transformers, may go a long way in acting as a primary support system. (3) Knowledge banks oriented towards dominant MB sectors (such as medical, education, and manufacturing for Irish MBs) is a solution to alleviate the frustration encountered during environmental scanning by many of the champion digital transformers. (4) Given the prime role of mentors, their upskilling is vital. Support should be provided in a systematic manner to encourage mentors to undertake upskill courses to keep abreast of the latest technological developments. The crucial role of mentors in sustaining DT efforts was highlighted by most MBOMs. Mentors are considered the prime boundary spanners that can help MBs achieve sustainable DT efforts.

In order to further show the feasibility of our propositions for the Irish context, we wish to note that the digital readiness levels as identified from our study can be translated into key constructs that can be identified using a simple survey instrument—or one may simply seek short textual responses to two questions (technology mindset and growth mindset) to gauge the DT archetype of a specific MBOM. As LEOs work towards centralisation of MBs within each local area, they will now be able to also check readiness levels at least amongst those registered MBs that seek business support from them through DT programmes such as the Digital Start programme or other lean business improvement programmes they have supported in the past. Therefore, we believe that

implementing our suggestions is highly feasible, and appropriate mentors can then be allocated based on this first-level identification strategy for further personalised support. We also think that continuous engagement with academic institutions can help IE and LEOs to adjust their digital strategy to changing times based on research and it can also facilitate the access to potential digitally savvy student mentors to support aspiring DT transformer archetypes in their journey to DT.

Moreover, there is also another layer within the Irish business ecosystem called the “Leaders”, entities that operate closer to the community level for supporting businesses. We believe that further integration of all these three levels (Enterprise Ireland, LEOs, and Leaders) in a concrete manner can enhance digital inclusion activities in Ireland. This could be an interesting agenda for future research.

Conclusions

Digital transformation allows microbusinesses to survive and grow in the digital economy. Though MBs’ contribution to the local and regional economy is substantial, prior DT research has not particularly focused on the MB sector. Given their unique context, our study extends the DT literature by contextualising digital transformation readiness to the MB context. Specifically, taking a learning perspective, our work posits that in the context of MBs, identification of the dominant digital transformer archetype of the MBOM enables us to understand the extent to which MBs can build learning capabilities and leverage different learning mechanisms to appropriately adapt during DT. Each identified MBOM digital transformer archetype differs in the maturity of its DT-related learning management processes. MBOMs who appropriate multi-pronged learning mechanisms as opposed to a single learning mechanism are more effective in managing and sustaining DT efforts. Because it is theoretically possible to transform one MBOM digital transformer archetype into another through interventions, our study

suggests the possibility to transform the marginalised MBs by focusing on developing the required competences in their MBOMs.

References

- Armstrong, C. P., & Sambamurthy, V. (1999). Information technology assimilation in firms: The influence of senior leadership and IT infrastructures. *Information Systems Research*, 10(4), 304-327.
- Bai, W., Johanson, M., Oliveira, L., & Ratajczak-Mrozek, M. (2021). The role of business and social networks in the effectual internationalization: Insights from emerging market smes. *Journal of Business Research*, 129, 96-109.
- Bamberger, P. (2008). From the editors beyond contextualization: Using context theories to narrow the micro-macro gap in management research. *Academy of Management Journal*, 51(5), 839-846.
- Beck, T., Demircuc-Kunt, A., Laeven, L., & Levine, R. (2004). Finance, firm size, and growth. National Bureau of Economic Research Cambridge, Mass., USA.
- Bourke, J., & Roper, S. (2019). *Micro business in Ireland: From ambition to Innovation Cork: Cork University Business School, University College Cork*
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology* 3(2), 77–101
- Burnette, J. L., O'boyle, E. H., VanEpps, E. M., Pollack, J. M., & Finkel, E. J. (2013). Mind-sets matter: a meta-analytic review of implicit theories and self-regulation. *Psychological Bulletin*, 139(3), 655.
- Caniëls, M. C., Semeijn, J. H., & Renders, I. H. (2018). Mind the mindset! The interaction of proactive personality, transformational leadership and growth mindset for engagement at work. *Career Development International*, 23(1), 48-66.
- Carroll, N. (2020, June 15-17, 2020). Theorizing on the normalization of digital transformations. 28th European Conference on Information Systems (ECIS), An Online AIS Conference.
- Carroll, N., Hassan, N. R., Junglas, I., Hess, T., & Morgan, L. (2021). Managing and sustaining digital transformations. *European Journal of Information Systems Call for Papers*.
- Chan, Y. E., Krishnamurthy, R., & Desjardins, C. (2020). Technology-driven innovation in small firms. *MIS Quarterly Executive*, 19(1), 39-59. <https://aisel.aisnet.org/misqe/vol19/iss1/5>
- Chanias, S., Myers, M. D., & Hess, T. (2019). Digital transformation strategy making in pre-digital organizations: The case of a financial services provider. *The Journal of Strategic Information Systems*, 28(1), 17-33.
- Chase, M. A. (2010). Should coaches believe in innate ability? The importance of leadership mindset. *Quest*, 62(3), 296-307.
- CISCO. (2020). *2020 Small Business Digital Transformation*. Retrieved 16/01/2022 from https://www.cisco.com/c/dam/en_us/solutions/small-business/resource-center/small-business-digital-transformation.pdf
- Conboy, K., & Fitzgerald, B. (2004). Toward a conceptual framework of agile methods: a study of agility in different disciplines. Proceedings of the 2004 ACM workshop on Interdisciplinary software engineering research, New York, USA.

- Cooper, V. A., & Molla, A. (2014). Absorptive capacity and contextual factors that influence green IT assimilation. *Australasian Journal of Information Systems*, 18(3), 271-285.
- de Bem Machado, A., Secinaro, S., Calandra, D., & Lanzalonga, F. (2022). Knowledge management and digital transformation for Industry 4.0: a structured literature review. *Knowledge Management Research & Practice*, 20(2), 320-338.
- Delgosha, M. S., Saheb, T., & Hajiheydari, N. (2020). Modelling the asymmetrical relationships between digitalisation and sustainable competitiveness: a cross-country configurational analysis. *Information Systems Frontiers*, 23, 1317–1337.
- Devins, D., Gold, J., Johnson, S., & Holden, R. (2005). A conceptual model of management learning in micro businesses: Implications for research and policy. *Education+ Training*, 47(8-9), 540–551
- Drnevich, P. L., & West, J. (2021). Performance implications of technological uncertainty, age, and size for small businesses. *Journal of Small Business Management*, 1-36. <https://doi.org/10.1080/00472778.2020.1867733>
- Dweck, C. S. (2013). *Self-theories: Their role in motivation, personality, and development*. Psychology Press.
- Dweck, C. S., Chiu, C.-y., & Hong, Y.-y. (1995). Implicit theories and their role in judgments and reactions: A word from two perspectives. *Psychological Inquiry*, 6(4), 267-285.
- Dweck, C. S., & Yeager, D. S. (2019). Mindsets: A view from two eras. *Perspectives on Psychological science*, 14(3), 481-496.
- Dwivedi, Y. K., Wastell, D., Laumer, S., Henriksen, H. Z., Myers, M. D., Bunker, D., Elbanna, A., Ravishankar, M., & Srivastava, S. C. (2015). Research on information systems failures and successes: Status update and future directions. *Information Systems Frontiers*, 17(1), 143-157.
- Engesmo, J., & Panteli, N. (2021). Digital leaders and the transformation of the IT function. *Scandinavian Journal of Information Systems*, 33(1), 1-23.
- European Commission. (2019). *Annual report on European SMEs 2018–2019: Research & development and innovation in SMEs* available at <https://ec.europa.eu/docsroom/documents/43885/attachments/1/translations/en/renditions/native>
- Eze, S. C., Chinedu-Eze, V. C., Awa, H. O., & Alharthi, R. H. E. (2021). Factors stimulating value micro-businesses attribute to digital marketing technology (DMT) adoption. *Plos One*, 16(12), e0260145.
- Fisher, G., Mayer, K., & Morris, S. (2021). From the editors—Phenomenon-based theorizing. *Academy of Management Review*, 46(4), 631-639.
- Fletcher, G., & Griffiths, M. (2020). Digital transformation during a lockdown. *International Journal of Information Management*, 55, 102185.
- Gfrerer, A., Hutter, K., Füller, J., & Ströhle, T. (2021). Ready or not: Managers' and employees' different perceptions of digital readiness. *California Management Review*, 63(2), 23-48.
- Gleasure, R. (2015). Resistance to crowdfunding among entrepreneurs: An impression management perspective. *The Journal of Strategic Information Systems*, 24(4), 219-233.
- Ghobadian, A., & Gallear, D. (1997). TQM and organization size. *International Journal of Operations & Production Management*, 17(2), 121-163.
- Goel, L., & Donaldson, J. (2021). Social media exploration and exploitation by small and medium enterprises for business continuity. *Journal of Global Information Management*, 29(6), 1-15.

- Greenbank, P. (2001). Objective setting in the micro-business. *International Journal of Entrepreneurial Behavior & Research*, 7(3), 108-127.
- Gregory, R., Wagner, H.-T., Tumbas, S., & Drechsler, K. (2019 2). At the Crossroads between digital innovation and digital transformation. ICIS 2019 Proceedings, Munich, Germany.
- Hadjielias, E., Christofi, M., & Tarba, S. (2022). Contextualizing small business resilience during the COVID-19 pandemic: evidence from small business owner-managers. *Small Business Economics*, 1-30.
<https://doi.org/10.1007/s11187-021-00588-0>
- Headd, B. (2017). *The Role of Microbusiness Employers In The Economy*. Retrieved 18/01/2021 from <https://advocacy.sba.gov/2017/08/01/the-role-of-microbusiness-employers-in-the-economy/>
- Hess, T., Matt, C., Benlian, A., & Wiesböck, F. (2016). Options for formulating a digital transformation strategy. *MIS Quarterly Executive*, 15(2), 103-119
- ILO. (2021). *Small goes digital: How digitalization can bring about productive growth for micro and small enterprises* Retrieved 18/01/2022 from https://www.ilo.org/empent/units/boosting-employment-through-small-enterprise-development/WCMS_808632/lang--en/index.htm
- Jafari-Sadeghi, V., Mahdiraji, H. A., Alam, G. M., & Mazzoleni, A. (2023). Entrepreneurs as strategic transformation managers: Exploring micro-foundations of digital transformation in small and medium internationalisers. *Journal of Business Research*, 154, 113287.
- Johns, G. (2006). The essential impact of context on organizational behavior. *Academy of Management Review*, 31(2), 386-408.
- Kamal, M. (2015). Developing a sustainability network for information technology adoption and use in micro-enterprises. *Journal of the Midwest Association for Information Systems*, 1, 21-32.
- Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2015). Strategy, not technology, drives digital transformation. *MIT Sloan Management Review and Deloitte University Press*, 14(1-25).
- Kelly, N., Kelliher, F., Power, J., & Lynch, P. (2020). Unlocking the niche potential of senior tourism through micro-firm owner-manager adaptive capability development. *Tourism Management*, 79, 104081.
- Kevill, A., Trehan, K., Harrington, S., & Kars-Unluoglu, S. (2021). Dynamic managerial capabilities in micro-enterprises: Stability, vulnerability and the role of managerial time allocation. *International Small Business Journal*, 39(6), 507-531.
- Klammer, A., & Gueldenberg, S. (2019). Unlearning and forgetting in organizations: A systematic review of literature. *Journal of Knowledge Management* 23(5), 860-888.
- Kontić, L., & Vidicki, Đ. (2018). Strategy for digital organization: Testing a measurement tool for digital transformation. *Strategic Management*, 23(1), 29-35.
- Legner, C., Eymann, T., Hess, T., Matt, C., Böhmman, T., Drews, P., Mädche, A., Urbach, N., & Ahlemann, F. (2017). Digitalization: opportunity and challenge for the business and information systems engineering community. *Business & Information Systems Engineering*, 59(4), 301-308.
- Lemaire, S. L. L., Bertrand, G., Maalaoui, A., Kraus, S., & Jones, P. (2021). How women entrepreneurs manage the digitalisation of their business initiating a dialogue between the entrepreneurship as practice approach and the theory of bricolage. *International Journal of Technology Management*, 87(1), 78-104.

- Levallet, N., & Chan, Y. (2022). Uncovering a new form of digitally-enabled agility: an improvisational perspective. *European Journal of Information Systems*, 1-28. <https://doi.org/10.1080/0960085X.2022.2035262>
- Li, L., Su, F., Zhang, W., & Mao, J. Y. (2018). Digital transformation by SME entrepreneurs: A capability perspective. *Information Systems Journal*, 28(6), 1129-1157.
- Litz, R. A., & Stewart, A. C. (2000). Where everybody knows your name: Extraorganizational clan-building as small firm strategy for home field advantage. *Journal of Small Business Strategy*, 11(1), 1-13.
- Mandviwalla, M., & Flanagan, R. (2021). Small business digital transformation in the context of the pandemic. *European Journal of Information Systems*, 1-17. <https://doi.org/https://doi.org/10.1080/0960085X.2021.1891004>
- Matt, C., Hess, T., & Benlian, A. (2015). Digital transformation strategies. *Business & information systems engineering*, 57(5), 339-343.
- Matthews, P. (2007). ICT assimilation and SME expansion. *Journal of International Development: The Journal of the Development Studies Association*, 19(6), 817-827.
- McKinsey, C. (2021). *Losing from day one: Why even successful transformations fall short*. Retrieved 17/01/2022 from <https://www.mckinsey.com/business-functions/people-and-organizational-performance/our-insights/successful-transformations>
- Mithas, S. (2016). *Digital Intelligence: What Every Smart Manager Must Have for Success in an Information Age*. Penguin UK.
- Müller, J. M., Buliga, O., & Voigt, K.-I. (2018). Fortune favors the prepared: How SMEs approach business model innovations in Industry 4.0. *Technological Forecasting and Social Change*, 132, 2-17.
- Müller, O., Junglas, I., Vom Brocke, J., & Debortoli, S. (2016). Utilizing big data analytics for information systems research: challenges, promises and guidelines. *European Journal of Information Systems*, 25(4), 289-302.
- Murphy, M. C., & Dweck, C. S. (2016). Mindsets shape consumer behavior. *Journal of Consumer Psychology*, 26(1), 127-136.
- Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2017). Digital innovation management: Reinventing innovation management research in a digital world. *MIS quarterly*, 41(1), 223-238.
- Nehme, J. J., Srivastava, S. C., Bouzas, H., & Carcasset, L. (2015). How Schlumberger achieved networked information leadership by transitioning to a product-platform software architecture. *MIS Quarterly Executive*, 14(3), 3.
- OECD. (2021a). *Enterprises by Size*. Retrieved 17/01/2022 from <https://data.oecd.org/entrepreneur/enterprises-by-business-size.htm>
- OECD, (2021b), *Digital Transformation of the SME's, Policy Highlights*, Retrieved 30/07/2022 from <https://www.oecd.org/publications/the-digital-transformation-of-smes-bdb9256a-en.htm>
- Orlikowski, W. J., & Gash, D. C. (1994). Technological frames: making sense of information technology in organizations. *ACM Transactions on Information Systems*, 12(2), 174-207.
- Osmundsen, K., Iden, J., & Bygstad, B. (2018). Digital transformation: drivers, success factors, and implications. MCIS 2018, Korfu, Greece
- Papadopoulos, T., Baltas, K. N., & Balta, M. E. (2020). The use of digital technologies by small and medium enterprises during COVID-19: Implications for theory and practice. *International Journal of Information Management*, 55, 102192.

- Park, Y., & Mithas, S. (2020). Organized complexity of digital Business strategy: A configurational perspective. *MIS Quarterly*, 44(1), 85-127.
- Pavlou, P. A., & El Sawy, O. A. (2010). The “third hand”: IT-enabled competitive advantage in turbulence through improvisational capabilities. *Information Systems Research*, 21(3), 443-471.
- Penco, L., Profumo, G., Serravalle, F., & Viassone, M. (2022). Has covid-19 pushed digitalisation in smes? The role of entrepreneurial orientation. *Journal of small business and enterprise development*. <https://doi.org/10.1108/JSBED-10-2021-0423>
- Prahalad, C. K., & Hammond, A. (2002). Serving the world's poor, profitably. *Harvard business review*, 80(9), 48-59.
- Qureshi, S., & Xiong, J. J. (2017). *Understanding the role of information technology in the development of micro-enterprises: Concepts to study in making a better world* Information Systems and Quantitative Analysis Faculty Proceedings & Presentations. <https://digitalcommons.unomaha.edu/isqafacproc/56>
- Rastrollo-Horrillo, M.-A. (2021). Dismantling the myths about managerial (in) capabilities in micro-firms. SEAM intervention-research to develop management practices. *Scandinavian Journal of Management*, 37(3), 101158.
- Reuschke, D., Mason, C. & Syrett, S. (2021). Digital futures of small businesses and entrepreneurial opportunity. *Futures*, 128, 102714.
- Roberts, N., Galluch, P. S., Dinger, M., & Grover, V. (2012). Absorptive capacity and information systems research: Review, synthesis, and directions for future research. *MIS Quarterly*, 625-648.
- Rowe, F. (2018). Being critical is good, but better with philosophy! From digital transformation and values to the future of IS research. *European Journal of Information Systems*, 27(3), 380-393.
- Sabherwal, R., & Chan, Y. E. (2001). Alignment between business and IS strategies: A study of prospectors, analyzers, and defenders. *Information Systems Research*, 12(1), 11-33.
- Sarker, S., Chatterjee, S., Xiao, X., & Elbanna, A. (2019). The sociotechnical axis of cohesion for the IS discipline: Its historical legacy and its continued relevance. *MIS Quarterly*, 43(3), 695-720.
- Schein, E. H. (1983). The role of the founder in creating organizational culture. *Organizational dynamics*, 12(1), 13-28.
- Schilke, O., Hu, S., & Helfat, C. E. (2018). Quo vadis, dynamic capabilities? A content-analytic review of the current state of knowledge and recommendations for future research. *Academy of Management Annals*, 12(1), 390-439.
- Scuotto, V., Nicotra, M., Del Giudice, M., Krueger, N., & Gregori, G. L. (2021). A microfoundational perspective on SMEs' growth in the digital transformation era. *Journal of Business Research*, 129, 382-392. <https://doi.org/https://doi.org/10.1016/j.jbusres.2021.01.045>
- Sebastian, I. M., Ross, J. W., Beath, C., Mocker, M., Moloney, K. G., & Fonstad, N. O. (2020). How big old companies navigate digital transformation *MIS Quarterly*, 16(3),197-213.
- Shirish, A., Srivastava, S., & Boughzala, I. (2021). Effective ICT use for digital innovation: an actualized affordance perspective through ICT enabled design thinking. *Systèmes d'Information et Management*, 27, 7-42.
- Singh, P., Shirish, A., Kumar, A., & O'shanahan, J. (2022). *Lean training as a driver for microbusinesses' digital transformation*. In ELEC 2022: 8th European Lean Educators Conference- Lean, Green & Sustainability.

- Sparrow, J. (2005). Classification of different knowledge management development approaches of SMEs. *Knowledge Management Research & Practice*, 3(3), 136-145.
- Spieth, P., Röth, T., Clauss, T., & Klos, C. (2021). Technological frames in the digital age: Theory, measurement instrument, and future research areas. *Journal of Management Studies*, 58(7), 1962-1993.
- Solberg, E., Traavik, L. E., & Wong, S. I. (2020). Digital mindsets: recognizing and leveraging individual beliefs for digital transformation. *California Management Review*, 62(4), 105-124.
- Soluk, J., & Kammerlander, N. (2021). Digital transformation in family-owned Mittelstand firms: A dynamic capabilities perspective. *European Journal of Information Systems*, 1-36. <https://doi.org/10.1080/0960085X.2020.1857666>
- Soto Setzke, D., Riasanow, T., Böhm, M., & Krcmar, H. (2021). Pathways to digital service innovation: The role of digital transformation strategies in established organizations. *Information Systems Frontiers*, 1-21. <https://doi-org.ezproxy.hec.fr/10.1007/s10796-021-10112-0>
- Soule, D. L., Puram, A., Westerman, G. F., & Bonnet, D. (2016). Becoming a digital organization: The journey to digital dexterity. *SSRN*, 2697688.
- Srivastava, S. C., Nehme, J. J., Luherne, A., & Kone, B. (2021). How Orange achieved long-term adaptability and value creation by proactively transforming its business. *MIS Quarterly Executive*, 20(1), 39-59
- Srivastava, S. C., & Shainesh, G. (2015). Bridging the service divide through digitally enabled service innovations. *MIS Quarterly*, 39(1), 245-268.
- Storey, D. J. (2006). Evaluating SME policies and programmes: Technical and political dimensions *The Oxford Handbook of Entrepreneurship*. Oxford University Press <https://doi.org/10.1093/oxfordhb/9780199546992.003.0010>
- Svahn, F., Mathiassen, L., Lindgren, R., & Kane, G. C. (2017). Mastering the digital innovation challenge. *MIT Sloan Management Review*, 58(3), 14.
- Taylor, M., & Murphy, A. (2004). SMEs and e-business. *Journal of Small Business and Enterprise Development*, 11(3), 280-289.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533.
- Teo, T. S., Srivastava, S. C., & Ho, C. K. (2006). The trident model for customer-centric enterprise systems at comfort transportation, Singapore. *MIS Quarterly Executive*, 5(3),3
- Teo, T. S., Srivastava, S. C., Ranganathan, C., & Loo, J. W. (2011). A framework for stakeholder oriented mindfulness: case of RFID implementation at YCH Group, Singapore. *European Journal of Information Systems*, 20(2), 201-220.
- Troise, C., Corvello, V., Ghobadian, A., & O'Regan, N. (2022). How can SMEs successfully navigate VUCA environment: The role of agility in the digital transformation era. *Technological Forecasting and Social Change*, 174, 121227.
- Tsang, E. W., & Zahra, S. A. (2008). Organizational unlearning. *Human relations*, 61(10), 1435-1462.
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2), 118-144.
- Walsh, I., Gettler-Summa, M., & Kalika, M. (2016). Expectable use: An important facet of IT usage. *The Journal of Strategic Information Systems*, 25(3), 177-210.
- Walsh, I., & Gettler Summa, M. (2010). Users' groups Interpreted through the lens of the users' needs and motivation. AIM 2010, LA Rochelle, France.

Walsh, I., Kefi, H., & Baskerville, R. (2010). Managing culture creep: Toward a strategic model of user IT culture. *The Journal of Strategic Information Systems*, 19(4), 257-280.

Westerman, G., & Bonnet, D. (2015). Revamping your business through digital transformation. *MIT Sloan Management Review*, 56(3), 10-13.

Wolcott, P., Qureshi, S., & Kamal, M. (2007). An information technology therapy approach to micro-enterprise adoption of ICTs. AMCIS 2007.

WTO. (2021). *Call for proposals for digital champions for small business initiative*. Retrieved 18/01/2021 from https://www.wto.org/english/news_e/news21_e/msmes_25jun21_e.htm

Yeager, D. S., & Dweck, C. S. (2012). Mindsets that promote resilience: When students believe that personal characteristics can be developed. *Educational psychologist*, 47(4), 302-314.

Yeager, D. S., Hanselman, P., Walton, G. M., Murray, J. S., Crosnoe, R., Muller, C., Tipton, E., Schneider, B., Hulleman, C. S., & Hinojosa, C. P. (2019). A national experiment reveals where a growth mindset improves achievement. *Nature*, 573(7774), 364-369.

Zia, N. U. (2020). Knowledge-oriented leadership, knowledge management behaviour and innovation performance in project-based SMEs. The moderating role of goal orientations. *Journal of Knowledge Management*, 24(8), 1819-1839. <https://doi.org/10.1108/JKM-02-2020-0127>

Zimmerman, M., Dunlap, D., Hamilton III, R. D., Hill, T., & Chapman, E. A. (2002). David versus Goliath: Strategic behavior of small firms in consolidated industries. *Journal of Small Business Strategy*, 13(2), 56-74.

APPENDIX 1

Irish Business Context Overview and Support Systems for SMEs including MBs

<p>Irish Business Context Overview</p>	<p>Ireland has very good support for micro businesses through the Local Enterprise Office (LEO) network. The LEOs have implemented programmes that have previously been rolled out to Enterprise Ireland (EI) clients: Lean for Micro, Green for Micro, Digital Start (Digitalisation voucher under EI). As the programmes were tested with EI clients, LEOs can see results and benefits and have extended their adoption at their levels.</p>
	<p>Support programmes are well funded by LEOs (backed by EI), meaning micro clients can avail of consultancy at a very subsidised cost. As there is government work available for consultants, the market for consultancy services is strong with experienced consultants willing to work with MBs, as there are funded programmes. Without the funding, consultants would not waste time with MBs as MBs cannot afford the professional fees</p>

	<p>Many Irish MBs support a multinational base and are interested in improvement to protect their business with multinationals.</p>
Mentor and Facilitator definitions	<p>Mentor/Consultant: Business advisors who work with LEO clients (MBs) on various programmes. The LEOs offer support programmes and tender for consultants to join a panel or run the programme. There are consultants for different disciplines, such as general management, accounting, marketing, lean, digital, green, etc.</p>
	<p>Facilitators: Facilitators are government employees who work with the LEOs. Their job is to understand specific client needs, understand the support programmes, and guide the client towards the support programme they need. The facilitators also get to know the consultants on an informal basis and project reports go from the consultants to the facilitators. The LEO offers many programmes, so facilitators need to keep themselves informed on what programmes are offered and explain the details to clients etc. The facilitators are there to help MBs survive and grow</p>
Inclusion Strategies	<p>There are 31 LEOs covering main towns, and multiple offices in larger cities. If a company is bigger than a social enterprise, they are with an LEO; if they have export potential, they may be with EI. Social enterprises are supported by the Leader offices, and these are usually smaller companies. A specific inclusion strategy used by LEOs in the digital domain is the “Digital Start” programme. This is a new programme rolled out in March 2022; however, it is limited to provisions of nominal funds to initiate digital transformation projects amongst SMEs and MBs and does not cover continuous support for digital transformation or other forms of support for better inclusion of vulnerable MBs. Moreover, it is based on voluntary application. Many MBs may not know of these programmes and hence there is a danger that they may remain excluded from the digital transformation journey. The role of mentors as boundary-spanning agents becomes crucial for the success of such strategies.</p>
	<p>Through Skillnet (not directly connected with MB ecosystems), individuals can upskill with subsidised funding, and mentors can do certificate programmes on topics such as emerging digital technologies that are subsidised by Skillnet</p>

	<p>The current development framework by LEOs (2021–24) includes key pillars to implement their institutional strategy and is dependent upon certain strategies that aim at inclusion of SMEs. Below is a list of such strategies:</p> <ul style="list-style-type: none"> • Promoting LEO-led programmes, supports, and initiatives and those open to LEO clients from local authorities, Enterprise Ireland, protocol partners, and other stakeholders • Showcasing LEO and client announcements, regular profiling through case studies and thought leadership • Rolling out brand communications campaigns locally, to include “Pre-Start”, “Start”, and “Grow” themed campaigns • Increasing the LEOs’ digital footprint online and enhancing social media presence and reach. • The Local Enterprise Office DLR communications strategy will continue to support national initiatives such as those focused on exporting, innovation, green, digitalisation and “Look for Local”.
Some useful references for the Irish Business Context	
Leader	https://ildn.ie/directory/
Local Enterprise Office	https://www.localenterprise.ie/
Enterprise Ireland	https://www.enterprise-ireland.com/en/
Skillnet	https://www.skillnetireland.ie/
Development Plan Framework of LEOs 2021-2024	https://www.localenterprise.ie/DLR/Enterprise-Development/Local-Enterprise-Office-DLR-2021-2024-Development-Plan-Framework/DLR-Economic-and-Enterprise-Plan-2021-2024.pdf

APPENDIX 2

Focus Groups - Guide

1. Based on your experience, what do you think are the motivations of MBs to involve in digital transformation efforts?
2. Based on your experience, what do you think are the enablers to digital transformation efforts by MBs?
3. Based on your experience, what do you think are the constraints to initiate or implement digital transformation by MBs?
4. Based on your experience, how do MBs currently manage digital transformation initiatives?
5. Based on your experience, how can MBs sustain digital transformations efforts in the future?

6. If you had a magic wand, what would you change or put in place in order to enable a sustainable digital transformation within micro businesses?
7. Can you collectively define what digital transformation means?