2020

DIGINNO
Digital Innovation Network

SME TOOLKIT

ADVICE FOR DIGITALIZATION IN SMES

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ACKNOWLEDGEMENTS

This report has been written by Prof. Knud Erik Skouby and Dr. Idongesit Williams, from Aalborg University, in collaboration with DIGINNO Work Package 2 partners. The Work package was coordinated by Doris Pold (Estonian Association of Information Technology Estonia). Organizations represented in the work package were Latvian Information and Communications Technology Association (LIKTA) in collaboration with DIGINNO partners from Estonian Association of Information Technology (Estonia), DIMECC Oy (Finland), KEGEiT (Poland), Lithuanian Engineering Industry Association (Lithuania), Infobalt (Lithuania), RI.SE (Sweden), Ministry of Economic Affairs and Communications (Estonia) and Aalborg University (Denmark).

The report builds on DIGINNO SME Digital Maturity Recommender developed by Dr. Mara Jacobson and Andra Krasavina Latvian Information and Communications Technology Association (LIKTA) in collaboration with DIGINNO partners and the Business Needs Assessment developed by Prof. Knud Erik Skouby and Dr. Idongesit Williams from Aalborg University in collaboration with DIGINNO partners.

The report is financed by the Digital Innovation Network (DIGINNO) project. AN EU BSR Interreg financed project led by the Ministry of Economic Affairs and Communications (Estonia).

We wish to extend out thanks to the DIGINNO Work package 2 partners for their invaluable contributions, kind reviews and helpful comments to the development of this report.

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EXECUTIVE SUMMARY

The DIGINNO project – Digital Innovation Network – aims to promote faster and more efficient take-up of digital solutions in the Baltic Sea Region with a wide range of target groups including both the public and private sector. This *Toolkit Report* focus on increasing the innovation capacity of SMEs by showcasing digitalization opportunities and giving practical advice how to implement digitalisation.

The report starts out with a general argumentation for digitisation – why is necessary to digitalise and what to digitalise (Section 2). The main part of the report (section 3) presents tools that will enable CEOs; CTOs and head of IT sections of SMEs to evaluate their state of digital transformation. It is argued that the most important tool for SMEs in their toolbox for increased digitalisation is to put the topic on the agenda. Incentive driven forums such as the board, production management etc. need to have digitalisation on their agenda and remember to discuss the topic in relation to needs. Practical tools are provided in detail in this section presented in a way so anyone can start from here. This tool is useful if you have never evaluated your digital transformation process. The tool covers in nine modules the basic generic functional tasks and processes within an SME:

- Financial data management
- Human Resources environment
- Resource management
- Communications and Customs relations

However, SME digitalization is not without challenges. In Section 4 insight into challenges encountered by SMEs in the BSR and potentials for solving them are presented supplemented by learnings from SMEs that have attempted to solve these problems. Based on these inspirations, an SME may become inspired to think outside the box in trying to deal with these challenges.

Evaluating digital transformation of SMEs using the toolkit presented is advantageous, but it is not necessarily sufficient to use just one toolkit. Supplementary tools and related resources available in different Baltic countries are listed in the appendix section.

SECTION 1- INTRODUCTION

The DIGINNO project – Digital Innovation Network – aims to promote faster and more efficient take-up of digital solutions in the Baltic Sea Region (BSR) with a wide range of target groups both from the public and private sectors. The project aims include strengthening the macro-regional knowledge base (e.g., benchmarking, information sharing, desk studies), promoting exchange of experience and peer-to-peer learning (e.g., case studies and best practice stories), designing and piloting transnational digital solutions, and facilitating policy and regulatory dialogues. *The present Toolkit Report addresses the first two of these aims with the specific focus on increasing the innovation capacity of SMEs (Small and Medium-sized Enterprises) by showcasing digitalization opportunities and benefits, and by giving practical advice on how to achieve these*. The practical advice is found in section 4, the other sections provide background information and may be skipped by practitioners focusing on implementing digitalization.

Section 2, *The case for digitalization*, discusses the drive for digitalization including relevant strategies with an overview of *Why* it is necessary to digitalise, *What* to digitalise (in the sense which areas of a company should be included), *How* to proceed, and, finally, an overview of best practices with reference to the DIGINNO repository of best practices. Section 3, *How-to Tools for SME digitization*, provides a toolkit with tools presenting the types of questions and mindset that can guide the digitalization process in SMEs, including how operational needs and impact assessment of a company can be achieved. Section 4, *Challenges in digitalization,* offers an insight into challenges SMEs may encounter in their digitalization process. This section leverages the analyzes performed in the *Business Needs Assessment* activities of DIGINNO. Section 5, *Toolkit Recommendations* , lists a number of toolkits available for SMEs to facilitate the digitalization process, including a table showing the issues addressed by each toolkit and an evaluation of its relevance.

SECTION 2 – THE CASE FOR DIGITALIZATION

This section provides a general background and argument for digitalization based especially on the technological development showing ICT (Information and Communication Technologies) as an enabling part in broad socio-economic activities. It is discussed how the different parts of a company's activities are generally affected. Finally, an illustrative example from Sweden, related to promotion of digitalization in SMEs, is provided.

Why should firms digitalise?

An initial question that firms need to address and understand is why it is necessary for them to digitalise their operations. In brief, the idea is that new digital technologies have the potential to help firms to transform themselves into "smart factories" and "platforms", which will be necessary to protect both their short-term

competitiveness and long-term survival, which in turn are crucial requirements for national prosperity and GDP growth.

From a policy perspective, SMEs are essential to Europe's competitiveness, and the digitalization of the industrial sector has been pinpointed to be of uttermost importance when it comes to both innovation, growth, and prosperity in Europe. To this background, the European Commission presented in March 2020 a new Strategy to help Europe's industry lead the twin transitions towards climate neutrality and digital leadership. The aim of the Strategy is to drive Europe's competitiveness, economic sustainability, and strategic autonomy at a time of moving geopolitical plates and increasing global competition. The Commission also launched a new package of initiatives aimed at "unleashing the full potential of European SMEs."[1] In this package, "sustainable and digital transitions" is one out of three pillars that will help EU to sustain its industrial competitiveness.

From a company point of view, digitalization is important due to two related issues: it is critical for both short-term competitiveness and long term-survival. In the short-term, digitalization can be seen as a way to cut costs, to increase productivity, to boost the company's relevance to its customers and markets, and enable the company to attract competent co-workers who want to work in an organization that is seen as a fore-runner in utilizing new technologies. In the long-term, it is about exploiting opportunities related to globalization as well as staying ahead of the global competition. It seems clear that companies will have to adapt to and exploit opportunities related to emerging technologies, if they are to survive in the global competition. As companies will in general take advantage of digital technologies and, in the long run, develop new strengths and even novel business models, many industries are expected to transform and make old business models obsolete. Adaption and transformation will therefore be of uttermost importance to companies' survival.

To summarize, there are three main reasons to why companies should exploit opportunities related to digitalization. First, it is about short-term gains such as cost reduction, increased productivity, and attractiveness as an employer. When it comes to cost-reduction, firms should note that it is not merely about digitalization as a way to automate business processes. Rather it is a way to enable employees to spend time on doing things that add value rather than doing things that can be done using technology. Secondly, it is about sustaining competitive advantage by meeting increased global competition from competitors that are utilizing digital technologies in building their competitive strengths. And thirdly, and ultimately, it is about company survival.

[1] https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-industrial-strategy_en

What should be digitalised?

The next question that faces companies is what to do in terms of digitalization. If compared to *digitization* denoting the conversion from analog to digital, *digitalization* is the implementation of digital technologies in the production, organizational, or business models of companies. Digitalization therefore has had a broad impact on company operations and it continues to have the potential to lead to new and improved production processes, novel internal and external operational processes, as well as new ways to deliver value to customers.

From the production point of view, digital technologies have enabled new types of production processes that have materialized in today's well-known concepts such as Industry 4.0, Industrial Internet, Internet of Things (IoT), and machine to machine communication (M2M) making it possible to create better control systems that can predict failures in the production. The development of digital technologies has also impacted other parts of a company's operations, like financial, legal and security processes and practices, through introduction of electronic payment solutions, electronic identification, and smart contracts. Also, broader office automation solutions and paperless office processes have been enabled and taken into practice, as well as more proficient business intelligence using Big Data and Artificial Intelligence.

Digitalization provides a constant flow of buzzwords and this can be a barrier for companies that are not familiar with digitalization. It is therefore important for companies to see digital technologies as enablers of new (business) opportunities and potential solutions to their needs. Technology has no value in itself – it has value only as a way to solve challenges and problems within the company. This means that digitalization should be driven by identified needs and pains in the organization and its business. A common mistake is to identify and recognize new technologies and then adopt them because they exist (or because they are new), and only as a second step articulate what problems they can solve and what needs they meet. This means that digitalization often is more of a mindset, which includes a systematical process for looking for novelties and paradigm shifts, and, after that, turning towards solutions that may be provided by these technologies.

In terms of what to do, it should be noted that digitalization often starts and reaches its initial impact through the adoption of fairly well known, easily available and low-cost technology. Digitalization can clearly start by leveraging new technologies on existing production machinery and processes within an existing business. For example, by adding a sensor that counts the movements in a machine, a company can collect and extract useful information that can be spread, and/or used for improving the process or the product. Hence, digitalization can be rather low-tech, especially when the deploying company is at the early phases of its digitalization.

One advice to companies is to focus on monitoring what goes on, not only with technologies and methods typically used and deployed within their business or industry, but also within other industries, business segments, and markets. It is good training to start looking at what companies in other industries are doing, and to search for similar applications that could have a positive effect in your company's business. Such monitoring

also leads to an ability to think about "consequent effects", meaning that, if we can spot changes in other businesses, we can learn how to see effects from that change that in second, third or whatever turn will have impact on our own business, both in terms of threats and opportunities (cf the detailed discussion in Section 3 below).

As digitalization grows and progresses in the organization and we start to automate operations that were previously conducted by humans, we will also start to see that some tasks that used to be looked upon as "jobs" perhaps no longer are tasks that should be performed as part of various work roles. In connection with this change from a human doing things to using technology, lies a great opportunity. The key question that we should ask is: what should humans within the organization do instead? In what better ways can the human resources, skills, and capabilities be used to develop our company's business even further? Perhaps here lies the greatest opportunity of all related to digitalization: freeing human resources from jobs that are better done by technology and to enable them to add real value to the company.

To summarize, digitalization has the potential to have a broad impact on company operations and to change many aspects of the company, from purchasing and business administration to production, logistics, and sales. It is very important to note that the positive impact of digitalization does not come from technology. Digitalization should be driven by identified needs and pains in the organization and business. Ultimately it is about using technology to automate business processes where humans are not adding real value and using the freed human resources to do real work that builds and strengthens company's competitiveness.

How to digitalise?

The third question is related to how companies should proceed in their development efforts towards increased levels of digitalization.

The basic advice is to start with small steps targeting "low-hanging fruits", i.e. real needs and challenges. Do not focus on technology as such, but on identifying and addressing problems. As digitalization has the potential to impact and change most part of company operations, it is easy to get lost in trying to understand where to start and what to do. The great challenge related to such encompassing transformation can even be paralyzing. It is therefore important to lower the bar for doing things. Do not start with "projects", rather start with "activities". In other words: do not start digitalization by constructing a project.

It is important to understand that digitalization for most companies is about learning: learning about technology and its interplay with company's needs, pains, and problems. There is no straightforward, one-way, easy path to follow. All companies need to be developed in a more or less unique way. Additionally, it is very difficult – or even impossible – to forecast where digitalization will take the company. Clearly, the overall direction

can be understood from the start, but the full impact of digitalization is impossible to predict, and, hence, to plan the details of how digitalization will play out. The advice is therefore to use iterative build–measure–learn-methods. Dare to fail, dare to start over, dare to learn. Or, stated differently: fail often, fail fast, and never make the same mistake twice.

Furthermore, digitalization is not a one-man show. Of course, top management needs to understand the incentives, but they cannot make digitalization happen on their own – especially as valid pre-knowledge within the organization is usually rare, and as useful and relevant benchmarks from which knowledge can be directly transferred are few. What management should do is to use incentives to create and promote a movement in the organization including, e.g., identifying, involving, and empowering change-ambassadors. Use co-workers that are willing to experiment and willing to learn. Instruct and give the ambassadors also a clear mandate to involve others.

Another key issue related to the fact that digitalization is not a one-man show is the need to mobilize a variety of "eyes" (read: employees) to identify needs and pains, to monitor possible solutions, and to experiment with solutions. When it comes to development situations, such as the ones imposed on companies in the wake of digitalization, we need diversity in who's looking as that will lead to more ideas and better solutions. Hence, think out-of-the-box when enrolling employees in to the company's digitalization journey. Do not assume that those individuals that are typically involved in development activities within the firm are the best also for digitalization and transformation. Other perspectives will often prove valuable.

Best practice inspiration – digital awareness creation in action; a Swedish example

A key precondition for industrial digitalization in companies is awareness of what digitalization is about, understanding of its opportunities, and an inspiration to start the digitalization journey. Many companies, especially SMEs, have a hard time getting an overview of the broad areas of technologies and practices, and often policy documents do not comply with and are hard to translate to the needs of individual companies. In order to address this initial threshold in digitalization of SMEs, a nationwide support program – *Kickstart Digitalization* – was deployed in Sweden to support SMEs in early stages of their digitalization.

Kickstart Digitalization is a method aiming to increase the participating companies' awareness of opportunities related to digitalization, and to support and boost their digitalization activities and, hence, competitiveness of industrial companies in Sweden. The aim is to increase the speed and scope of digitalization in SMEs.

The concept of *Kickstart Digitalization* is based on a series of workshops over a six-week period consisting of three free-of-charge meetings where companies share experiences and ideas.

- Part 1: Inspirational lectures and workshops (full day)

- Part 2: Workshop to identify the company's opportunities (half day)
- Part 3: Workshop to identify start-up activities for the company (half day)

This workshop series will culminate in concrete digitalization activities that the companies will then work on. The companies also identify the need for external support in various forms.

The concept is about de-dramatizing digitalization, showing that it concerns all companies, and lowering the thresholds for what it can mean for a single company. It is also organized in such a way that it enables peer-learning between the participating companies and provides good examples of digitalization that the companies can relate to.

Kickstart Digitalization has been carried out by Teknikföretagen, Research Institutes of Sweden (RISE), trade union IF Metall, industrial research group Swerea IVF, industrial development center IUC, and Swedish Incubators & Science Parks (SISP). The project has been financed by Tillväxtverket. 627 companies have participated in *Kickstart Digitalization* (which means that the target of 550 companies was reached by a good margin).

The companies are very satisfied with their participation in the program and with the *Kickstart Digitalization* method. According to a survey:

- 81 percent of the companies state that they have begun a digitalization project or increased the pace of their ongoing digitalization work.
- 91 percent state that they have received new ideas on how they could use the possibilities of digitalization.
- 92 percent think the concept is good or very good.

A key challenge when it comes to digitalization in SMEs is to create awareness and an initial understanding of opportunities related to the use of digital technologies. *Kickstart Digitalization* is a proven concept that has been used extensively in the Swedish context with good results. Evaluations of the concept clearly show its applicability and usefulness as to initiate and support SME digitalization. The concept is simple and should be relatively easy to replicate also in other national settings. This is supported by the fact that the concept has already been exported to Estonia, Latvia, and Lithuania where organizers receive training in the usage of the concept.

SECTION 3 – HOW-TO TOOLS FOR SME DIGITALIZATION

This section of the toolkit presents tools that will enable CEOs, CTOs and heads of IT sections of SMEs to evaluate the company's state of digital transformation. The toolkit provides guidelines on the type of questions and mindset that should guide the evaluation process.

This section of the toolkit is the documented version of the DIGINNO SME Digital Maturity Recommender Tool. One of the main outputs of DIGINNO project is SME Digital Maturity Recommender Tool. This tool is considered to be the first step in understanding the maturity and the importance of digitalization in the Baltic Sea Region companies.

The tool was developed by the DIGINNO partner Latvian Information and Communications Technology Association (LIKTA) in collaboration with all project partners. It is based on the methodology LIKTA initiative "Gudrā Latvija", the implementation of which was started in 2019.

This online recommender tool is primarily aimed at the industry SMEs on the management level. It enables SMEs to measure digital maturity across 10 business dimensions. Upon completion, the company will receive general recommendations about the next steps towards digitalization, insights on how to start an internal discussion on digitalization, and understanding the company's situation compared with others.

The tool is available in English and in the languages of the Baltic Sea Region in the following website: www.diginnotool.eu. The tool is useful in the evaluation of the digital transformation process of SMEs.

Before presenting the tool, we advise that the evaluation the state of digital transformation in an SME should be an ongoing activity. The evaluation could be bi-annual, or annual, depending on the need and urgency. The regular evaluation aids the evaluator to assess, for example, the production process efficiency, service process efficiency, operational task efficiency, and the competitive advantages derived from the digital transformation process within the SME over time. Results of such evaluations will produce either bi-annual or annual trends over the years either on the improvements accrued or on the need for improvements identified in the digital transformation process. If the evaluator has access to data presenting the digital transformation of their competitors, then he or she is able to assess how his or her SME fares in comparison to other companies in the same business. The value derived from such assessment could be in the form of:

- inspiration on the technologies that provide added value to service and production tasks and processes,
- gauging the level of competitiveness between the company and its competitors,
- identification of potential partners that could provide support in the digitalization of, for example, production, service delivery, or logistics processes,

- Gaining relevant insight on how to position an SME in a particular market or ecosystem in order to deliver innovative value to its customers.

Although evaluating digital transformation of SMEs is advantageous, it is not necessarily sufficient to use just one toolkit. The tools presented in this section are basic tools any company can start with. These tools are useful if you have never evaluated your digital maturity and/or transformation process. They cover the basic generic functional tasks and processes within an SME. These functions include:

- Financial data management
- Human Resources environment
- Resource management
- Communications and customer relations

The processes include:

- Digitalization of key processes
- Security policies and practices
- Digitalization in production

Hence, with these tools, the evaluator can identify sections within the SME that are digitalised and those that are not. However, once the different sections are digitalised, it is imperative to evaluate the impact of digitalization within the different sections. It is also important to evaluate, if the adopted digital technology fits the tasks and processes in each section of the SME. It is also important to evaluate the adopted digital technology vis-à-vis new and upcoming technologies with respect to task and process efficiency. Hence, as mentioned earlier, the evaluation is an ongoing exercise, which is required by the rapid evolution of digital technologies. In Section 5 and in the appendix section, many other tools are provided to assist the evaluator in making such advanced assessments. The components of the basic tool are provided in the next sub-section.

3.1 The tool

The DIGINNO SME Digital Maturity Recommender Tool has three segments. These are:

- The Pre-evaluation
- The Evaluation,
- The Post-evaluation

In the pre-evaluation phase, the SME's digital readiness is evaluated. In the evaluation phase, the need for digital solutions in performing functional tasks and processes is evaluated. In the post-evaluation phase, the criteria for selecting the appropriate digital solutions is evaluated.

3.1.1 PRE-EVALUATION

MODULE 1. DIGITAL TRANSFORMATION AND COMPETITION

This module highlights the pre-evaluation level of digital transformation and the resulting competitiveness of the SME in general. The greater the use of digital technologies, the greater the competitiveness of the SME. Here the evaluator is taking an inventory of the existing digital solutions and their utilization in the SME. The aim of the stocktaking is to find out which digital solutions are utilized, where they are utilized, how personnel utilizes the digital solutions in their daily work, and whether the digital solutions are adequate for the processes and tasks within the SME. To find out the answers to these issues, the evaluator asks the following question and sub-questions.

Question 1: Do you find your company above industrial average when it comes to digitalization?

1.1. Are you confident that the digital solutions and equipment implemented in your company are the most effective for you?

1.2. Are you confident that your employees make full use of the digital solutions implemented within the company?

1.3. Do you have a detailed plan regarding which digital solutions and/or improvements you will implement during the coming year?

1.4. Do you have a vision regarding what digital solutions/enhancements you want to implement in your company within 3-5 years?

The answers provided in this section should result in the evaluator developing a vision statement on how to further integrate relevant digital solutions in various tasks and processes. In order to make the vision statement concrete, the evaluator proceeds to evaluate different sections.

3.1.2 EVALUATION

This section provides tools that will aid in the evaluation of the functional tasks and processes

FUNCTIONAL TASK EVALUATION

MODULE 2. FINANCIAL DATA MANAGEMENT

This module evaluates the need for digital solutions that support financial data management systems in SMEs. Financial data management is at the heart of every SME. In every unit and department, there are costs and

expenditures monitored by a centralized agency. In most cases, that agency is the accounts department. The accounts department has to be able to monitor and regulate the income and the expenditure of different sections within the SME. In bigger SMEs, section heads should be able to manage their accounts in conjunction with the accounts department. Furthermore, in order to expedite decision-making processes, the head of the SME should be able to access the accounting information of the company. Financial data management also supports the interaction between the SME and its clients, financial institutions, and government agencies (mostly tax authorities). These management practices can be enhanced by digital solutions. The relevant question and sub questions that can assist in the evaluation of digital transformation in the management of financial data are:

Question 2: Can you retrieve, store, and review your company's most important financial data at any time without involving accounting?

2.1. Do you have the appropriate software for bookkeeping in your company?

2.2. Do you have an accounting system with automated file exchange with banks?

2.3. Can you issue and receive electronic invoices?

2.4. Can you do all the accounting functions in paperless form (incoming/outgoing invoice processing, report generation, performing auditing, filling in/filing tax forms, etc.)?

2.5. When sending/receiving invoices, can you quickly and easily obtain billing information, reply from the payee, and the payment status?

MODULE 3. HUMAN RESOURCES ENVIRONMENT

This module evaluates the need for digital solutions that support the management of human resources. Paper-based, non-digital human resource management is cumbersome and less efficient. Such HR processes often result in demotivated personnel. This is because evaluating their performance or assessing their training and competence development needs will require long processing times. The adoption of digital human resource solutions and the proper integration of these solutions will result in better transparency, shorter processing times, reduced bureaucracy, and a highly motivated staff. It will have also a positive effect on the competitiveness of the SME. The guiding question and sub-questions that will enable the evaluator to assess the existing human resource systems are as follows:

Question 3: Do your employees go digital? Does your company use tools to streamline communication and processes on the company-employee line?

3.1. Does your company calculate wages with software that is specifically suitable for it?

3.2. Can employees easily and quickly apply for leave/absence on a special digital system that is linked to the financial accounting system?

3.3. Do your employees have access to online tools that make it easy to work outside the office?

3.4. Can you assign tasks and follow their completion electronically and remotely?

3.5. Do you have a digital system to follow employees' personal competence development/training, well-being and workplace atmosphere?

MODULE 4: CUSTOMER RELATIONSHIP MANAGEMENT

This module evaluates the need for digital solutions that support Customer Relationship Management (CRM) systems in SMEs. Customer relationship management is at the heart of any company. A company would not exist without its customers and keeping them satisfied ensures the inflow of revenue and, hence, sustainability of the company. However, in order to keep the customers satisfied, a company's business relationship with its customers has to continually improve. Else, they will flock to a competitor. Hence, there is need for a system that helps analyse customer feedback and other data collected and derived from company's own customer relationships or from the industry at large. Analysing such growing data requires the use of a comprehensive digital solution. This question and the following sub-questions will enable an evaluator to assess, if there is need for a Customer Relationship Management system.

Question 4: Can you find the history of each customer's purchase/cooperation pattern quickly and easily in a digital way?

4.1. Can you easily select customers by specific parameters in the customer database?

4.2. In the event of changes, are your customer data (such as name, reg., address, etc.) automatically updated in your information systems?

4.3. Can your products/services be conveniently purchased without direct communication with your employees (on the Internet, through an application, etc.)?

4.4. Do you use and analyse customer historical data to forecast purchase volumes/discounts/buying habits?

4.5. Is there a website for customers to see their transaction status/history?

MODULE 5. RESOURCE MANAGEMENT

This module evaluates the need for digital solutions that support Company's Resource Management Systems in operations management processes and tasks. Operations management enables the efficient management of resources. In contemporary times, digital solutions such as, Enterprise Resource Planning (ERP) systems etc., enable efficient operations management processes. Hence, the utilization of digital solutions for the identification, development and allocation of resources are critical activities for a company. Resources are diverse but also cross-cutting. For example, in project management, financial resources are used to employ and upgrade human skills, and human skills are needed to develop and manage resources used for service delivery. Obviously, these resources are handled by different systems, but if resources are to be identified, categorized, allocated, or developed, there is a clear need for digital solutions that can manage cross-cutting resources. Resource management requires that the evaluator first identifies the cross-cutting resources that need to be managed and then follows up with the tool that can support the management process. In this module, unlike in the other modules, there is no one question that fits all. However, the example provided here can serve as an inspiration. This example is related to asset management, but an evaluator can use the same logic to inquire about other forms of resource management.

Question 5: Can you quickly and easily access data about the asset management (raw materials, inventory, finances, etc.) for your company based on information derived from your digital systems?

5.1. Do you perform fixed asset inventory with the scanning feature on digital devices?

5.2. Can you automate purchase order scheduling to prevent resource shortages or stockpiling in advance?

5.3. Does your tracking system allow for electronic document exchange with partners (invoices, orders, etc.)?

5.4. Can you quickly and easily calculate your company's transport and logistics costs (maintenance, fuel costs, routes, hours)?

5.5. Can you immediately calculate the cost of goods/services?

MODULE 6. COMMUNICATION AND CUSTOMER RELATIONS

This module evaluates the need for digital solutions that support communication with customers. Aside from customer relationship management mentioned earlier, opening up channels of communication to customers is vital. If a customer does not have the means of either reaching or receiving feedback, chances are that the

customer will look for a new supplier. Today, as evident on review platforms such as Trustpilot, customers value the open line of communication and rate it highly. Furthermore, they value the open line of communication much more, if they can give and receive instant and valuable feedback. Such feedback could be collected via, for example, a comprehensive knowledge base or an online chat. In order to understand whether an SME already has an effective digital solution that enables immediate customer feedback, the evaluator should ask this question and its follow-up questions.

Question 6: Will your potential customers/employees find the information about you on the Internet by entering keywords in search engines?

6.1. Have you defined the keywords you want to be found by in Internet search engines, and are your webpages tailored accordingly?

6.2. Do you have a digital system to track interaction with your customers?

6.3. Can you provide the customers with online support when they need it?

6.4. Can you reach a large number of customers (employees/partners) online?

6.5. Are you satisfied with how fast customers can find information about you?

PROCESS EVALUATION

MODULE 7. DIGITALIZATION OF PROCESSES

This module evaluates the need for digital solutions that support the digitalization of processes that interlink different functional tasks within the SME. Here the evaluator is assessing the flow of different processes and where they intersect with each other. For example, a customer decides to buy a machine and contacts the sales representative. The sales representative specifies the product and creates an order, the order is forwarded to the factory, where it is entered into the production pipeline and eventually manufactured, the finalized machine is delivered to the customer with an invoice, customer receives and approves the machine and pays the invoice, etc,. There are several different systems at play here, involving, for example, marketing and sales, component sourcing, production planning, production, internal and external logistics, and financial management. These systems could exist in silos where they neither share data nor interconnect with each other. In order to digitalise the overall process, these systems either have to be interconnected to a separate system, which brokers the data exchange, or be interconnected directly with one another.

The resulting process could be such that once the order is digitally created, the customer receives an electronic confirmation of the order, and the production department is alerted electronically prompting it to begin the sourcing and manufacturing processes. Once the machine has been produced, the sales department receives an electronic notification about customer delivery, the customer is also informed about the delivery, and invoicing and payment are done digitally. This is an example of different processes being interlinked within the SME. Enabling the digitalization of processes requires a step-by-step approach. In this module the evaluator is provided with questions that will help in kick-staring the journey.

Question 7. Have you automated/digitalised your company to the fullest potential?

7.1. Do you digitally approve documents and sign contracts electronically (using e.g. e-signature) in your company?

7.2. If different digital solutions have been implemented within the company, are they interconnected and easy to use?

7.3. Do your systems perform automated customer risk assessment and monitoring (e.g. monitoring of customer tax debts, bankruptcy, etc.)?

7.4. Can employees from different departments easily track the progress and deadlines of joint projects?

MODULE 8. SECURITY POLICY AND PRACTICES

This module is for evaluators both with and without digital solutions. For evaluators without digital solutions, it is important to identify the threats associated with such digital solutions, like phishing, social engineering, hacking, Denial of Service (DOS), etc. Social engineering and phishing mostly occur on digital solutions used for human-to-human communications. Obviously, once successful, they provide potential for indirect or direct access to critical systems. Hence developing security policies and practices that will prevent employees of the SME from becoming victims of such threats is beneficial. To develop such policies, the company needs access to security experts. However, for critical systems that are prone to hacking and DOS, the evaluator should use the following questions to evaluate the threat. If the answers are negative then the evaluators should look for different solutions such as firewalls, encryption services, and the use of secured networks.

Question 8: Are you confident that if you lose access to your company data, you will be able to restore it quickly?

8.1. Does your company continuously review potential threats and take action to prevent, detect, respond to and recover from data breaches?

8.2. Do employees in your company receive regular education and do they take proper action regarding data security and safety topics?

8.3. Are your digital assets protected and can you remotely locate and control them?

8.4. Have you secured your data against breaches when employees work remotely?

8.5. Do you use secure connections when sending/storing documents/ business data?

MODULE 9. DIGITALIZATION IN PRODUCTION

This module evaluates the need for digital solutions that support the production processes. Aspects of production processes are increasingly being digitalised and delivered as (cloud-based) services. Here infrastructure, platforms, and software are delivered as services, and a company does not need to invest in building or developing certain critical infrastructure. If an SME decides to develop cloud-based services, it gains in several ways. For example, it can use the cloud for its internal production processes. It can also rent parts of the cloud infrastructure to other service providers for a fee. Other digital solutions that support digitalization of production processes are robots, digital twin technologies, and automation technologies.

It is important for evaluators to assess their production line to find out where digital technologies are needed to support, enable, or even become the critical player in the production process. Key advantages are the reduced cost of production as well as enabling efficiency gains in the production process. Here are questions for inspiring the evaluation process.

Question 9: Is your production process automated/digitalised?

9.1. Do you utilize sensors in production and send measurement results to the cloud or your server to optimize production?

9.2. Can your management track production processes in real time (e.g. production flow, alerts, etc.)?

9.3. Do you use your production data to build models (Big Data) for better management or predictive maintenance?

9.4. Do you utilize RFID or similar digital functionality to track assembling parts or complete products to improve logistics?

9.5. Have you adopted robots, including collaborative robots (cobots) in your production?

9.6. Do you apply Virtual Reality/Augmented Reality to train your production/maintenance staff or in other applications?

3.1.3 POST EVALUATION

MODULE 10. INNOVATION AND GROWTH PERSPECTIVES

In this module, the evaluator is given tips on how to approach the technologies needed for the tasks and processes related to innovation and growth. In the evaluation phase, the evaluator typically thinks of different technologies that are needed to support each individual process and task. However, the choice of technologies should also be driven by the need to deliver innovations and ensure growth for the entire company. In other words, the individual choices should be geared towards overall cost reduction, increased efficiency, and enhanced value to customers.

Netflix was a video leasing company in the 1990s. They were not breaking even due to the cost of mailing video cassettes to their customers. But once they decided to digitize their content and digitalise their processes, they moved from being a video renting company to being a video-on-demand company. Netflix's adoption of digital technologies in their production and delivery processes has led to a major change in their whole business model while continuing to deliver the same customer experience but with enhanced value. This is the mindset that is needed when thinking of the digital solutions that will fit the processes in your company. So before making choices on the technology ask yourself the following questions.

Question 10: Do you feel familiar with the most important trends and updates of digital solutions for your company? Are you considering/planning to implement digital solutions within your company during the next 2-3 years?

10.1. Digitalization on innovation of products and services (A good or service that is new or significantly improved. This includes significant improvements in technical specifications, components and materials, software in the product, user friendliness or other functional characteristics.)

10.2. Digitalization on innovation of organization processes (A new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software.)

10.3. Digitalization on innovation of organizational structure (A new organizational method in business practices, workplace organization or external relations.)

10.4. Digitalization on innovation of marketing (A new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing.)

If the conclusions are not positive, then it is imperative that the company upgrades its knowledge on the relevant technologies. It will also be helpful to ask advice and suggestions from IT experts and engineers regarding ideas on potential technical solutions. A pros and cons tabulation could be helpful in finding and defining, which technologies will be the most helpful. Once those technologies and solutions have been identifies, then plans can be made to implement them in phases.

SECTION 4 – CHALLENGES IN DIGITALIZATION

In the previous section, the tools on how to evaluate the need for digitalization are provided. However, SME digitalization is not without challenges. This section provides an insight into specific challenges encountered by SMEs in the BSR and potentials for solving them. It also provides learnings from SMEs that have attempted to solve these problems. These are challenges that either impede or slow down the adoption of digital technologies. These challenges and learnings were identified in a Business Needs Assessment conducted in the DIGINNO program. 140 SMEs from the BSR were studied.

The challenges that will be highlighted include:

- Digital disruption challenges
- Digital awareness and demand challenges
- Knowledge acquisition/knowhow challenges
- Personnel/competence challenges

4.1 Digital disruption challenges

As digital technologies evolve, the possibility for new digital solutions business models are created. Often these new solutions and business models are not simple upgrades to the existing ones, but radical innovations that provide enhanced value to SMEs. In order to adopt such technologies, an SME will have to deploy new service and production infrastructure as well as modify its current business model or adopt a totally new business model. This obviously disrupts the business as usual as the SME has to reorganize its operations and processes and pour in new investments into such initiatives. Occasional digital disruption is not necessarily a

challenge, but rapid digital disruptions, such as the one being experienced currently, pose a significant challenge because SMEs have to constantly evolve as technologies evolve.

In the BNA study, SMEs generally found digital disruption to be a risk to their operations. This is generally because their inability to evolve with technological evolution dampens the potentially available competitive advantage. However, in the study there were SMEs that have already come to terms with the fact that digital disruption is here to stay. They have succeeded in turning this risk into an opportunity to become more innovative. Hence their approach to service and product delivery is flexible. For example, rather than delivering their products in a standardized format, they deliver newer products as upgrades of the previous technologies by further digitalizing their products. Examples include the introduction of navigation systems in cars, the use of sensors to monitor water supply and pipes, the use of big data extracted from production services for analytics, and the increasing use of digital platforms to deliver services.

The identification of opportunities within digital disruption for the SMEs was not accidental. They anticipated the disruption and they adopted short-term strategies to their current operations. Based on their anticipation they evaluated:

- The best possible approach towards the modification of their business models. This includes making changes towards their approach to partnerships. In some cases they create joint partnerships for either product or service delivery. In other cases, they assess other areas within their value chain to find out where they can provide additional value using new and upcoming technologies.

- The best approach towards financing such initiatives. Most of the approaches adopted by such SMEs were related to increasing collaboration in the delivery of services. This led to the downsizing of non-essential workforce and leveraging competences within the partnerships. Hence, the investment into the process is reduced as compared to the SME delivering the product or service alone and they share profit accrued from sales.

- The best possible way to approach customers. These SMEs adopt customer-centric approaches to service delivery. Digital solutions they require become dependent on the economic value that is delivered to meet the needs of the customers. It also helps them decide which other companies to collaborate with in order to deliver the value required by the customer in a timely manner.

Digital disruption is a challenge that is here to stay. However, it is not necessarily a death sentence for the SME. Rather it is also an opportunity to innovate and to find out new ways of delivering the products and services.

4.2 Low digital awareness challenges

One of the downsides of digital disruption is the proliferation of new digital technologies. Being inundated with new technologies could become exhausting, however in the mix of new technologies are those that will provide benefit to certain SMEs. Most SMEs that responded to the BNA complained of not knowing about such technologies. However, there are lessons from the very few who did not have this challenge. The major lesson here is their targeted proactivity towards looking out for digital technologies that will suit their processes and operations.

Some of the proactive initiatives include:

- Bookmarking, benchmarking and attendance of conferences where technologies in their sector are discussed.
- Instituting knowledge sharing practices within the SME such as:
    - Team sharing activities where there are brainstorming sessions on new technologies that provide added value to the products and services;
    - In house capacity building activities aimed at upgrading the knowledge and competences of staff members on new digital technologies.

- Signing up to industrial hubs and industry platforms (including relevant industry associations) where they can share ideas, collaborate and deliver new products and services using new digital technologies. Some of these platforms do have active awareness creation events that will be beneficial to an SME.
- Formation of active partnerships with knowledge institutions. These partnerships are aimed at the development of joint project activities, assessing consultancy services provided the knowledge institutions, and becoming test beds for technologies developed by knowledge institutions.
- Employment of process development managers. The job of these managers is to look out for new technologies and how to integrate new technologies into the operational processes.
- Staying abreast with supplier white papers. Most suppliers are constantly upgrading their solutions into digital solutions and platforms. They would keep customers updated with white papers on their new technical solution and how it would work. Visiting their websites and looking for such papers would be helpful.

The proactivity of these SMEs is an inspiration to other SMEs that aim at increasing their awareness to new digital technologies that will be of value to their operations and processes. Some of the initiatives mentioned by these proactive SMEs are not capital intensive. In the appendix section there are suggestions on awareness events that would be of value to SMEs.

4.3 Demand challenges

One of the major challenges is that most SMEs develop products on demand. Often times the customer is either not aware of potential digital products or prefers a non-digital solution. This has led SMEs to shy away from enabling digital transformation. It is true that most products will never become digital, but digital tools can be used to develop such products. The services (customer service, maintenance and after-market services, financial services, marketing services, subscription services, etc.) accompanying the products can be digitalised. The production process, distribution process, task allocation, performance evaluation, and delivery processes can all be digitalised. Hence, the demand challenge, though it exists, does not stop the digital transformation of SMEs. The tool presented in section 3 is a good start on how to evaluate the different tasks and processes within the SME that requires digitalization.

4.4 Knowledge acquisition/Knowhow challenges

Knowledge acquisition is a logical next step to awareness. In principle, the lack of awareness of digital technologies and solutions will result in the dearth in knowledge on such solutions and the value it would deliver to the SME. However, being aware of the technology does not necessary imply having an insight into the intricate operational details about it. Most of the SMEs surveyed in the BNA did complain that the acquisition of knowledge about digital technologies is challenging. The challenge here does not stem from the lack of existence of the needed technologies. Rather existing personnel employed do not have the competence to integrate such technologies into the operations.

Hence, there is the need for industry to more focus on internal/external continuous learning of their existing staff to better adopt digitalisation and other transformation to come. SMEs should compare their knowledge acquisition approach more with knowledge-based deliveries such as consultancy etc, where the forward looking awareness and gaining of new competence is a crucial way of business. This will help the SME to be relevant and therefore stay in business. SMEs should not expect all the needed new competences to either be supplied from outside the company or introduced by new employees. SMEs should work with and develop the existing resources and competences (as they already know the line of business). This is because in the early stage of SME digital transformation process, competences needed are often quite basic, with low risk and costs but can give substantial effects and learnings.

There are inspiration from some SMEs who are taking active measures towards knowledge acquisition for their personnel. Several clear approaches were adopted, including:

- Sponsorship of employees to relevant fairs and conferences with the idea of identifying and learning about the technologies that would provide value.
- Developing the capacity of the employees by sponsoring them for relevant courses and training.
- Introduction of new technologies with associated business systems and compelling employees to study and deploy such systems.
- Facilitating an in-house training where either the supplier (vendor) of the technology or technology experts will guide inhouse engineers on how to use the technology.
- Creation of a knowledge-sharing environment where personnel with knowledge can share that knowledge with the rest of the organization.

These initiatives are not random. They are often driven by the need to utilize a particular digital technology in the production and other operational processes of the SME. Hence, the training is often followed by the integration and implementation of the technology.

One barrier that could hamper training initiatives is the cost of training. Previously before the advent of the Internet, this was challenging. However, these days there are affordable alternatives where courses on different technologies are delivered online either by the vendor or a university. Examples include Coursera, Google Digital Garage, Cisco training, Microsoft EDX etc. Hence, it is a good idea to find out if the supplier has an online course for the solution. In some cases suppliers provide courses free of charge on YouTube. However, sometimes there might be no online courses for selected solutions. In such cases, the economic value derived from the digital transformation process is typically greater than the expenses for training using non-online initiatives.

4.5 Personnel/Competences challenges

The challenge faced by all SMEs surveyed was the lack of competent labour force. Here we call it personnel/competence related challenges. The respondents identified different reasons for this challenge. One reason was the lack of capital needed to expand and hire competent workforce. Another reason is the exodus of the scarce but competent resources to countries within and outside the EU that pay higher wages. Another reason is that the number of graduates with competences in the new digital technologies is quite low. As a result, some SMEs have to make do with the workforce they currently possess.

In order to deal with the challenge, some SMEs have embraced more automation in the bid of replacing humans with machines. The challenge though is that there is still need for humans who will configure, operate, and monitor the operations of the technology. Aside that, there is still need for humans with the understanding on how to combine the technologies to deliver value for the products and services. Other SMEs have adopted a different approach where they establish dialogue with vocational educational institutions and higher

educational institutions on the needs. Some SMEs have been proactive in presenting a snippet of the concepts they are working with in the bid to attract, not just interns but student projects. This package enables the students to work and study proactively on the competence required. The greatest motivation for the student is the prospect of working with the SME after graduation. The challenge though is that these initiatives are not many, but such opportunities exist.

A possible solution is a dialogue between SMEs, industry associations, the ministry of education in their country and the educational institution on the curriculum of educational institutions. Here SMEs could evaluate the relevant content to either verify or suggest content that would be of value to SME digitalization. Such initiatives should be promoted by SMEs as a means of ensuring that they end up having the competences needed to facilitate digital transformation in their companies.

The challenges and learning highlighted here are not exhaustive. However, they provide inspiration based on the activities of other SMEs on how these challenges could be handled. Based on these inspirations, an SME will first of all realize the possibilities out there but also become inspired to think outside the box in trying to deal with these challenges. Therefore, when the evaluator conducts the evaluation it is important to take these challenges into consideration and find out ways on how to deal with these challenges, so that it does not derail the digital transformation process.

SECTION 5 – CONCLUSION

In this toolkit, SMEs are provided with arguments on how and why they should digitize, how they can evaluate their digital transformation process and potential challenges they will encounter during the digital transformation process. The toolkit also provides different tools at the national level in the BSR that will enable SMEs solve come of the challenges identified. These tools are listed in the appendix section. As mentioned earlier, in section 3, the toolkit is based on the DIGINNO SME Digital Maturity Recommender Tool (https://www.diginnotool.eu/). This toolkit is a companion to the DIGINNO SME Digital Maturity Recommender Tool.

The use of the DIGINNO SME Digital Maturity Recommender tool and the tools and resources provided in this toolkit in the evaluation of SME digital transformation process will enable SMEs develop their, Competitive advantage, Earn Return on Investment, Optimize production and service delivery processes, as well as adopt efficient resource management processes.

In conclusion, the most important tool for SMEs in their toolbox for increased digitalisation is to put the topic on the agenda. Incentive driven forums such as the board, production management etc need to have

digitalisation on their agenda and remember to discuss the topic in relation to needs. At the same time, they also need to get started and keep on going with small scale experimentation activities where perhaps the need is not that outspoken and clear. From there movement should be broadened in the company as to sustain digitalisation momentum, preferably using pinpointed ambassadors who have interest and are willing to try, fail and try again new solutions. Inspiration can also be sought in the *Best Practice stories* from DIGINNO (https://www.diginnobsr.eu/wp2-outcomes).

Interact more with your surrounding such as customers, suppliers and service providers, the ones you already use but also potential new ones. Have them tell you in what way they find it difficult (pains) to do business with you, in what way you together can be more efficient. Ask what solutions they can provide and in which way that gain impact on your needs and your business. Be especially clear on service providers that they need to understand your challenges, business and needs and not only suggest solutions by explaining the superiority of their specific brand, technology or system.

Service providers such as suppliers of supporting data-systems (e.g. ERP-systems, CRM, accounting etc) has a crucial role in the making of a more vertical and horizontal supply chain digitalisation that drives competitiveness. And even though they often have more advanced understanding of the technology, they also need to further understand digitalisation in terms of solutions to specific needs within their customers line of business and production.

APPENDIX I – NATIONAL TOOLKIT RECOMMENDATIONS AND RESOURCES FOR SMES

TABLE 1. APPENDIX FOR DIGINNO TOOLKIT / FINLAND

Below are some examples of innovation companies, events etc. that aim to help especially startups and SME's in their digitalization and may be of use especially if thinking of entering Finland as a market or as a place for operations (sales, R&D, manufacturing, services, etc.). Please note that this list is not an exhaustive list and that there are several regional and industry segment-specific organizations that can support companies in their change processes.

ORGANIZATION/COMPANY	WEBSITE	DESCRIPTION
ENTERING / INVESTING IN FINLAND		
Business Finland	https://finland.fi/business-innovation/business-and-investment-info	business and investment information
	https://www.businessfinland.fi/en/do-business-with-finland/home	investing in Finland
Central (and local) Chambers of Commerce	https://kauppakamari.fi/yhteystiedot/kauppakamarit/	promotes success and networking of companies in different regions
Finland Toolbox	https://toolbox.finland.fi/	tools and materials for knowing more about Finland or presenting Finland abroad
Kaato	https://www.kaato.org/	a pro bono community of international, Finland-minded ICT leaders
Ministry of Finance	https://vm.fi/en/principles-of-digitalisation	public sector principles for digitalization
Technology Industries of Finland	https://teknologiateollisuus.fi/en	provides means for success and sustainable value for technology companies
INNOVATION AGENCIES / PLATFORMS / COMPANIES		
Clic Innovations	https://clicinnovation.fi/	innovation cluster for bioeconomy, circular economy, and energy systems
Demola	www.demola.net	student projects for companies
DIMECC	www.dimecc.com	innovation platform for technology and industry
Spinverse	www.spinverse.com	innovation consulting company
Tamlink	https://www.tamlink.fi/?lang=en	technology transfer company
VTT	www.vttresearch.com	technological research institution owned by the Finnish state
INNOVATION EVENTS		

DIMECC Demobooster	www.demobooster.fi	matchmaking platform where applier companies meet software companies to innovate new solutions for digitalization
DIMECC Manufacturing Performance Days	https://www.dimecc.com/dimecc-services/mpdays/	summit for manufacturing industries, researchers and technology and service providers worldwide)
Digibarometer	https://www.etla.fi/en/publications/digibarometri-2020-kyberturvan-tilannekuva-suomessa/	annual study evaluating and comparing how well individual countries utilize digitalization
Finnish Center for Artificial Intelligence	www.fiif.fi	company driven community boosting innovation and business related to adoption of new technologies, like industrial IoT, AI, and AR/VR
Finnish Software and E-business Association	https://www.ohjelmistoebusiness.fi/en/	Finnish association offering trainings, seminars, and networking opportunities to its members
Industry Hack	https://industryhack.com/	co-creation platform for both public and private sector innovation
Slush	https://www.slush.org/	global community aiming at creating and helping the next generation of groundbreaking entrepreneurs
Ultrahack	https://ultrahack.org/	Ultrahack combines hackathons, an innovation platform, and accelerators to build a community where talent and leading industry partners meet and collaborate towards future innovations
TOOLKITS / TOOLS		
Digital and Population Data Services Agency	https://dvv.fi/en/individuals	promotes the digitalisation of society, secures the availability of data, and provides services for the life events of its customers
	https://www.suomidigi.fi/en	stories and news related to digitalisation in Finland
University of Helsinki and Reaktor	https://www.elementsofai.com/	“Elements of AI” online course

VTT	https://www.vttresearch.com/en/ourservices/tools-digitalisation	identifies digitalisation challenges for customers and provides tailored solutions
	https://www.apuadigiin.fi/digimuutosmalli/	(in Finnish) describes three phases of digital change: 1. digital positioning, 2. analysis of current digital situation 3. roadmap to digitalization
	https://digimaturity.vtt.fi/?lang=en	free-of-charge self-service web tool, which visualises a company's digimaturity along six dimensions (strategy, business model, customer interface, organisation and processes, people and culture, ICT)
	https://ai.digimaturity.vtt.fi/?lang=en	free-of-charge self-assessment web tool, which visualises a company's AI maturity in six dimensions (Strategy and Management, Products and Services, Competence and Cooperation, Processes, Data and Technology)

TABLE 2. APPENDIX FOR DIGINNO TOOLKIT / LITHUANIA

Below are some examples of innovation companies, events etc. that aim to help especially startups and SME's in their digitalization and may be of use especially if thinking of entering Lithuania as a market or as a place for operations (sales, R&D, manufacturing, services, etc.). Please note that this list is not an exhaustive list and that there are several regional and industry segment-specific organizations that can support companies in their change processes.

ORGANIZATION/COMPANY	WEBSITE	DESCRIPTION
ENTERING / INVESTING IN LITHUANIA		
Invest Lithuania	https://investlithuania.com/	business and investment info
Enterprise Lithuania	https://www.enterpriselithuania.com/en/	business and export info
Central (and local) chambers of commerce	https://chambers.lt/en/	promotes success and networking of companies in different regions
INNOVATION AGENCIES / PLATFORMS / COMPANIES		
Agency for Science, Innovation and Technology MITA	https://mita.lrv.lt/en/	national innovation agency – main governmental institution, responsible for implementation of innovation policy in Lithuania
Lithuanian Innovation Center	https://lic.lt/en/lithuanian-innovation-center/	innovation support services, implementing Lithuanian innovation policy
Technlogy center Intechcentras	https://intechcentras.lt/?lang=en	SMART Manufacturing competence center
INNOVATION EVENTS		
Making Industry 4.0 Real	www.industry40.lt	Annual international conference on Industry 4.0

TABLE 3. APPENDIX FOR DIGINNO TOOLKIT / SWEDEN

Below are some examples of innovation companies, events etc. that aim to help especially startups and SME's in their digitalization and may be of use especially if thinking of entering Sweden as a market or as a place for operations (sales, R&D, manufacturing, services, etc.).

ORGANIZATION/COMPANY	WEBSITE	DESCRIPTION
ENTERING / INVESTING IN SWEDEN		
Business Sweden	https://www.business-sweden.com/	Supports new and established companies that plan to expand globally and increase their sales in new markets.
Tillväxtverket, Swedish Agency for Economic and Regional Growth	https://tillvaxtverket.se/english.html	Swedish Agency for Economic and Regional Growth is a government agency that promotes economic growth and competitiveness. Runs programs, calls and financial funding.
Almi and Almi Invest	https://www.almi.se/en/in-english/	Almi offers loans to companies with growth potential and assists in their business development. Almi Invest provides venture capital for early-stage and scalable business concept.
EEN	https://enterpriseeurope.se/in-english.html	Enterprise Europe Network helps businesses innovate and grow on an international scale. It is the world's largest support network for SMEs with international ambitions.
INNOVATION AGENCIES / PLATFORMS / COMPANIES		
Vinnova, Swedens Innovation Agency	https://www.vinnova.se/en/	Vinnova strengthen Sweden's ability to innovate and contribute to sustainable growth. Innovation programs, calls and funding.
Formas	https://formas.se/en/start-page.html	Formas is a state research council for sustainable development which fund research and innovation. The business areas are in the environment, areal industries and community building.
EU Funding	https://eufonder.se/om-eufonder.se/in-english.html	Lists and explain possibilities with EU-programs and funding from a Swedish perspective.
DIGG Authority for digital governance	https://www.digg.se/en	Coordinates and supports the digitalisation specifically for the public and government
Swedish National Digitalisation Council	https://digitaliseringsradet.se/om-webbplatsen/english/	The national council promote the implementation of the government's digitalisation strategy. It consists of leading experts from universities, private and public sector.
Verksamt	https://www.verksamt.se/web/international	Access to e-services from authorities that you who are to start or run a business can benefit from
RISE Research institute of Sweden	https://www.ri.se/en	In international collaboration with companies, academy and the public sector RISE contribute to a competitive business life, a sustainable society and support all types of innovation processes.

IHubs Sweden	https://ihubssweden.se/en/contributes-innovation-growth-sweden/	iHubs Sweden is a national innovation platform that stands for smart specialisation and the development of industry through innovation.
WASP Wallenberg AI, Autonomous Systems and Software Program	https://wasp-sweden.org/	WASP will strengthen, expand, and renew competence through new strategic recruitments, a challenging research program, a national graduate school, and collaboration with industry
Kungliga Ingenjörsvetenskapsakademien	https://www.iva.se/en/	The Royal Swedish Academy of Engineering Sciences (IVA) is a meeting place for Sweden's future. IVA builds bridges between the business, the public sector, academia and the political sphere.
IoT Sverige	https://iotsverige.se/english/	IoT Sverige finances innovative projects within IoT for an innovative society. Our focus is that IoT will contribute to solving societal challenges in cooperation with municipalities, companies and researchers and in that way strengthen the company's international competitiveness.
Automation Region	https://www.automationregion.com/en/home/	Automation Region is a centre of excellence that unites small enterprises, large corporations, academia and the public sector in a cross-industry cluster that focus on automation expertise.
INNOVATION EVENTS		
Industridagen	https://www.industridagen.se/	Industry Day is dedicated to how we create even stronger collaboration between universities and education, regions and industry for competitiveness.
Internetdagarna	https://internetdagarna.se/english/	The Internet Days is Sweden's most important knowledge hub for everyone who loves the Internet. The conference is organized by The Swedish Internet Foundation.
Åre Business Forum	https://arebusinessforum.se/english/	The event program consists of a mix of winter sports, business and investments, inspirational talks and panel discussions, mingle, dining and special events.
Innovation Week X	https://innovationweekx.se/?lang=en	Event with different perspectives on innovation. Meet innovation actors, discover good examples, and contribute to raising our innovation power.
Elmia Subcontractor	https://www.elmia.se/subcontractor/	Northern Europe's leading subcontractor fair
Automation Summit	https://www.automationsummit.se/	Take on future perspectives and possibilities for the industry.
TOOLKITS / TOOLS		

IDG	https://www.idg.se/2.38960/allt-om-digitalisering	Stories and news related to digitalisation
Breakit	https://www.breakit.se/	Stories and news related to digitalisation
Be Digital	https://be-digital.se/	Here we gather inspiration, a digitisation guide with a quick test and the opportunity to match your needs with possible companies that can help you in your digitisation journey.
Dig Journey	https://digjourney.com/	Help you get more commitment, speed, and exchange on your digital transformation.
Ignite Sweden	https://ignitesweden.org/	Ignite have two missions - Increase commercial collaboration between start-ups and corporates. Learn and share best practises about start-up + corporate collaboration.
Work force competence	https://www.kompetens.nu/	Site that collect and group various on-line offerings for education that re-skill and up-skill competence.

TABLE 4. APPENDIX FOR DIGINNO TOOLKIT / ESTONIA

Below are some examples of innovation companies, events etc. that aim to help especially startups and SME's in their digitalization and may be of use especially if thinking of entering Estonia as a market or as a place for operations (sales, R&D, manufacturing, services, etc.).

ORGANIZATION/COMPANY	WEBSITE	DESCRIPTION
ENTERING / INVESTING IN Estonia		
Trade with Estonia	https://tradewithestonia.com/	business info
Invest in Estonia	https://investinestonia.com/	investing in Estonia
Work in Estonia	https://www.workinestonia.com/	guide to finding a job in Estonia, relocating and settling in
Brand Estonia	https://brand.estonia.ee/	tools to introduce Estonia in an inspiring way
Invest in Estonia toolkit **e-Estonia toolkit**	https://investinestonia.com/toolkit/ https://e-estonia.com/e-estonia-toolkit/	materials, which are intended to serve the needs of anyone, whose job it is to present and promote the investment

		opportunities in Estonia
Republic of Estonia e-Recidency	https://e-resident.gov.ee/	enables digital entrepreneurs to start and manage an EU-based company online
e-Estonia Briefing Centre	https://e-estonia.com/	guides through all the stages of digitalisation and offers services that can be tailored to your needs, both in-person and online
Startup Estonia	https://startupestonia.ee/en	governmental initiative aimed to supercharge the Estonian startup ecosystem in order to be the birthplace of many more startup success stories to come
Study in Estonia	https://estonia.dreamapply.com/en_GB/	gathers study opportunities in Estonia
Artificial Intelligence for Estonia	https://en.kratid.ee/	Estonia's national AI strategy
INNOVATION AGENCIES / PLATFORMS / COMPANIES		
Enterprise Estonia	https://www.eas.ee/?lang=en	national foundation that aims to develop Estonian economy through developing Estonian enterprises and boosting export capacity, bringing high value-added foreign investments to Estonia and increasing tourism revenue
Estonian Research Council	https://www.etag.ee/en/	supports research and innovation in Estonia
Tehnopol	https://www.tehnopol.ee/en/	a science and business campus for innovative tech companies

Mektory	https://www.taltech.ee/en/mektory	innovation and business center
Tartu Science Park	https://teaduspark.ee/en/	Supports buusiness innovation and networking activities by working closely toether with universtities, public and provate sector
SPARK Demo	http://sparkdemo.ee/	business support structure for entrepreneurship
The University of Tartu Delta Centre	https://delta.ut.ee/en/	brings together a vibrant community of students, researchers and innovators in the fields of computer science, robotics, technology, mathematics, statistics, economics, management and business
Center of Food and Fermentation Technologies	https://tftak.eu/en/	an R&D company based on extensive use of modern analytical methods, systems biology and synthetic biology principles, aiming at development and introduction of innovative food and fermentation technologies
Competence Centre on Health Technologies	https://ccht.ee/home/	a biotechnology company focused on research and product development in personal medicine, drug development and both human and veterinary reproductive medicine
Eliko	https://www.eliko.ee/	embedded electronics and software company

BioCC	https://biocc.eu/	competence centre for the development of functional food, food supplements and feed additives and released internationally recognized products in these sectors.
IMECC	https://www.imecc.ee/	provides high-tech solutions and engineering support to strengthen the position of the Estonian manufacturing industry both domestically and internationally
STACC	https://www.stacc.ee/en/	machine learning and data science company that develops artificial intelligence solutions
Estonian digital construction cluster	https://estoniandcc.com/	brings together Estonian export-oriented companies and universities that offer innovative knowledge-based construction solutions for the entire construction life cycle
Estonian ICT cluster	https://e-estoniax.com/	Estonian ICT companies collaboration platform gathering the best practices of e-estonia.
INNOVATION EVENTS		
Industry Hack	https://www.eas.ee/toostushakk/	In Estonian. A programme of a three-day hacker-format events where representatives of industry and IT companies, with the help of mentors, can

		intensively develop digital and automated solutions to the challenges identified in the industry.
Digitization master class	https://www.eas.ee/digimk/ (will open soon)	3-month programmes, which help identify business processes where digitization has the greatest impact on business competitiveness. As a result of the programme, a plan for the digitization of the most critical process is drawn up with the help of top trainers and a personal mentor, the most suitable digital solution is selected and the first steps are taken to implement it.
iAcademy	https://eik.ut.ee/ut-iacademy/	In Estonian. The aim is to initiate innovation through an innovative passion-based learning culture. The emphasis is on collaboration - study sessions seek solutions to the real challenges of companies in joint teams of company representatives, researchers and students.
Partnership programme	https://eik.ut.ee/ettevottele/partnerlusprogramm/	In Estonian. A collaboration platform for companies and university

Enterprise Development Programme	https://www.eas.ee/teenus/enterprise-development-programme-2-2-2/?lang=en	aims to support well-thought-out development, improved action planning, innovation implementation and product development. In the course of the development programme, each participating enterprise will launch new products and services that are more profitable than their predecessors
SEB Growth Programme	https://www.seb.ee/ariklient/kasvuprogramm	In Estonian. Helps ambitious companies to find new growth models and develop significantly faster than the general rhythm of the market. Whether the challenge is the digitalisation of products and services, the expansion into new markets or another direction that brings growth to the company.
TOOLKITS / TOOLS		
Enterprise Estonia	https://www.eas.ee/tarktoostus	In Estonian. Events, services, stories and news related to digitalization
Industry Estonia	https://www.industryestonia.com/page/homepage	database to find a suitable supplier
Tallinn University of Technology, University of Helsinki, Reaktor	https://course.elementsofai.com/ee/	elements of AI online course
Tallinn University of Technology	https://www.taltech.ee/en/labs-and-services-school-engineering	provides testing labs and expertise to help solve product development problems and

		generate new smart ideas
University of Tartu	https://eik.ut.ee/teadlasele/teenuste-osutamine/	In Estonian. Provides testing labs and expertise to help solve product development problems and generate new smart ideas
ADAPTER	https://adapter.ee/en/	a free service created by the Estonian research and development (R&D) community, to offer simple access to the best of Estonian R&D for all companies and organizations
DIGINNO	https://www.diginnotool.eu/kodu	free-of-charge self-assessment tool for industry companies

TABLE 5. APPENDIX FOR DIGINNO TOOLKIT / LATVIA

Below are some examples of innovation companies, events etc. that aim to help especially startups and SME's in their digitalization and may be of use especially if thinking of entering 'Latvia as a market or as a place for operations (sales, R&D, manufacturing, services, etc.).

ORGANIZATION/COMPANY	WEBSITE	DESCRIPTION
ENTERING / INVESTING IN LATVIA		
Investment and Development Agency of Latvia (LIAA)	https://www.liaa.gov.lv/en	Works to increase export and competitiveness of Latvian companies, facilitate foreign investment and implement tourism development and innovation policies.

Latvian Chamber of Commerce and Industry (LCCI)	https://www.chamber.lv/en	The biggest association of entrepreneurs in Latvia uniting 6000 members. Association represents interests of entrepreneurs, as well as provides services, so that Latvia has excellent enterprises in an excellent business environment. Main sectors of its activities are business environment, competitiveness of enterprises, export.
Latvian Employers Confederation (LDDK)	https://lddk.lv/en/	Mission is to protect and represent the interests of the Confederation's members according to the Law on Employers Organizations and Their Associations. The Confederation represents economic, social interests of employers in relations with government institutions and trade unions.

APPENDIX II - RECOMMENDATIONS OF OTHER DIGITAL READINESS ASSESSMENT TOOLS

As indicated in Section 3 there is a number of other tools of value for SMEs in evaluating their digital transformation process. These tools are of relevance because, as mentioned in Section 3, the evaluation of the digital transformation process is an ongoing process. As long as there are new digital solutions that will provide value to the processes and tasks within the SMEs, their contribution to enabling the competitive advantage has to be evaluated. In table 6 some digital assessment tools are recommended. Technology developers and knowledge institutions develop these digital assessment tools. The technology developers include: CISCO, Oracle, Dell, and Ark group. The Knowledge institutions include Hitachi consulting, PriceWaterhouseCoopers (PWC) and Digital Readiness level (DRL).

The tools developed by these companies and knowledge institutions are mostly generic except for the one developed by DELL. The tool developed by Hitachi is broad and very comprehensive. It enables the head of the SME to evaluate not just the level of digital transformation but the impact of the transformation on customer acquisition, partnerships, organizational culture and the economic value derived from the digital transformation process.

The focus of the CISCO tool is on the internal technical aspects of the digital transformation process. It provides an in-depth analysis and insight into the level of digital readiness. The ORACLE tool focuses on the internal and external technical aspects of the digital transformation process. It evaluates not only the implementation of digital solutions, but also how the SME adopts external solutions (such as cloud solutions) for its production and operational processes. The DELL tool is also focused on the technical aspects, but specifically on the use of automation technologies, IT self-service, Infrastructure technology and DevOPs. It is not advisable for an SME to use the DELL tool if they are not working with any of these technologies.

The DRL tool, the PWC and the Arrk group tool focuses on the organizational readiness either towards adopting or in the adoption digital technologies.

These tools can be used simultaneously to evaluate different aspects of digital readiness. They are equipped with evaluation metrics that will help the SME judge their performance. They are also equipped with recommendations that will provide useful tips on how to improve. The recommended toolkits are presented in table 6.

TABLE 6. DIGITAL READINESS ASSESSMENT TOOLS TO RECOMMEND

No.	Tool name	Developer	Web address	Additional criteria	Results presentation with score calculations	Recommendations	Comments
1	**Digital Readiness Assessment Survey**	Hitachi Consulting	https://www.research.net/r/5HNGHYY	Digital transformation Digital impact Digital Value Proposition Digital leadership Digital strategy Digital customer insights Digital aptitude Innovative culture Innovative partnerships Digital operations Digital operational insights Digital service delivery Disruptive technologies Analytics application	Yes	No	Are you digitally ready for the IoT era? Hitachi's perspective on your organization's digital readiness.
2	**Digital Readiness Index Rapid Assessment**	CISCO	https://www.cisco.com/c/m/en_us/solutions/data-center/offers/Digital-Readiness-Assessment/index.html	Foundational infrastructure Virtualization technology Automation and orchestration Self-service IT capabilities Service standardization IT financial practices Cloud capabilities and strategy Applications and data environments Security policy and practices IT operations and skill sets	Yes	No	Digital readiness score represents how well your IT organization will be able to adapt to changes and take advantage of new opportunities in the age of digital business.
3	**DRL-Tool Assessment**	DRL	**The "Coffee Break" Questionnaire -** https://drl-tool.org/coffee-break **Full Questionnaire** - https://drl-tool.org/full-questionnaire	Leadership - Overall Vision; Culture For Innovation Technology - Technology; Processes; Systems; Creating External Networks Value - Skills; Workforce Performance; Optimised Operations; Optimised External Networks	Yes	Yes	The "Coffee Break" Questionnaire - give the participant a high-level overview of where the company stands in terms of digital, so as to identify initial areas of weakness and strength. Full questionnaire - provide a complete analysis of digital readiness of your company.

4	**The ORACLE Digital Transformation Assessment**	ORACLE	https://www.oracle.com/webfolder/s/digital-transformation-assessment/index.html	Cloud Uptake Cloud Goals Data Analytics Mobility Internet of Things Social Media Talent Agility IT Budget Breakdown Business Model Leadership	Yes	No	Where is your company on the path to digital transformation?
5	**IT TRANSFORMATION MATURITY SELF-ASSESSMENT**	DELL Technologies	https://www.axesssystems.co.uk/dell-emc-it-transformation-self-assessment/?zPage=Questions-1d4b6060	IT automation IT Self-Service Infrastructure Technology DevOps Adoption	Yes	Yes	Where you stand today and why it matters? Top suggested areas for IT Transformation improvement.
6	**Digital Maturity Assessment**	Arrk Group	https://www.arrkgroup.com/resources/thought-leadership/digital-maturity-assessment/	Leadership & Strategy Execution & Delivery Customer Experience Organisation & Culture Technology & Platform	Yes	Yes	By taking our Digital Maturity Assessment, we'll place you in one of five stages of digital transformation and will provide you with a personal report, including recommendations of how to move on to the next step.
7	**Industry 4.0 - Enabling Digital Operations Self-Assessment**	PwC	https://i40-self-assessment.pwc.de/i40/landing/	Business Models, Product & Service Portfolio Market & Customer Access Value Chains & Processes IT Architecture Compliance, Legal, Risk, Security & Tax Organization & Culture	Yes	Yes	To help companies understand where they currently are on their digital journey and which next steps are sensible in respect to their current situation and the industry they are operating in. The maturity model serves as a basis for the Self-Assessment.