Model for Digital Skills Training for SMEs

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Abstract: Concerning the level of digitalisation, SMEs are not as well positioned as large companies. Lack of affordable training and ability to obtain needed competences form significant obstacles for the digitalisation of SMEs. The present study discusses these challenges and proposes an experimental model developed in a project implemented in cooperation with a university of applied sciences and regional business development organisations. The project provides the tools necessary for SMEs to develop their digital skills in the South Savo region, Finland. Our research question is: How can SMEs be best supported to develop and grow their digital skills and business models? Earlier research shows that employees working in SMEs need a set of competences enabling them to work and prosper in the ever-changing digital environment. For SMEs, the question is, which set of employee competences is the most relevant for the company's commercial success, because digital competences play a vital role in most SMEs' future success. The training model presented in the paper is based, firstly, on defining the relevant areas of digital competences and the most significant skills gaps for each SME and, secondly, on tailoring a company-specific syllabus for closing these gaps. There are over 180 SMEs participating in the project. The practical work with each SME starts with digital competence mapping in a meeting between a business advisor and a representative of the SME. Based on the competence mapping, the SME then receives a company-specific action plan, and a syllabus. The project provides participating SMEs with clear learning paths at both basic and advanced levels, longer training paths and coaching. By doing so, the model ensures that participating SMEs only concentrate on relevant issues and get appropriate particulars support for their businesses. The contribution of the study is the development of an efficient training model and testing it with 180 SMEs. Based on our results, the most important digital competences for each SME in developing and growing its business must be defined based on each SME's specific business needs, grounded in its business model and context, and skills gaps related to these competences.

Keywords: Digital skills; Skills gaps; SMEs; Training model; Finland

1. Introduction

In the European Union (EU), 98.9% of all companies are small enterprises, and just 0.2% are classified as large enterprises with 250 or more persons employed (Eurostat 2020). Consequently, as SMEs play a vital role in the economy, it is central that SMEs are offered the necessary support and training to become competitive. Concerning the level of digitalisation, large companies are far better positioned than SMEs. Due to the rapid changes in business life and digital tools, the need to train digital competences in SMEs is continuous. Digital competences play a central role in most SMEs' future success (Vieru et al., 2015; Hubschmid-Vierheilig et al., 2019).

The European Commission's (EC) annual Digital Economy and Society Index (DESI) report 2022 detected that although the COVID-19 pandemic accelerated existing digital trends, the digital divide has not diminished. At the level of workers, telework was skewed towards white-collar employment. At the level of companies, even though businesses now provide more digitised products and services or buy more cloud computing services, significant differences persist between large enterprises and SMEs. The report (p. 7) summarises that also among those countries that are EU frontrunners, the adoption of key digital technologies by businesses remains low. Inadequate levels of digital skills complicate the prospects of future growth.

The present study discusses these challenges and proposes an experimental model developed in a project that aimed to increase the digital skills of SMEs in the South Savo region, Finland. Our research question is: How can SMEs be best supported to develop and grow their digital skills and business models?

The paper proceeds as follows: first, we review previous literature on digital competences, how digital competences have been defined, and how their role in SMEs has been described. We discuss the project implemented with SMEs in South Savo, Finland. Next, we discuss the training model developed in the project, the experiences gained and project team roles and process. Finally, we present concluding remarks.

2. Background

Competence is a widely used and broad concept; as such, the meaning and usage varies (Vieru et al., 2015). The European Union (2019) defines competence as knowledge combined with skills and attitudes. Knowledge means established concepts, facts and figures, ideas, and theories. Skills denote the ability to use knowledge to achieve results. Attitudes refer to mindsets to act or react to ideas, persons, or situations. Furthermore, digital competence is mentioned as one of the eight key competences.

Currently, there is yet to be a widely accepted definition of the concept of digital competence (Hubschmid-Vierheilig et al., 2019). Recently, one of the most widely used categorization of digital competences is the European Digital Competence (DigComp) Framework for Citizens, developed in 2013 by the EC. DigComp 2.2 defines digital competence as "*the confident, critical, and responsible use of, and engagement with, digital technologies for learning, at work, and participation in society"*. Digital competence areas have been defined in the DigComp framework as 1) Information and data literacy: searching, evaluating, and managing data, information, and content; 2) Communication and collaboration: interacting, sharing, engaging, and collaborating through digital technologies, netiquette, digital identity; 3) Digital content creation: developing and elaborating digital content, IPR, programming, 4) Safety: protecting of devices, identity, health, environment; and 5) Problem-solving: solving technical problems, creativity, identifying needs, resources and competence gaps. Since 2015, the EC has followed the development of EU citizens' digital skills using the Digital Skills Index (DSI) based on DigiComp indicators. (Vuorikari et al., 2022.)

In the literature, there are a diverse range of categorisations used to understand digital competences in SMEs. For example, Vieru et al. (2015) propose a typology of three digital competence archetypes of SME employees, namely a technical expert, organizer, and campaigner, to provide complementarity aspects to implement recent technologies in SMEs successfully. They (p. 4683) suggest the following conceptualization of digital competence: "*Digital competence is an individual capacity to use and combine one's knowledge (i.e., know-what), skill (i.e., know-how), and attitude (i.e., know-why) associated with three related competence areas, technological, cognitive and social,…, in order to investigate and solve work-related problems and develop a collaborative knowledge base while engaging in organizational practices within a specific organizational context*." The main idea is that digital competences, besides technical competences, must include contextual and social aspects, skills, and attitudes. SMEs' employees have diverse roles with broad responsibilities, meaning that every employee should become an active change agent of digitalisation. (Vieru et al., 2015.)

Employees working in SMEs need a set of competences enabling them to work and prosper in the ever-changing digital environment. It is also true that digital competences are transversal, enabling the acquisition of other competences. At the SME level, if they wish to succeed in the digital business environment, they need to have digitally competent employees. (Hubschmid-Vierheilig et al., 2019.) For SMEs, the question is, which set of employee competences is the most important and relevant for the company's commercial success, which is the best combination of employees and competences that the SME should have inhouse and which competences can be outsourced. It is crucial for the company to reflect on how digital competences relate to competitiveness and performance because digital competences play a vital role in most SMEs' future success (Vieru et al., 2015; Hubschmid-Vierheilig et al., 2019).

Digital competences – like any other competences – are built step by step, so the ability to adopt recent technologies builds upon existing competences. Further, one must consider each organisation's business context and model, creating specific requirements for competences. (Vieru et al., 2015; Hubschmid-Vierheilig et al., 2019). An important concept to mention in this context is the absorptive capacity, in other words, the ability of a company to recognize the value of the latest information and to apply it for commercial purposes (Thorpe et al., 2006; Cohen and Levinthal, 1990). A lack of training and the ability to obtain competences are significant obstacles to the digitalisation of SMEs. SMEs that have employees with better digital competences are more likely to adopt digital innovations due to their increased understanding of the advances these innovations bring. (Vieru et al., 2015.) In other words, these SMEs have a better absorptive capacity.

Furthermore, we can refer to the theory of technology domestication, which describes how new technologies are 'tamed' by the users to better fit into their lives and contexts (Silverstone et al., 1992; Deidre, 2007; Rajahonka and Villman, 2019), and conclude that the domestication processes in SMEs are rather complex, because learning has to be enfolded in the otherwise busy days and this leads to recurrent interruptions in learning processes (Harwood, 2011; Rajahonka and Villman, 2019).

In recent decades, there have been attempts in the literature to develop maturity or stage models describing the process of SME digitalisation. However, some of them have been criticized for being too technocentric, incapable of taking into account the variety of SMEs and the expected business value of adopting technologies, or these models have even been claimed to be an oxymoron as there are no typical paths for SMEs' digitalisation at all. (Alonso-Mendo et al., 2009; Depaoli et al., 2020.) It has been emphasised that for SMEs, instead of the search for technologies to adopt, a far more critical question is to define the requirements to build a more effective and efficient relationship with customers and suppliers (Depaoli et al., 2020).

3. The Digital Steps 2.0 project

'Digital Steps 2.0 – Paths for business growth' (2021-2023) project provides the tools necessary for SMEs to develop their digital skills. The project aims to improve SMEs' digital skills in the South Savo region, Finland, and to help participating SMEs achieve business growth. The project provides participating SMEs with clear learning paths at both basic and advanced levels. Further, it executes focused development programs built around the needs of SMEs. The project tasks are organized as separate steps, with the first step welcoming companies to the project and analysing their current situation, and the following providing digital training paths and coaching. The higher steps provide more advanced content, in the form of, for example, digital marketing and eCommerce development programs.

The project reaches hundreds of SMEs in the region. There are over 180 SMEs participating in the project. A company and its employees typically participate in several training sessions. Around 150 training sessions will be organized, reaching hundreds of individual participants. In addition, the project offers an online learning environment with a broad range of content. In the project, SMEs gain new competences to operate in a digital business environment and renew their business.

4. The training model

The practical work with each SME participating in the Digital Steps 2.0 project starts with digital competence mapping in a meeting between a business advisor and a representative of the SME – typically the managing director. In this meeting, a company-specific initial survey is conducted for the SME, the company's business model is discussed, and the training needs are defined. Based on the competence mapping, the SME receives a company-specific development program, an action plan, and a syllabus. In other words, the training model is based, firstly, on defining for each SME and its business the relevant areas of digital competences along with the level of current competences in these areas, revealing the skills gaps related to the appropriate areas and, secondly, on tailoring a syllabus for each SME to overcome these gaps.

The areas of digital competences discussed are presented in Table 1. Each competence area is evaluated against the business model, business context, and the SME's needs.

Table 1: Competence areas evaluated in the interviews.

Competence area	Possible competence gaps
1. Basic competences, making work efficient with digitalisation	Using office software, video conferencing tools, project management, effective use of smartphones, teamwork, and internal communication
2. Digital information management and information security	GDPR, Data Protection Statement, digital information management, cloud services, information security (passwords, virus protection)
3. Producing online content	Online writing, graphic content production, photography/mobile photography, image editing, video shooting, video editing, streaming
4. Online visibility	Search engine optimization level I and II, Google My Business, WordPress level I and II
5. Digital advertising	Sales ad, Google Ads level I and II, Google Shopping, Facebook Business Manager level I and II, e-mail marketing, influencer marketing
6. Social media	Social media basics, Facebook for business use, Instagram for business use, YouTube for business use, LinkedIn for business use
7. Online shopping and digital sales	Electronic appointment booking, chat, customer journey, online store conversion optimization, online shopping platforms, online course platforms, Amazon, Etsy, etc.
8. Internal production management of the company	Enterprise resource planning, customer relationship management, financial management

Competence area	Possible competence gaps
9. Data collection, analysis and utilization	Farm data collection, Google Analytics, customer data, customer feedback
10. Other training needs	(Specified in more detail)

Source: Digital Steps 2.0 project.

From the perspective of the project's personnel, competence mapping functions as a training needs survey and produces information, with the help of which it is possible to plan the training best suited to the participating SMEs' needs. After the competence mapping, the personnel participating in the training are invited to conduct a self-assessment of their digital skills. The self-assessment questionnaire, containing the same competence areas as the competence mapping interview, is sent to be answered several times during the project, allowing the respondents to monitor the development of their competences. Through self-assessments, the project's personnel receive information about the development of the participants' competences, i.e., the project's results and impact.

The training is organized in small groups, emphasizing practical digital skills and hands-on support for the participants. SMEs have opportunities for peer learning and sharing of their experiences. Moreover, an online learning environment, guides, other publications, and video materials are available to support the learning and application of the new skills in practice. In addition, company-specific coaching is provided, as well as more advanced content, such as digital marketing and online store development programs.

The SMEs can receive the necessary support to meet the challenges from the COVID-19 pandemic, while the effects of the crisis may be channelled into strengths in learning new competences and skills.

The training model of the project is described in Figure 1 below.

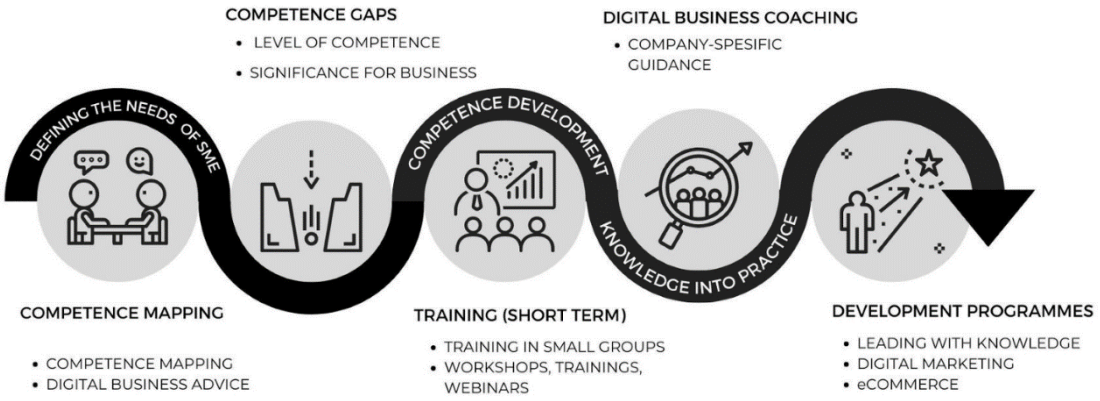

Figure 1. The training model in Digital Steps 2.0 project. Source: www.digiportaat.fi (2023).

5. Project team roles and the process

The project team is a combination of different professionals from four different public organizations: business advisory companies of two municipalities, a higher educational institute (HEI) and a regional rural advisory organization. Each project participant has their own role. The HEI is leading the project and has the main responsibility of the success of the project. This does not reduce the importance of participating project members; they are responsible for the customer interface, the SMEs.

In the beginning of the project, the HEI's project manager's role is to tender out the best possible digital business trainers. In addition to costs, the quality of the course contents and the trainer's experience and references are considered. The HEI's role is to maintain the training calendar and project website. When a company enters the project, by filling in an application online or by meeting project personnel, they are invited to a competence mapping session which is held by a business advisor. In this meeting, a company-specific initial survey is conducted for the SME, the company's business model is discussed, and the training needs are defined. The business advisor is SME's primary contact person during the whole project.

Training needs and self-assessment of digital skills are collected with Hyviö tool which was developed in the HEI in a previous project. It is a tool that helps businesses and institutions improve their service effectiveness by

tracking real-time data (Hyviö 2023). The company coordinator follows the competence mapping data collected into the tool and reports the SME's needs for training. The project group compiles the training calendar based on SME's needs. After the training calendar is published, e.g., for six months period, the SMEs are informed about the training possibilities, and they can enrol to the short courses.

The training coordinator is responsible for the organisation of the courses. There have been two to three training coordinators in the project in different areas of the South Savo region. Concerning the courses, the coordinators are the primary contact to the trainer and the participant SMEs. Most of the courses are online-based and about 10% are held at the HEI campus. The training coordinator participates the courses together with SME representatives and that way can assess the quality of the teaching methods and the content. The training coordinator can also observe new needs and ideas for trainings. After the training the coordinator delivers the course materials and collects feedback. The course feedback is discussed and further processed in the weekly meetings.

To serve a large number of companies, the application process to enter the project is continuous. The idea was to invite companies to join the project activities not only in the beginning, but also during the project. That way the business advisors could divide their workload for a longer period and the course offering can be divided evenly throughout the project. The selection of short courses is modified continuously according to the SME's needs. Therefore, the project team must be up to date concerning the new competence needs and tailor the selection of trainings continuously.

The idea behind the project is to act like we teach. Therefore, the course calendar on the website is visible online for anyone interested. In addition, the webpages of the project have been built to serve all interested such as companies, organisations, students, and business developers who are interested in digital business development of small companies. Moreover, the project uses the same tools and methods as SMEs e.g., in social media campaigns and content, newsletters and e-mail advertising. The Google environment is advanced in the project administration and sharing course and support materials and to collect feedback. All the processes are built as clear as possible and all the materials, application forms, website, and course materials are available for the whole project team. In a case of absence, anyone in the project team can overtake colleagues' duties.

6. Discussion and conclusion

This paper discussed the concepts and training models of SMEs' digital competences based on the current literature and the experiences gained in the Digital Steps 2.0 project in South Savo, Finland. The research question of the paper was: How can SMEs be best supported to develop and grow their digital skills and business models?

Based on the earlier literature (Alonso-Mendo et al., 2009, Depaoli et al., 2020), there have been attempts to develop models describing the process of SME digitalisation. Nonetheless, some of the models have been criticized for a lack of focus in the variety of SMEs and the expected business value of adopting technologies. The training model of the Digital Steps 2.0 project has been built up to offer a variety of SMEs with different kinds of business needs and level of digital competences the necessary support and training to enable business growth and competitiveness. The main contribution of the study is the development of an efficient training model and testing it with SMEs. The training model of project has proven to be effective and popular among the SMEs in the region. The project has reached over 180 SMEs in the region. These have been mostly sole entrepreneurs and microenterprises, employing less than 10 people. A company and its employees typically participate in several training sessions. The implementation of the model has enabled mapping and focusing on the skills gaps of participating SMEs, among other things, by providing training. As a result, the participating SMEs have gained new competences to operate in a digital business environment and renew their business.

Based on the model and results of the project, there are no general solutions. Still, the most important digital competences for each SME in developing and growing its business must be defined exclusively based on each SME's specific business needs, grounded in its business model and context, and skills gaps related to these competences. By doing so, no busy entrepreneur or employee of an SME is obliged to study things that are not relevant to the success of their business. According to the experiences of the project, SMEs can be more agile in adapting new digital business models, tools, and social media than their larger peers. However, it can also be claimed that each SME adapts or 'tames' the digital technology so that it is a better fit for its purposes and best captures the value of the technology.

Concerning the training offered in the project, development targets have also been obtained and tackled with the help of systematic feedback. Based on the entrepreneurs' feedback, some found it challenging to adapt the information gained from the training, and they need more hands-on support. Some entrepreneurs also had technical difficulties that they needed help to overcome. To answer this call, business advisors and HEI's experts coached these entrepreneurs and offered this service to all participating SMEs. Because each SME has a different level of digital business competences, providing short courses and longer study paths at different levels is important. Also, communicating the course contents and guiding the entrepreneurs to the right level is vital for success.

Often cooperation in a such complex project team can be challenging. The management and organisation model of this project has been successful for many reasons. Recruitment of project team members has been one of the key factors: the project team is motived to help SMEs in their digital business and is committed to project aims. They also have excellent understanding of digital business. Team members have versatile and complementary expertise, clear roles and tasks, and all the work and discussions are visible on the project digital platform. Joint tools and a shared digital platform make work efficient and enable serving of numerous companies without lowering the quality. During the project work the working methods and processes have been continuously monitored and developed and become more efficient.

This study corroborates the observations presented in the previous research that digital competences are built step by step, and SMEs whose employees have increased digital competences and understanding will be better able to adopt digital innovations, as absorptive capacity of these SMEs increase, and their employees become active change agents. Further, based on the observations of the study it is crucial to consider each SME's business model and context, and how it can build a better relationship with customers with the help of digitalisation. Nevertheless, more research will be needed to better understand the links between business success and increased digital competences in SMEs.

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