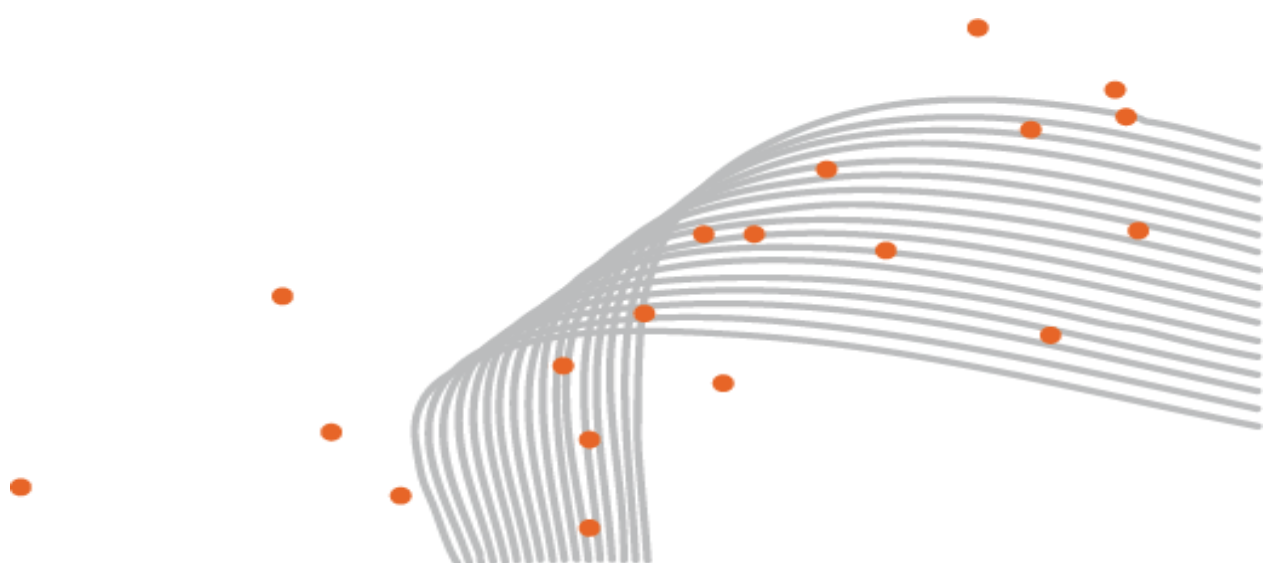


DINNOCAP

Digital Innovation Capacity Building

DIGITAL TRANSFORMATION INSTRUMENTS



DINNOCAP DIGITAL TRANSFORMATION INSTRUMENTS.

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DINNOCAP: FINAL PROJECT REPORT

Disclaimer: This report is delivered by the DINNOCAP project, an EU Interreg BSR financed project. The information presented in this study does not represent the views of either the EU commission or EU Interreg BSR. The contents of the report are extracted and analyzed from output reports produced in the DINNOCAP project.

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EXECUTIVE SUMMARY

The Digital Innovation Capacity Building (DINNOCAP) project is an EU Interreg BSR funded project. Its duration was one year (2021). It is an extension of the Digital Innovation Network (DIGINNO) project (2017-2020). The aim of the project was to use the tools developed in the DIGINNO project to develop the capacity needed by SMEs to increase their ICT uptake in their digital transformation journey. The project brings together public authorities, industry associations, SMEs, knowledge institutions and academic institutions around this shared aim.

The Digital Transformation Instrument is the overall output of the project. It consolidates project outputs into practical instruments that policy makers, Industry associations, SMEs, consultants, and platforms (such as the Digital Innovation Hubs) can use to support the digital transformation of SMEs. The Digital Transformation Instrument compliments project outputs as well as references the various project outputs. Therefore, it is important that users of this Digital Transformation Instrument also consult the referenced outputs in the project to also learn about the other dimensions to the tools that are not presented in this report.

As an SME, the Digital Transformation Instrument provides you with a concrete list of actions or a checklist of how to attract a competent workforce, access finance needed to fund your digital transformation journey, and possibilities for synergy towards developing the infrastructure you need in developing your digital transformation journey. You will also learn how to convert knowledge gathered from external sources to create either product, service, or process value in your digital transformation journey. You will also learn how you can use suggestions from one of the project reports to access and attract relevant external knowledge needed in your digital transformation journey. You will also learn about how to use the DIGINNO toolkit to evaluate the digital maturity of your organisation.

As an industry association, a consultant, or a platform, the Digital Transformation Instrument provides you with practical inspiration from the project on how to embark on awareness creation initiatives for SMEs. You will learn about what to consider before you create awareness activities, what you need to

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attract SMEs to these activities, and how to ensure that they have the knowledge they need. You will also learn about how you can use DIGINNO toolkits to troubleshoot challenges encountered by SMEs in their digital transformation process. This enables you to know what solutions to offer to the SME and it enables you to understand the needs of the SME, thereby developing awareness creation activities around that need.

As a policymaker, the Digital Transformation Instrument provides you with a list of actions consisting of actions SMEs require in the present to support their digital transformation initiative. The toolkit is also valuable for policymakers because it helps policymakers to assess and evaluate trends related to the digital maturity of SMEs. This helps policymakers understand where to direct policy measures to help SMEs. Finally, the development of e-Services to support the development of SME infrastructure is an inspiration to policymakers on how to support SME digitization.

This Digital Transformation Instrument supports capacity-building initiatives in SMEs. It is a valuable resource for SMEs of different sizes and for SMEs at different stages in their digital transformation process.

INTRODUCTION

This report is a consolidation of the main outputs of the DINNOCAP project. The aim of the DINNOCAP project was to implement tools, solutions and recommendations produced in the DIGINNO project with the aim of building the capacity of SMEs. The DIGINNO (Digital Innovations Network)¹ project was an EU Interreg project running from 2017 to 2021. The project consisted of 14 partners from the Nordic and Baltic Sea region countries namely, Estonia, Latvia, Lithuania, Poland, Norway, Denmark, Finland, and Sweden. The partnership consisted of 5 public authorities, 3 knowledge institutions, 5 industry associations and 1 academic partner. DINNOCAP is a one-year extension of the DIGINNO project. DINNOCAP consist of 10 partners from Estonia, Latvia, Lithuania, Norway, Poland, Kaliningrad (Russia) and Denmark. The partnership consists of 2 public authorities, 6 industry associations, 1 knowledge institution, and 1 academic partner.

The SME-centric resources developed in the DIGINNO projects were an online maturity toolkit², a digital transformation toolkit, a business needs assessment, and a policy white paper. The Online maturity toolkit is an online survey designed for SMEs to evaluate their company's digital maturity. SMEs at the early stage of their digital transformation journey need to evaluate their digital maturity in the following areas: financial data management, human resources management, resource management, Customer Relationships Management, digitization of processes, digitalization in production, and security policies and practice. The digital transformation toolkit provides practical guidance for the different areas. The Business Needs Analysis provides a state of the art on the challenges to SME digitization in the BSR. The policy white paper provides policy recommendations for SME digitization.

To support SME digitization, solutions that would enable SMEs to deliver their services digitally, both nationally and transnationally were considered. In DIGINNO, cross-border e-government services were developed to facilitate a digital single market in the BSR. One of them was the cross-border eCMR aimed at ensuring that SMEs in the transport sector can transport cargo accompanied by digital instead of paper waybills. The introduction of such an initiative, which is a public service initiative, opens the

¹ <https://www.diginnoobsr.eu/>

² <https://www.diginnotool.eu/>

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opportunity for SMEs to adopt and implement digital service delivery approaches, nationally and across borders.

In the DINNOCAP the toolkits, ideas from the Business Needs Assessment, the policy white paper and the e-services developed in DIGINNO were tested with SMEs, Industry associations and policymakers. SMEs had the opportunity to test and use toolkits developed in the DIGINNO project. They were able to see the value of these toolkits for their digital maturity evaluation. Challenges and proposals from the Business Needs Assessment and the DIGINNO policy white paper were discussed with SMEs and a list of actions developed. Awareness creation methods were also evaluated to identify best practices from SMEs and industry associations. An e-service (eCMR) was prototyped, and data exchanged in four countries to showcase how public e-service infrastructure could support SME digitisation. A governance framework for e-services was also developed.

Based on the outputs of these initiatives, the DINNOCAP project is sharing 4 instruments that will help SMEs develop the capacity needed for their digital transformation initiative. Instruments 1, 2 and 3 are directed at SMEs and industry associations. Instrument 4 and part of instrument 1 are directed at policy makers. These instruments are useful for practical information on awareness creation, access to knowledge, access to infrastructure, SME financing, digital transformation evaluation and policy making (for public authorities). The report has been divided into five sections. The section after the introduction outlines how the Digital Transformation Instrument is designed and the expected content in each instrument. The next set of sections are the instruments developed in the DINNOCAP project for the capacity building of SMEs.

DESIGN OF THE DIGITAL TRANSFORMATION INSTRUMENTS

The Digital Transformation Instrument consists of policy instruments, awareness creation tools for knowledge capacity, how-to-approaches on how the DIGINNO digital maturity recommender toolkits can be used by SMEs to evaluate their digital maturity, and a collaborative framework for developing e-services that will enhance digital service delivery for SMEs. The Digital Transformation Instrument is presented in chronological order based on the output sequence in DINNOCAP. The list of tools is from Outputs 2.1., 2.2., and 2.3. There are also inputs from output 3.2 targeted mainly at public authorities.

OUTPUT 2.1

This is the “list of action: transnational industry dialogue, action, and policy support”. It is outlined as lists of actions, one for public authorities and the other for SMEs, Industry associations and Knowledge Institutions. The list of actions is not a wish list, but rather a list of practical actions that SMEs and public authorities can implement based on their current operations and policy infrastructure. The DIGINNO output implemented are recommendations from the Business Needs Assessment, and policy white paper. In the business needs assessment, the following were identified as the major challenges to SME digitization namely, access to finance, digital awareness, access to workforce/know-how, and infrastructure challenges. Some of the policy proposals in the policy white-paper were “the collaboration between industry and educational institutions” to deal with access to the workforce; “Cross-border collaboration between different national Digital Innovation Hub access points” to deal with issues associated with a digital awareness, access to finance and infrastructure challenges. These issues formed the basis of engagement with SMEs from the BSR. The proposals and concrete list of actions from these discussions are presented in this report. The SMEs discussed these issues within the context of 5G, cybersecurity, and artificial intelligence. However, the proposals can also be implemented in other topical areas that indicate where SMEs operate.

OUTPUT 2.2

Output 2.2 is the “toolbox - practical learning points, awareness methods descriptions, and recommendations helping uptake of digitalization by SME ”. The aim of this output is twofold. The first is to provide practical ideas on how industry associations and knowledge institutions should approach the delivery of knowledge to SMEs in their awareness creation process. These tips are derived from insights, experiences/lessons and approaches adopted by DINNOCAP partners when disseminating the online maturity toolkit and the Digital transformation toolkit to SMEs. These tips are not carved in stone, but they are rather inspirations for more innovative approaches towards conducting awareness raising activities for SMEs. The second is to share practical tips with SMEs and knowledge institutions on how they can attract the knowledge they need and convert this knowledge to ideas that will further enhance their digital transformation process. Furthermore, SMEs will also learn about their potential to convert external knowledge into an internal knowledge to create further awareness about the technology and processes needed in their digital transformation process.

OUTPUT 2.3

Output 2.3 is the online maturity recommender tool evaluation report. The online SME maturity recommender tool was developed by the Latvian Information and Communications Technology (LIKTA), Latvia in collaboration with DIGINNO partners. The effectiveness of the tool as a means of developing the capacity of SMEs was tested in DINNOCAP and the results presented in the “multi-country report on Online SME Digital Maturity recommender tool findings and usability” developed by LIKTA.

In this document (Digital Transformation Instrument), the SME Online Digital Maturity tool is not presented as a report. Rather the reader is provided with reflections on the experience of DINNOCAP partners on, the effectiveness of the tool, who can use the tool, the usefulness of the tool to the intended target, and how the tool can be used for:

- By managers in SMEs, policymakers, industry associations, consultants, and platforms (EDIHs) to evaluate the maturity levels in the digital transformation process in SMEs,
- By policymakers to develop policies that will support the digital transformation initiatives in SMES,
- By industry association, consultants, and platforms (EDIHs) to create awareness and corrective actions in areas where SMEs are deficient in their digital transformation process.

The reflections are presented in a practical way so that managers in SMEs, policymakers, industry associations, consultants, and Platforms (such as the Digital Innovation Hubs) can use the proposed steps to build the capacities of SMEs for their digital transformation journey.

OUTPUT 3.2

Output 3.2 is a methodology to inspire a transnational governance framework for e-Services. It builds on the prototype of the eCMR e-service developed in the DINNOCAP project. The governance framework for the eCMR prototype, and additional e-services namely, KYC and eReceipt, produced in the project, can be accessed here³. The report is semi-technical and the important aspect of the report that is relevant and used in this report are practical steps on how public authorities can collaborate with SMEs in a transnational arrangement to develop infrastructure that will support SME service delivery. Hence output 3.2 is a practical part of the answer to the infrastructure challenges faced in DINNOCAP as mentioned in Output 2.1. Although this output enhances the infrastructure capacity of

³ https://www.dinnocapbsr.eu/_files/ugd/8cf6e6_3910ad5343da4e2799e025e48a6c54cc.pdf

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SMEs, the onus towards developing such infrastructure lies with the public sector. The SMEs interface their infrastructure with that of the public sector to deliver their services transnationally.

INSTRUMENT 1: OUTPUT 2.1

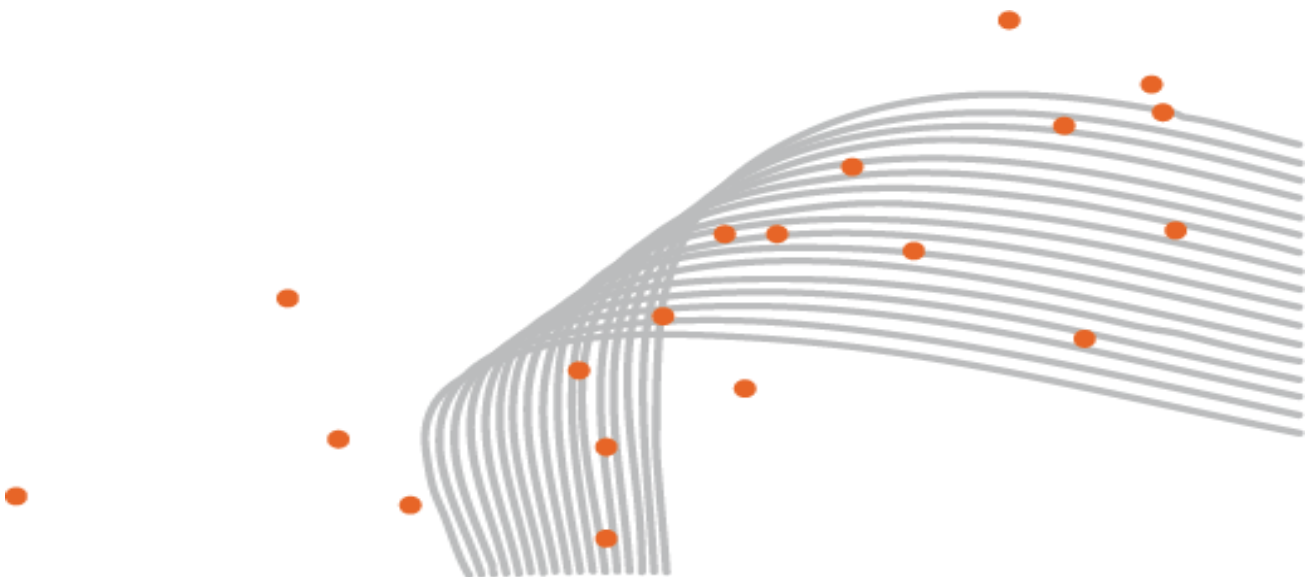
LIST OF ACTION: TRANSNATIONAL INDUSTRY DIALOGUE, ACTION, AND POLICY SUPPORT

1.0. PREAMBLE

This section of the Digital transformation instrument consists of proposals for SMEs, industry associations, knowledge institutions, and public agencies. These proposals are aimed at solving challenges associated with SME financing, access to competencies, know-how, infrastructure, and policy needs at the national and transnational (BSR) level. These are issues identified in the DIGINNO WP2 Business Needs Analysis and the SME digital awareness toolkit. These proposals were proposed by stakeholders in the DINNOCAP webinars for SMEs in the BSR.

In this section, SMEs, industry associations, and knowledge institutions can be inspired on how they can collaborate nationally and transnationally to access competence, knowledge how and financing for the digital transformation of SMEs. Public authorities can also identify policy gaps based on the policy proposals and identify how these challenges can be tackled.

The proposals presented are not an indication that there are no initiatives at the national level to solve these challenges. However, as identified in the DIGINNO project, these initiatives are inadequate. As digital transformation is not static but constantly evolving, so do the challenges associated with SME financing, access to competencies, know-how, infrastructure, and policy needs. This is a learning point in the DINNOCAP project. Hence industry associations, SMEs, Knowledge institutions, and SMEs that were part of the DINNOCAP project focused on what they could learn from one another in the BSR. These learnings are presented as proposals and action points that would serve as input to current initiatives going on in each BSR member state. In this section, a brief background on the seminars, the proposals, and emerging list of actions are presented.



1.1. BACKGROUND

The DIGINNO project identified the fields of financing, access to competence, know-how, and infrastructure needs as presenting important challenges for the development of cross-border operations by SMEs. The seminars held by DINNOCAP on financing, cyber security, 5G developments, and Artificial Intelligence have provided a focus for further specification of how to approach these prioritised fields. The seminar on financing deepened the knowledge and broadened the discussion on what the financing issues are and what initiatives can be taken. Access to competence and know-how has been dealt with in the seminars on cyber security, 5G, and Artificial Intelligence, and infrastructure needs were especially emphasised in the seminar on 5G.

Overall, the 4 seminars have been concerned with the specificities of the conditions under which SMEs operate in the Baltic Sea Area, the cross-border aspects, and the interaction between initiatives to be taken by companies and their associations and recommended policy initiatives. In relation to the company level, awareness-raising has been an ongoing theme of the seminars. Many SMEs are preoccupied with conducting their daily business and implementing new ICT solutions is not among the top priorities – even if companies know that new technology-based possibilities are on their way. This applies to cyber security as well as the use of 5G potentials and Artificial Intelligence. It also applies to financing in the sense that a greater awareness of financing possibilities can be beneficial for companies. The policy dimension is also present in all 4 seminar topics, but is more emphasised in relation to financing, though it is also part of cyber security, 5G and Artificial Intelligence and in general to competence access.

The SME dimension runs through all 4 seminar topics as is also the case with respect to the Baltic Sea dimension and the cross-border dimension. However, while the SME dimension has been on the top of the agenda for all topical seminars, the possible specificities relating to the Baltic Sea and the cross-border dimensions have been most underlined in the financing seminar.

1.2. PROPOSALS

In the following table, the relationships between the topics of the seminars, the overall dimensions of the DINNOCAP project, the prioritised field of interest of the DINNOCAP project, and selected proposals for action points are shown.

TABLE:1 OVERVIEW OF THE STAKEHOLDER SEMINARS

Seminar topic	Prioritised fields	Main dimensions	Selected proposals
Financing	<ul style="list-style-type: none"> ● Financing ● Access to competence 	<ul style="list-style-type: none"> ● SME ● Baltic Sea Area ● Cross-border ● Policy 	<ul style="list-style-type: none"> ● Funding schemes coordinated across borders should be given higher priority ● Legislative and transnational policies should be more coherent ● Business associations should upgrade their advice to companies regarding financing possibilities
Cyber security	<ul style="list-style-type: none"> ● Access to competence ● Know-how ● Financing 	<ul style="list-style-type: none"> ● SME ● Cross-border ● Policy 	<ul style="list-style-type: none"> ● Awareness raising initiatives including best practice ● Encourage cross-border collaboration ● Clearly explained policy for cyber security ● Increase public investment in cyber security ● Competence development
5G	<ul style="list-style-type: none"> ● Access to competence ● Know-how ● Infrastructure 	<ul style="list-style-type: none"> ● SME ● Policy 	<ul style="list-style-type: none"> ● Raising awareness about the potentials for SMEs to participate in 5G based ecosystems ● Telling the good stories (use cases) ● Facilitate cross-border test beds covering BSR countries
Artificial Intelligence	<ul style="list-style-type: none"> ● Access to competence ● Know-how 	<ul style="list-style-type: none"> ● SME ● Policy 	<ul style="list-style-type: none"> ● Awareness raising from industry organisations and public organisations. ● Research and education on organisational implications and competence profiles of employees must be encouraged ● Integration of STEM and SSH competences is needed

			<ul style="list-style-type: none"> ● Awareness raising regarding ethical issues and how to overcome such issues.
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In many contexts and discussions on SME developments, the size of the resource base of SMEs is seen as a problem. Discussions during the topical seminars have, indeed, illustrated that SMEs have a range of problems associated with size regarding financing and the possibilities for thinking beyond the daily business practice. However, SMEs can also be more agile than large companies, and the seminars have pointed to the potential in agility, provided that policy frameworks, financing mechanisms, and awareness-raising initiatives are developed in such a manner that SMEs and their associations can utilise the potentials in ICT implementation and use, including cyber security, 5G developments, and Artificial Intelligence.

Some of the countries with the world’s best conditions for starting up companies are in the Baltic Sea Area. Still, start-up companies and SMEs with a longer history are often struggling to develop and grow their businesses. It is in the interplay between the agility and flexibility of SMEs and the necessity of focusing on the daily business that initiatives are to be taken. This implies that broader framework setting initiatives – though important – are not sufficient. It is important with initiatives that SMEs can easily participate in and take advantage of in terms of awareness creating activities regarding the concrete potentials in using new technologies in Artificial Intelligence, 5G-based mobile solutions, and cyber security. It is also important with public-private initiatives in terms of building platforms for cooperation where ecosystems of companies can be formed in, for instance, developing 5G-based services. It is, furthermore, essential that improved financing possibilities are created in terms of public frameworks for better access to bank loans.

1.3. LIST OF ACTIONS FOR PUBLIC AUTHORITIES

- Emphasis should be on concrete initiatives that can play into the intersection between the agility of SMEs and their need for focusing on daily activities – this should include support to in-company specific forward-looking productivity-increasing activities and dissemination of these.
- Testbeds for developing technology potentials – specifically, e.g., for in-company use of 5G - and for building ecosystems of companies should be facilitated.
- Testbeds for cyber security should be developed in cross-border collaboration
- Public-private partnerships for providing such testbeds must be given priority

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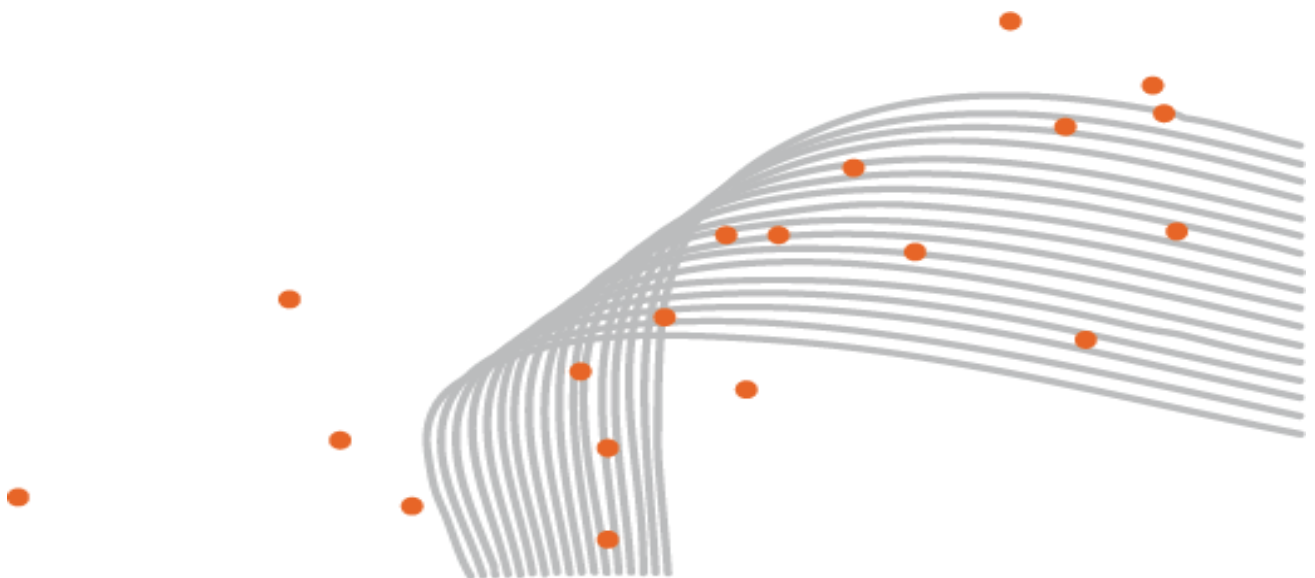
- Bottlenecks with respect to qualified labour should be identified and measures to accommodate these developed and coordinated as cross-border activities.
- The Baltic Sea Area constitutes a very good arena for such initiatives as start-up environments are generally favourable – cross-border activities should be facilitated.

1.4. LIST OF ACTIONS FOR SMEs, INDUSTRY ASSOCIATIONS, AND KNOWLEDGE INSTITUTIONS

- SMEs should collaborate more with Universities in the BSR for Joint ideation and development of products and services. There are such possibilities in Finland with Aalto University and In Denmark with AAU where SMEs provide ideas to student projects. This helps the student gain the competence of SMEs and SMEs access to the knowledge they need. These initiatives are at no cost.
- SMEs should take advantage of the Digital Innovation Hubs and clusters to gain awareness on how advanced technologies support their processes, build synergies with other SMEs in their production process and gain access to regional markets through European Digital Innovation hubs.
- SMEs should prioritise the employment of integrators who can enable them to map and integrate relevant digital technologies into their current or expected operations.
- Industry associations in each member state, in collaboration with industry in other member states should develop potential cross-border collaborations between SMEs. Such collaboration could be in the form of joint projects, joint awareness-raising schemes where SMEs from different countries can network, or joint non-EU funded innovation activities.
- SMEs must prioritise cyber security initiatives in their network to avoid data breaches or denial of service.
- SMEs must train their staff on data security initiatives that will prevent social engineering activities from malicious persons online.
- SMEs must ensure that their services are encrypted and that unauthorised persons do not access any aspect of a system they are not authorised to.

INSTRUMENT 2: OUTPUT 2.2

TOOLBOX - PRACTICAL LEARNING **POINTS, AWARENESS** CREATION METHODS DESCRIPTIONS,
AND RECOMMENDATIONS HELPING UPTAKE OF DIGITALIZATION BY **SMEs**



2.0. PREAMBLE

Although most organisations understand the value and impact of advanced digital technologies to them, they rarely adopt these technologies⁴. This is often due to a lack of capacity in terms of vision, human resources, financial resources, technical capacity, infrastructure, etc., towards the adoption of these technologies⁵.

In the DINNOCAP project, a two-prong approach was used to embark on awareness creation campaigns to identify ways by which SMEs can increase their ICT uptake. The first approach was via practical events and seminars for SMEs. The second approach was to evaluate awareness creation methods that are useful for the digital transformation of SMEs. The result of the reflection of both approaches provides industry associations with proposals on how to approach awareness creation activities and SMEs on how to approach awareness creation within their organisations respectively.

The purpose of creating awareness is to enable companies to start, maintain and eventually achieve a successful digital transformation journey. The digital transformation journey is not fixed but rather continuous but filled with points of transition due to technology disruption. Nevertheless, success in each phase of the digital transformation journey is critical for SMEs. Hence, they require awareness on,

- IT uptake (if they are starting afresh);
- IT uplift (if they are modernising existing IT);
- The digitization of operations;
- The digitization of marketing processes.
- The development, modification of business development strategies, etc;
- Compliance and regulation requirements etc.

The first approach is aimed at equipping industry associations and clusters with the tools to create digital awareness for SME. The approach documents lessons learned from the awareness creation process in DINNOCAP and provides tips that are aimed at inspiring awareness creation processes for

⁴ <https://knolskape.com/lack-of-digital-awareness-the-reason-why-organizations-fail/>

⁵ <https://www.oecd.org/g20/key-issues-for-digital-transformation-in-the-g20.pdf>

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SMEs. The tips are based on learnings from the DINNOCAP project and the experience of industry associations in DINNOCAP respectively. To make the proposals, DINNOCAP partners from 5 countries organised and co-organized webinars, seminars, and conferences to disseminate the Digital transformation tools developed in the DIGINNO project. As mentioned earlier, DINNOCAP is an extension of the DIGINNO project.

The second approach complements the first approach. Here are practical tips that are aimed at inspiring the SMEs' awareness creation process. In the second approach, the initial idea was to map best practices in awareness-raising used by different organisations in their digital transformation initiatives. This turned out to be a daunting challenge due to the fuzzy landscape in the digital transformation journey. Hence, "best practices" are not universal but relative to the case it is being applied to. Hence the approach within the project changed towards evaluating the challenges related to awareness-raising towards and within SMEs and to map examples of methods currently used by industry associations and SMEs. You can read the full report (here⁶). However, in this report, these methods are outlined as a way of providing inspiration for internal awareness creation activities.

The disclaimer though is that this section of the report covers a limited aspect pertaining to the increase in ICT uptake by SMEs. The aspects covered are related to awareness-raising. Awareness-raising in the digital transformation process occurs in two dimensions. The first dimension is being aware of the ICT and the value it has to production, product and service delivery, and customer management processes and tasks. The first dimension is external. The second dimension is an internal (change management and knowledge management) process aimed at the diffusion of the awareness and value of ICTs to the various parts of the organisation. The knowledge diffusion process could be either via a top-down or bottom-up process.

The focus on awareness is a result of the need identified in DIGINNO. In the DIGINNO project, a Business Needs Analysis (BNA) was conducted to find out the challenges experienced by SMEs in the Nordic and Baltic countries in their digital transformation process. 160 SMEs from Poland, Estonia, Latvia, Lithuania, Denmark, and Finland were interviewed. One of the outcomes was the lack of awareness of the relevant ICTs that either enable, support, or drive production and operational processes in their sector of operations. Hence in the DINNOCAP project, awareness-raising was

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https://8af01421-75e7-4184-b29c-9794b1117148.filesusr.com/ugd/8cf6e6_deade88e022d44df9153a2c61297450b.pdf

prioritised as one of the problems that need to be solved for SMEs to increase the uptake of ICT in their digital transformation process.

2.1. LEARNINGS FROM PRACTICAL EVENTS FOR SME'S IN THE DINNOCAP PROJECT

To practically find out the most efficient way clusters and industry associations could conduct awareness-raising for the digital transformation of SMEs, DINNOCAP partners hosted dissemination and practical events for SMEs. These events were carried out on a national basis. The aim of these events was to practically demonstrate how the digital transformation tools developed in DIGINNO would support the digital transformation process in SMEs. The tools were:

- An online digital maturity toolkit (see <https://www.diginnotool.eu/>). This is a tool used to evaluate a SMEs digital maturity.
- A digital transformation toolkit. This is a companion to the digital maturity tool that provides practical guidance on the reasons why operational areas in SMEs should be evaluated and why.
- The Business Needs Analysis, which highlights the business needs of SMEs in the digital transformation process and areas identified by SMEs as pain points in the digital transformation process.

DINNOCAP partners involved were four industry associations and one academic institution. The four industry associations were LINPRA (Lietuvos inžinerines pramonės asociacija) Lithuania, KeGEiT Poland, LIKTA (The Latvia ICT Association) Latvia and, ITL (English: The Estonian Association of Information Technology and Telecommunications; Estonian: Eesti Infotehnoloogia ja Telekommunikatsiooni Liit) Estonia. The academic institution was Aalborg University Denmark. The activity was coordinated by ITL Estonia.

16 events were carried out in these 5 countries, involving about 694 companies. Estonia hosted four events; Latvia hosted three events; Denmark hosted 2 events; Lithuania hosted three events and Poland hosted six events. Although the events were planned as physical events, most of the events occurred online due to the COVID-19 restrictions. Nevertheless, each partner conducted the seminars (mostly webinars). In Denmark and Lithuania, DINNOCAP partners co-hosted a conference each where there were DINNOCAP sessions.

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In this section of the report, the approach used in the awareness creation process, the lessons learned, and practical tips, based on reflections in the project on how to deal with these challenges are outlined.

2.1.1 THE AWARENESS CREATION APPROACHES USED BY DINNOCAP PARTNERS IN THE PROJECT

1. Round table discussions

The Polish partner adopted an online round table presentation and discussion format. The findings from the DIGINNO Business Needs Analysis provided the point of departure for conversation. The events targeted the manufacturing sector, specifically those embracing Industry 4.0. In this format, SMEs and industry associations were able to discuss what the DIGINNO outputs meant for legal regulations pertaining to taxpayers and entrepreneurs; the financing of innovation; cyber security of industrial networks; implementation of universal technology for Industry 4.0; and the green deal and industry4.0. In this format, different SME stakeholders (both those on the panel and those who are not on the panel) are able to make presentations as well as have the time to deliberate on their take to the presentation from different perspectives. The moderator in this case tries to gather insights on where the different stakeholders agree as well as disagree. Hence the use of the term round table here implies that there is room for participation by everyone involved. Poland had 6 of these webinars.

2. Contextual presentations of the tools in line with industry needs

Contextual presentation here implies targeting the awareness creation process to the context of interest to stakeholders. This is evident in the case of Poland as mentioned earlier. This was also the case in Denmark. The focus in Denmark was heavily tilted towards the presentation of the DIGINNO Business Needs Analysis and Digital transformation Toolkit from the cyber security perspective. This is because of the increasing focus on cybersecurity for SMEs in Denmark. However, a lesson from Denmark was the low interest in the digital transformation toolkit. This is because the Digital transformation toolkit serves as a roadmap for SMEs that have not embarked on the digital transformation process. But there was interest by SMEs in the challenges they face when it comes to cyber security in their digital transformation process. Lithuania also adopted a contextual presentation approach with a focus on Industry 4.0.

3. Hands-on practical sessions

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In Estonia and Latvia, the industry partners adopted a hands-on approach. In Latvia, LIKTA the Latvia ICT Association took a two-stepped approach. They first analysed and collected digital transformation tools developed in the DIGINNO project - e.g., best practices and case studies of SME digitalization; digitalization toolkit; best practices of awareness-raising campaigns for SME digital transformation; support instruments for SME digitalization. The tools have been promoted via the LIKTA website, social media, online seminars, and podcasts to attract SMEs. The second approach was by subcontracting external experts to guide SMEs on how they use the digital assessment toolkit, produced in DIGINNO, to evaluate their digital transformation process. In Estonia, the Estonian Association of Information Technology and Telecommunications (Estonian: Eesti Infotehnoloogia ja Telekommunikatsiooni Liit) organised 4 webinars. In each webinar, Speakers also used video presentations to increase usage of the materials and raise awareness regarding digitalization in a wider audience. The videos are still being used to promote ICT uptake. Every seminar had three parts:

- The contextual presentation on the value of AI, machine learning, and digital strategies to SMEs.
- The presentations were followed by practical examples from SMEs.
- Financial tools that would be of value to SMEs were also presented to SMEs.
- The DIGINNO toolkit was presented as a practical tool as the first step toward SME digitalization. Here participants were able to interact with the tools.

2.1.2. LEARNINGS FROM THE DINNOCAP AWARENESS RAISING EXPERIENCE

Lesson 1: Attracting SME interest in the awareness creation process requires innovative thinking.

SME interest in the DIGINNO tools varied in each country. These variances are not national variances but rather a variance between the SMEs in the industry associations represented in this activity in the DINNOCAP project.

It is often wrong to assume that despite the usefulness of ICTs in society, SMEs would naturally become interested in digitising their processes. Although that is true for SMEs in the IT sector and for those that are large enough to compete globally, it is not true for SMEs that are either artisans or operate a company culture where there is either lack of competence or no visible need for ICTs. In developing the Business Needs Analysis for the DIGINNO project, some respondents to the survey could either not see

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the need for ICTs in their operations or perceived the introduction of ICT to be expensive. As a result, their level of interest in digitising their business was low.

It is also wrong to assume that companies that currently use ICT in their operations are interested in adopting new technologies. This is because companies that deploy ICT infrastructure must recoup the cost of investment into these ICT infrastructures. Oftentimes, for some SMEs, the adoption of ICTs does not often result in an increase in sales. Sometimes there is a dip before there is an increase. The dip could be either because the demography of the SME clients is either not technology literate or the SME has to retrain their staff to implement, or it could be the cost associated with the implementation of change management processes aimed at the deployment and use of the ICT within the SME. These are costs among others that could result in the high cost of introducing an ICT into the SME. If the SME does not recoup this cost, then their interest in implementing an advanced ICT will be low from a risk management perspective.

It is also wrong to assume that all SMEs, currently undergoing digital transformation processes, are interested in just any topic on digital transformation. As some SMEs begin to incorporate digital strategies into their business process, there are areas in their operations where they view them as more important than other areas. For example, in one SME, their interest may be in improving sales, in other SMEs, their interest may be in achieving efficient production processes, while other SMEs may place more emphasis on their product life cycle management process, etc. These strategic interests imply that the areas where such SMEs will prioritise receiving awareness are in their area of strategic need. Hence their interest in generic awareness of digital transformation processes that are not part of their strategic focus will be low.

In the DINNOCAP project, although the idea was to have practical hands-on events, this occurred only in Latvia and Estonia. This is because some SMEs within the umbrella of the industry association are at the early stage of the digital transformation process. Hence the interest was high for the outputs produced in DIGINNO and disseminated in DINNOCAP. Whereas in other countries, where the SMEs in the industry associations had gone beyond the early process, the industry associations had to adapt how the outputs were presented to SMEs to attract the interest of SMEs within their cluster. The academic institution had to learn this lesson the hard way. The reasons for the minor deviation as the variance in the level of interest as to what was to be presented. Hence project partners had to be innovative in crafting the content as well as the format of delivery.

Lesson 2: SMEs should identify the economic and operational value of the awareness creation activity.

This lesson is derived from some of the discussions provided by SMEs to discussions in the webinars. SMEs who attended the webinars were interested in the following:

- Evaluating how the toolkits fit into their operational structure;
- Conceptualising which advanced solutions proposed in the Business Needs Analysis would be of operational value to them;
- Conceptualising which aspects of their services require digitization vis-a-vis their current resources, regulatory environment and customer behaviour;
- Conceptualising how the resources provided in the project will grant them a competitive advantage in their markets.

These lines of thought provided an insight into the mindset of SMEs attending the different events. SMEs took into consideration the macro and microeconomic factors that affected their operations as well as how the presentations from DINNOCAP matched their current operational set-up. This formed the basis of interaction. The lesson here is that SMEs are more likely to embrace awareness creation activities from industry associations and clusters if it serves their strategic operational interest.

Lesson 3: The feasibility of appropriating lessons for the awareness creation exercise is more important than the knowledge being disseminated.

This lesson is an extension of lesson two. In the business world time is money. It is interesting for an industry association to foresee that AI, or robotics, for example, are technologies that will deliver value to SMEs. Owners of SMEs and decision-makers in SMEs may also have the same feeling. However, when they engage with other stakeholders in awareness creation events, oftentimes they do not do so with the aim of gaining knowledge to change their existing structures. They do so to gain knowledge to improve upon existing structures. So aside from the value proposition, they think about the technical feasibility, operational feasibility, legal feasibility, and the economic feasibility of embarking on the digital transformation exercise. Hence most SMEs, due to constraints in resources, think from this perspective. Hence there is the need for clustering of the SME audience based on where they are in their digital transformation experience.

An approach to the clustering could be:

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- SMEs that are yet to embark on a digital transformation process. These are SMEs that use no ICT in their operational processes and ICT plays no role in their business strategy.
- SMEs that are in the early stage of their digital transformation process. These are SMEs that use ICT in limited aspects of their operational process, but ICT plays no role in their business strategy.
- SMEs that are at the median stage of their digital transformation process. These are SMEs that use ICT in most aspects of their operational process and ICT plays a partial role in their business strategy.
- SMEs that are advanced in their digital transformation process. These are SMEs that ICT in all aspects of their operational processes and ICT plays a central role in their digital strategies.

Such clustering enables the industry association and/or cluster to scope the content and the awareness process based on feasibility studies on each cluster of SMEs. It also enables the industry association to adopt an appropriate awareness creation method that will expose the feasibility of the knowledge being presented. For example, if the purpose for awareness creation is access to the workforce, a seminar or a workshop approach would do. However, if the purpose is to introduce IoT or AI and its value to SMEs, a one-day workshop may not be enough. A modularized content delivery approach may be helpful. The modularized content could be part of a project or course for which relevant employees of the SME can attend. But in order to understand how to scope such courses, it is important for the developer of the course to understand the current operational processes in the SMEs and create a knowledge pathway that enables them to transition gradually towards the adoption of the new knowledge or way of doing things being presented by the industry association. This might result in an expansion of the staffing capacity in industry associations to accommodate specialised knowledge experts or consultants.

2.1.3 PRACTICAL TIPS FOR CREATING AWARENESS FOR SMEs BY INDUSTRY ASSOCIATIONS AND CLUSTERS BASED ON THE DINNOCAP EXPERIENCE

Things to note:

- The technical, operational, and processes necessary for the digital transformation of SMEs evolve at a faster rate than most SMEs can keep up. There must be caution on not overwhelming SMEs with

too many demands, but rather guiding SMEs towards knowledge areas where they will achieve return-of-investment.

- Inculcating the digital transformation mindset of the organisational culture should serve as the aim of an awareness creation process. When SMEs can inculcate the digital transformation mindset in their organisational culture then they are able to embark on their digital transformation journey. This is where they will need help from industry associations on how to navigate the process.
- In continuation of the previous point, inculcating cybersecurity consciousness in SMEs is also vital in the awareness creation process. This is because cyber security consciousness poses a high risk to the digital transformation process in SMEs. Such awareness creation activities should not be limited to vulnerabilities in the technical infrastructure but also to possible social and organisational vulnerabilities that may serve as an open door to a breach in the SME's cyber-physical system.
- SMEs with no digital transformation process are open to a broad scope of knowledge that will help them make a choice on how to start the process. However, SMEs that are either midway or fully on the digital transformation journey will look out for specialised knowledge.
- The industry association needs to be one step ahead of the SME in packaging knowledge and dissemination of knowledge that will be necessary for SMEs in their digital transformation journey. Such knowledge should take into consideration technology disruptions which are now more rapid than previously.
- The guidance granted to SMEs in their digital transformation process should rely more on specifics rather than the generic. The generic is great when a new technology emerges, but not all technologies are of value to some SMEs. hence the specifics matter.

2.1.4 PRACTICAL APPROACHES TO AWARENESS-RAISING BY INDUSTRY ASSOCIATIONS AS PROPOSED BY DINNOCAP.

These are practical tips that are currently used by Industry associations as well as those proposed by DINNOCAP (mostly from DIGINNO).

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- Top-down approach: This is an approach where the knowledge flow is from the industry organisation or industry cluster to SMEs. This can be in the form of seminars, webinars, courses, forums, etc. This was used primarily in the DINNOCAP project. It is also an approach commonly used by industry associations.
- Bottom-up approach: This is an approach where the knowledge flows from the SME to other SMEs and the industry association as well. This could be in the form of demonstrations, sharing of white paper publications developed by SMEs, Knowledge sharing forums, etc. This is also an approach commonly used by industry associations. This approach is also very useful for industry associations as they can use these cases and best practices in their top-down event for inspiring the others.
- Collaborative approach: This approach is mostly a hands-on approach towards creating awareness. This can be via:
 - Joint SME projects where partners collaborate to develop a solution where they have an interest. For example, an SME could be interested in the business process developed in the project, others could be interested in financial management, etc. At the EU level, Interreg projects serve this purpose. In some countries, industry associations such as MADE also utilise this approach. It is also an approach adopted in some clusters. The advantage of this approach is that SMEs can see the practical application of the areas of interest they have for ICT. They can evaluate the process, gauge the feasibility as well as gain inspiration on how they can utilise the processes in their operations. Some SMEs, depending on how they are positioned in such projects can integrate aspects of the developed project in their operations.
 - Demoboosters. This is an initiative from DIGINNO promoted in DINNOCAP. Demobooster is an SME collaborative platform developed and promoted by DIMECC OY of Finland - a co-creation ecosystem. They were quite instrumental in the awareness creation process in the DIGINNO project. In the Demobooster set-up, the industry association serves as the facilitator. SMEs pitch their digital product challenges to other SMEs and technology companies. The most successful pitch is selected and piloted in collaboration with the chosen SME. This approach enables SMEs to save Costs on Research and development. Demoboosters are a fast and efficient way, SMEs can collaborate and develop ideas within a short period of time. It is also a way for other SMEs to be inspired on how they can also use co-creation in their research and development activities. It is also another way SMEs can collaborate to learn from each other.

An important thing to note is that collaborative approaches require innovative financing schemes. This can be either via SME pay schemes (user pay schemes), joint financing via EU projects, such as EU Interreg financing, Horizon Europe, and European Social funds+ to name a few. Funding can also be from platform providers who have an interest in their platforms being used etc. The possibilities are limitless, but it will require some thinking.

The third first and second approaches are most appropriate for awareness creation pertaining to IT Uptake, IT uplift, compliance, and regulations. The third approach is most appropriate for IT uplift, digitising operations, and digital marketing. These approaches can be combined to create innovative and hybrid approaches. This of course depends on the nature of information being presented to SMEs.

SUMMARY

The takeaway from this approach are as follows:

- Targeted awareness creation activities are more effective than generic awareness creation activities.
- The awareness creation method must be able to reveal the feasibility of what is being presented to the SMEs' operational environment.
- Innovative appropriation of two or more approaches can be helpful.

2.2 PRACTICAL TOOLS FOR AWARENESS-RAISING BY THE SME

In DINNOCAP, RISE Research Institutes of Sweden, a knowledge institution, produced a report titled "Increasing SME awareness of digitalization - Challenges and methods"⁷, as mentioned earlier. These methods were collected by RISE via interviews with industry associations, knowledge institutions, and academic institutions from Estonia, Lithuania, Finland, and Norway. The interviewed organisations are:

- Enterprise Estonia
- Tallinn Science Park Technopol, Estonia

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- BDA Estonia
- Estonian Association of Information Technology and Telecommunications (ITL), Estonia
- Lithuanian Innovation Centre
- University of Tartu, Estonia
- Kaunas University, Lithuania
- TalTech, Estonia
- Mita, Lithuania
- DIMECC , Finland
- Digital Norway.

In the report, the following awareness creation methods were identified.

- Use-cases, benchmarks & best practices to inspire firms to digitalize.
- Needs spotting (multiple approaches) to create awareness of digitalization opportunities.
- Innovation audits to create awareness about digitalization opportunities.
- Seminars and lectures to inspire and transfer knowledge about opportunities and applications of digital technologies.
- University courses and student programs in which students actively work with SMEs.
- Hackathons to resolve specific problems with digital technologies.
- External experts and solution providers to resolve specific problems with digital technologies
- Training/competence development programs for SME digitalization.

These methods are suggestions on what industry associations and SMEs should do respectively. These methods can be implemented either top-down, bottom-up, and/or collaboratively. Of course, these methods can also be used by SMEs in their own awareness creation process, but more likely they will be used by actors supporting SME digitalization. Within SMEs, these activities are often top-down approaches, and they should be initiated by a c-suite executive. The scope and manner by which these approaches are implemented depend on the size of the SME, the resources of the SME, the level of technology adoption in the SME, and the organisational culture of the SME. Furthermore, the report describes challenges related to raising SME awareness that are important to understand and to deal with for actors supporting SME digitalization.

2.2.1 ACQUISITION OF AWARENESS FROM EXTERNAL SOURCES

As an SME some of these methods support the exploration of requisite knowledge into the firm. Such methods include:

- Seminars and lectures to inspire and transfer knowledge about opportunities and applications of digital technologies.
- University courses and student programs in which students actively work with SMEs
- Hackathons to resolve specific problems with digital technologies.
- External experts and solution providers to resolve specific problems with digital technologies
- Training/competence development programs for SME digitalization.

The acquired knowledge from these external sources possesses no value if it is not exploited via Knowledge management processes and organisational learning. The knowledge management processes include knowledge sharing activities via inhouse debriefings, Knowledge transfer via documentation of knowledge of the received knowledge that can be referred to by requisite personnel when embarking on the digital transformation process, and knowledge storage. The documented knowledge can then be used to create a shared vision of what the business process supported by the acquired knowledge could do. The shared vision can then be used in team learning and implementation experience. Hence the acquired knowledge is not only managed but forms a basis for organisational learning resulting in the diffusion of the knowledge from the awareness creation process in the organisation.

Therefore, as a c-suite executive, one must provide a roadmap as to how the external knowledge input from external sources will be exploited in the SME. The smaller the SME, the smaller the roadmap, and the smaller the scope of Knowledge exchange within the organisation. The case is different from bigger SMEs, but it is not as complex as creating a knowledge diffusion roadmap for medium-sized companies. However, for large SMEs, to save cost, IT-based knowledge sharing systems that store and enable the retrieval of knowledge will be helpful for managing such knowledge. This works for storage knowledge from conferences, seminars, etc but not for hackathons. Nevertheless, examples of such software include Hubspot Knowledge Base software, OpenKM, Document 360, Bitrix24, etc. But for very small-sized SMEs, cloud-based storage such as Google Drive, one drive, etc works well. These are systems where knowledge can be updated, retrieved, shared, used for training, team learning, etc. As your teams deliberate on the externally sourced information, they also add additional knowledge and

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facilitate mutual awareness between the team members. So additional information that is accepted as valid knowledge should be updated in the knowledge repository.

2.2.2. CONVERTING EXTERNAL AWARENESS PROCESS INTO AN INTERNAL AWARENESS PROCESS

In order to derive value from external and internal knowledge sources, there is the need for action on the knowledge received. The action serves as further means of creating awareness on the subject matter and it reveals what the knowledge you have received means to you. It could end up that the knowledge received did not have much value to you at the moment and it will later. Otherwise, it will reveal value. This is where the following awareness creation methods become valuable.

- Use-cases and need spotting.
- Innovation audits to create awareness about digitalization opportunities

2.2.3 USE CASE AND NEED SPOTTING

Use cases scenarios inspired by how competitors use digital technology in their digital transformation process are important for SMEs. It helps the SME visualise what the information they have received from external and internal sources means to either their operational, marketing, and customer delivery process. The development of use cases can reveal potential product and/or process value. In a way, it is also a means of “need” spotting as it pertains to how SMEs can incorporate digital technology into their digital strategy.

Therefore, as an SME, it is important to always be on the lookout for relevant use cases to your industry and area of operation. Relevant conferences, seminars, workshops White papers, patents, participation in relevant EU projects and initiatives, TV, and Internet advertisement, etc are sources of such use cases.

These use cases are ideas and processes that are of value that can be prototyped or piloted by SMEs that possess the financial resources to do so. Smaller-sized SMEs can collaborate with initiatives organised by industry associations, such as Demobooster to further develop the idea.

But before taking that step to pilot or prototype, it is important to relate the use case to your operations, your brand, or company vision as well as find out if the use case is of economic value to you as an SME. Hence the emphasis is:

“What does this idea, concept of a group of ideas, from these external sources mean to our operations, services, and products?”.

This is an important question to ask because there is no one unique approach to an SME’s digital transformation journey. This is because of the differences in business strategies, organisational vision, and the resources an SME possesses. Therefore, as an SME, you should have an innovation funnel process in place. The Innovation funnel is shown in figure (1). The innovation funnel has 4 phases. The first phase is the idea and conceptualization phase. This is where you conceptualise and gather ideas. The ideas, in this case, are the set of information acquired in the awareness creation event the SME attended or from other external sources as mentioned earlier. In the case of a software product, the use case that served as inspiration has to be modified or recreated to fit into the SMEs vision on how they want to implement the use case. This would imply creating new user stories and use cases.

The next phase is where you test the idea from the reconceptualized use cases to see if it is feasible and relevant to you. Here the SME considers:

- The economic feasibility: This consists of the expenditure and revenue projections associated with the development, operations, and maintenance of the system and processes.
- Technical feasibility: This consists of the analysis of manpower, and technology (digital technologies) required to implement the use case.
- Organisational feasibility: This consists of the analysis of the organisational structure and resources to be sure it supports the efficient delivery of the product or process. Here you also consider if you need to either outsource, insource, or deliver the service in partnership with another provider. Hence it is also important here to also consider ecosystem analysis to see where you are in the value chain and where synergy is needed and with whom.
- Market feasibility: This consists of a needs and market gap analysis, competition analysis, sales forecasting, and potential for growth. This analysis is also relevant if the SME plans to partner with another SME in the delivery of the service. However, the market feasibility here is important as it enables the SME to understand if the use case is viable or not.

- Legal feasibility: The impact of existing legal frameworks either in the industry or in the sector towards the delivery of the service, product, or implementation of the process. An example can either be the impact of the GDPR for online services, labour laws as it pertains to employing foreign labour, environmental laws etc.

Four Phase Innovation Funnel Process

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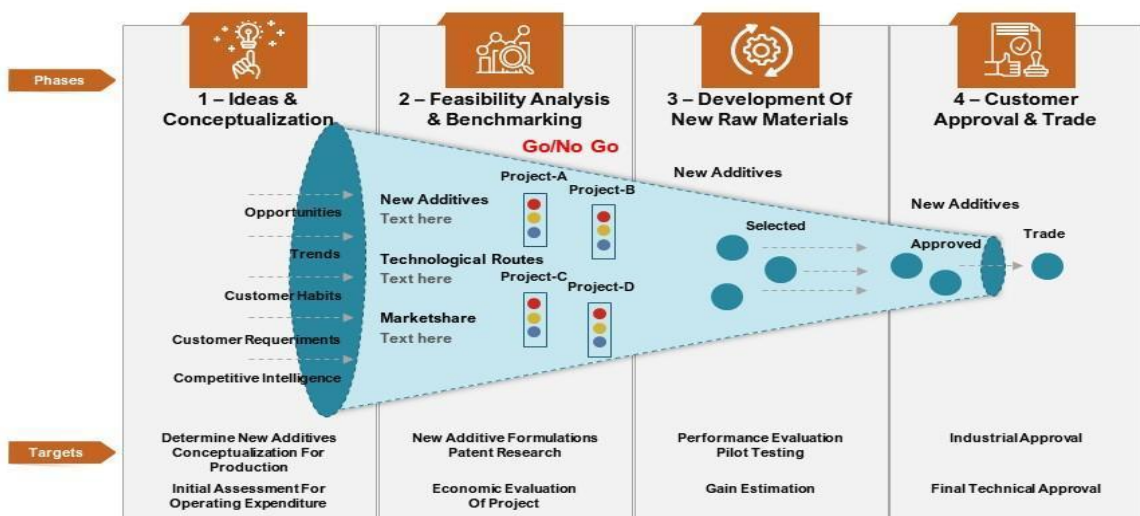


Figure 1. The Innovation Funnel

Source: SlideShare⁸

The outcome of the feasibility study now becomes an internal awareness process derived from the external awareness process. The outcome of the feasibility study enables the SME to decide on whether the idea considered is a good idea for the SME or not. It could be the case that the digital technology used in the inspired use case is efficient but there is no forecasted growth in sales for the product that will be produced. Nevertheless, if the outcome of the feasibility study is positive, then the SME can proceed in taking steps to make the development and implementation process possible. In this case, it implies that the SME has identified value for the inspired use case.

⁸ https://www.slideteam.net/business_powerpoint_diagrams/four-phase-innovation-funnel-process.html

An important thing to note is that a negative outcome is also a form of awareness on how not to approach the inspired use case in the SME. It is part of the learning curve. There are possibilities that in the process, the SME will identify new technology needs and possibilities and new ideas of how to use the inspired or other technology to facilitate a process or develop a product. Hence it is an issue of:

“you do not learn if you do not try”

Having a structure for the innovation funnel in place within the organisation enables the SME to test and convert ideas from external sources into either process, structures, services, or products. Having said so, it should be noted that operating an innovation funnel in a small SME (5 people or less) is more challenging than doing so in a larger SME. This is because different organisational functions are often concentrated on one person resulting in a high workload. In this scenario, outsourcing the first two stages of the innovation funnel process might lighten the workload. Outsourcing to a consulting firm is desirable but that can be very expensive, especially when you are working with ideas that may not result in a product. Another approach is to identify a willing SME who could be a potential partner in the process. There both SMEs could form a synergy to access the ideas.

2.2.4 INNOVATION AUDIT AND NEEDS SPOTTING

Innovation audit is proposed in the RISE report from the perspective of external agencies creating awareness for SMEs. The proposed scope of the audit is the value chain where the SME is situated. The reason for the innovation audit is to understand the needs of SMEs. Hence innovation audit is a form of need spotting.

However, SMEs can also conduct an innovation audit aimed at understanding:

“Which operational area they need awareness and how they can transform the knowledge they receive into to upgrade their innovative capacity using digital technologies”.

An innovation audit enables the SME to assess the effectiveness in how the SME, as an organisation, manages innovation. The innovation here includes business models, processes, services, and product innovation. From a digital transformation perspective, this understanding enables the SME to

understand areas of innovation where the digital strategy deployed is either inadequate, needs improvement, appropriate, or in excess.

The Pentathlon framework is a thought process that can be used to make the innovation adequacy assessment. The basic idea is to understand the effectiveness or the lack of the current innovation strategy adopted by an SME. The pentathlon breaks the innovation process into different small segments that can be analysed. These innovation processes are⁹:

- the innovation strategy,
- ideas,
- selection (idea prioritisation),
- Idea implementation with the innovation funnel,
- people (organisational culture).

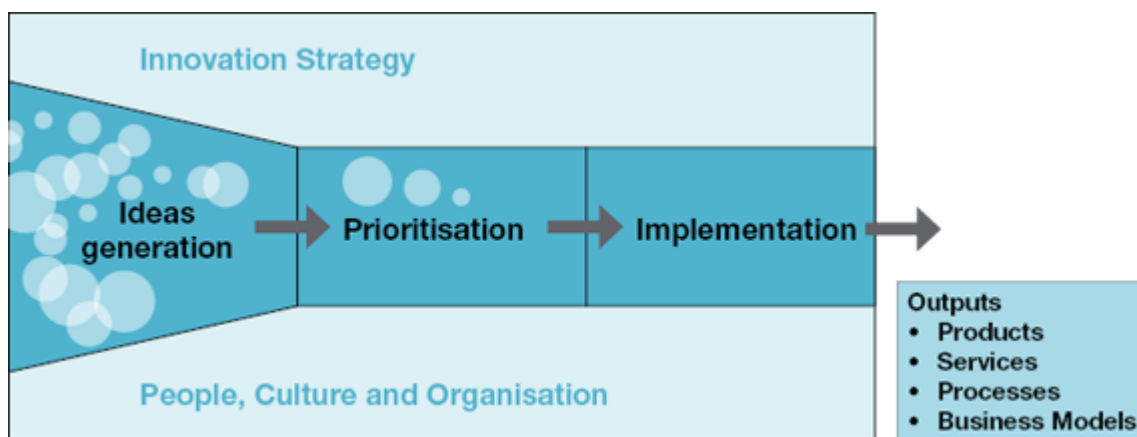


Figure 2: Cranfield University School of management⁹

So in a nutshell these five areas are evaluated in the different departments, operations, processes within the SME. Let's take customer relationships for example. Let's assume that the innovation adopted is the use of a digital Customer Relationship Management (CRM) tool to manage customer relationships. Here you can use the pentathlon to evaluate an existing customer service innovation process to see if it is appropriate. So the SME asks similar or the following questions:

- The innovation strategy governing the use of the CRM.
- The ideas promoted in the customer service department on how to improve the use of the CRM effectively (or which CRM) to use to manage customers.

⁹ Cranfield University School of Management, <https://www.som.cranfield.ac.uk/apps/innovationaudit/>

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- Which of the ideas were prioritised after a feasibility study?
- Which of the ideas were implemented to become either new products, services, processes, or business models?
- And how useful is the CRM to current customer service staff, how does it affect their work, how do they perceive the usefulness or otherwise of the CRM in how they perceive their task.

It could also be the case that the SME does not own a CRM and customer relationships are managed with the telephone and emails and every attempt to implement a CRM has failed. Similar questions can be asked to understand why the failure occurred and how to overcome it.

The standard practice for using the Pentathlon is to elicit anonymous employee survey feedback on questions around the pentathlon for each context.

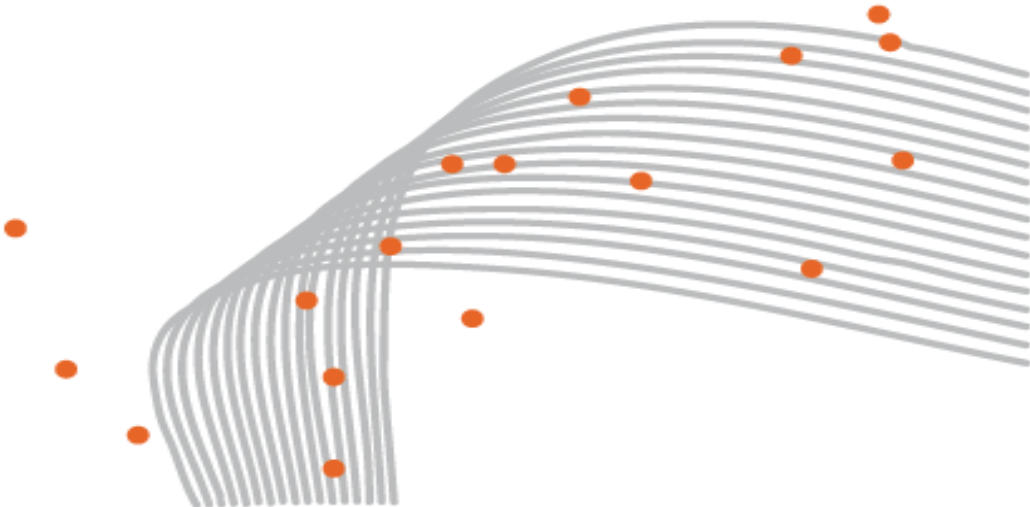
The answers will enable the SME to identify the aspects of their digital strategy that are operating as intended; areas where there are challenges, and areas where awareness is required. So it could be that the SMEs problem is not the technology but on how to conduct change management to allow for the effective implementation of existing technology. it could also be that the idea selection process is faulty etc. This enables the SME to decide on the awareness creation activity that is useful to them, acquire the knowledge, and implement the knowledge in the SME. As the knowledge is being implemented, the SMEs then learn more about how the knowledge works for them within their context.

2.2.5 SUMMARY

The first takeaway from this approach is that acquisition of external knowledge needed for the digital transformation journey is vital for the survival of an SME. Hence SMEs must prioritise awareness creation events out there. The second takeaway is that Knowledge gathered from awareness creation events must be contextualised and tested by the SME in order for the SME to access the value of that knowledge. Implementing a structure that will enable the innovation funnel is highly recommended for this purpose. Thirdly, an innovation audit can enable an SME to prioritise operational and functional areas in their organisation where knowledge from awareness creation events is required. This helps the SME prioritise which awareness creation event is of immediate value to the SME.

INSTRUMENT 3: OUTPUT 2.3

ONLINE MATURITY RECOMMENDER TOOL EVALUATION REPORT



3.0. BACKGROUND OF THE SME DIGITAL MATURITY RECOMMENDER TOOL

SME Digital maturity Recommender Tool. The tool was developed in the DIGINNO project by the Latvian Information and Communications Technology Association (LIKTA) in collaboration with project partners from Estonia, Lithuania, Finland, Denmark, Poland and Sweden. The tool was developed on a methodology from LIKTA's initiative "Gudrā Latvija". The SME Digital Maturity Recommender Tool is the first step in understanding the maturity and the importance of digitalization in the Baltic Sea Region for companies, especially SMEs. The tool is aimed at the industrial SMEs at the management level. It enables SMEs to measure digital maturity across 10 business dimensions. The dimensions are Digital transformation and competition, financial data management, Human resources environment, Customer relationship management, Resource management, Communication and customer relations, digitization of processes, Security policy and practices, Digitalization in production, and Innovation and growth perspectives. Upon completion, the SME Digital Maturity Recommender Tool generates tailored recommendations to guide companies and help them adapt to the digital transformation. Companies also receive tips on how to initiate an internal discussion on the topic of digitalization and its importance for organisational strategy. In addition, the tool helps managers, directors, and heads of SMEs to understand where their company stands in comparison to others and invest in sustainable upskilling workforce programs.

3.1. HOW THE TOOL WAS USED IN DINNOCAP

In the DINNOCAP project, industry associations mainly from ITL (Estonia), LIKTA (Latvia), LINPRA (Lithuania), KEGeIT (Poland) and supported by other DINNOCAP partners presented the SME Digital maturity recommender tools to 1508 SMEs. The country breakdown of respondents is presented in table 2 below.

TABLE 2. NUMBER OF SME RESPONDENTS PER COUNTRY

Country	
Estonia	278
Latvia	1114
Lithuania	30
Poland	46
Other	40
In total:	1508

The SMEs were from the following sectors, Agriculture, Construction, Energy & Natural Resources, Financial and legal services, Food and Beverage manufacturing, Forest industry, Industrial Manufacturing, Information and Communications Technology, Media, advertising, creative industries, Medicine and Pharmacy, Metalworking and Mechanical Engineering, Real Estate, Research and consultancy, Telecommunications and communications, Tourism, hospitality, entertainment, Trade sector, Transportation and logistics, and other sectors.

The SMEs were targeted DINNOCAP partners via:

- targeted online seminars for SMEs, Sectoral business associations, Investment agencies and other relevant stakeholders.
- Targeted emails to different business sector associations and National agencies supporting the digital transformation of SMEs.
- Presentations at national and international conferences and workshops.
- Sharing the information on social media and inviting SMEs to assess their Digital maturity level with the TOOL.

The result and reflections on the level of digital maturity of SMEs are outlined in the “multi-country report on online SME digital maturity recommender tool findings and usability”. Developed by LIKTA for the DINNOCAP project.

Nevertheless, in the DINNOCAP project, in each country where SMEs were evaluated, the tool provided aggregate feedback on the digital maturity of the SMEs evaluated. SMEs who took part in the survey

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could see their scores and compare their scores to other SMEs from a generic and industry-specific perspective.

LIKTA was able to conduct a trend analysis for a cluster of SMEs on a national basis. Examples are trend analysis:

- Based on the size of the cluster of the company size
- Based on the national differences and common trends.

Hence the tool is of value both for internal SME activities and trend analysis by Industry Associations, policy makers, consultants and platforms.

3.3. WHO CAN USE THE SME DIGITAL RECOMMENDER TOOL

The SME Digital maturity tool is useful for the following set of stakeholders.

- Managers or c-suite executives in SMEs as mentioned earlier.
- Public sector stakeholders
- Consultants
- Industry associations
- Platforms such as the national and European Digital Innovation Hub.

3.4. HOW TO USE THE SME DIGITAL MATURITY RECOMMENDER TOOL

1. Managers or c-suite executives.

They can use the tool for the following:

- To evaluate the digital maturity in their overall or respective business domains and operational processes.
- To evaluate the SME's level of digital transformation as opposed to their competitors or in the sector of the economy where they operate.
- To identify areas in the business domains of the company that require development. Here they can provide recommendations on the changes that should be implemented.

2. Public sector stakeholders

- They can use the tool as a means of understanding the state of digital transformation of SMES. This helps them to target national and/or regional policy measures and initiatives towards areas where SMEs are in need.

3. Consultants, and industry associations

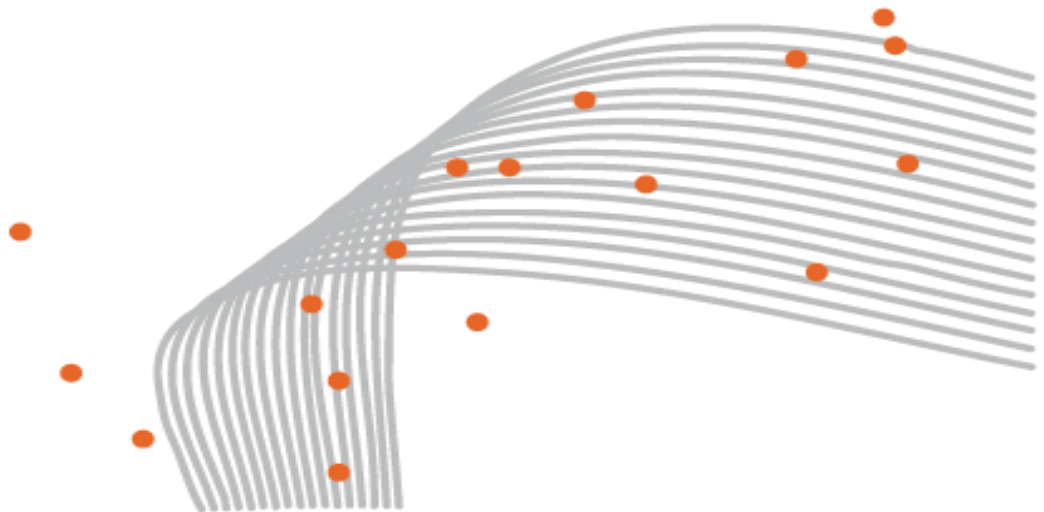
- They can use the tool as a means of evaluating the digital maturity level of an SME. The outcome of the evaluation helps the consultant and /or industry association to provide targeted advice on how the SME can upgrade their digital transformation process in their area of weakness.
- Another way industry associations and consultants can use the tool is to evaluate where there is a need for awareness and capacity-building initiatives for the SMEs within a certain sector or industry. Such results can be used to organise awareness campaigns.
- They can use the results from an evaluation from the tool and proposed corrective actions to the results to organise seminars, technology briefings, and other consultations.

4. Platforms such as national and European Digital Innovation Hubs (EDIHS)

- Here the tool can be used as a way of evaluating SMEs when they join DIHs and EDIHS. The results of the TOOL will serve as a descriptor of the company's needs and will be later a contribution to the more detailed Digital transformation Roadmap.

INSTRUMENT 4: OUTPUT 3.2

FRAMEWORK FOR DEVELOPMENT OF INFRASTRUCTURE THAT SUPPORT **SME SERVICE DELIVERY**



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There are two aspects to SME infrastructure. The first is the infrastructure used in SME operations within the SME. The other is the external infrastructure and platforms that support the delivery of SME services. There are two dimensions to the latter. The first dimension is platforms owned and operated by either by multinational companies such as Amazon, Google, Microsoft, etc or by local platform operators. SMEs' reliance on this platform is driven by its ease of integration to SME services and the low cost of subscribing to the platform as opposed to owning an in-house platform. The second dimension is platforms owned by public authorities, where SMEs must interface to deliver their services. The value of such platforms to the public sector is that they can enforce the relevant compliance of SMEs in the delivery of their services. The value for SMEs is the reduced cost of compliance to public authorities as well as the cost reduction because of not building end-to-end services.

The example tested in the DINNOCAP project is the eCMR prototype. The eCMR enables SMEs in the transport sector to develop their in-house eCMR solution. However, they do not have to individually build a data transport and data indexing infrastructure in different countries to deliver their services. The data transport is provided by another stakeholder (public or private) and the index is owned and built by the public service. The public service ensures compliance at national borders as a carrier moves with the electronic waybill from one country to the other. Currently, they do so by inspecting paper CMRs (waybills). But with the eCMR, the data created in the system of the SME is transported and exchanged at national points electronically as the truck moves from one country to the other. At the borders, controlling agencies can access the data and inspect the cargo truck as well. This enables SMEs to adopt a digital service delivery approach at a comparatively reduced cost.

However, to develop such services, the public sector should ensure the following:

- There is sufficient SME demand for the service. Another approach could be to mandate the SMEs to adopt these services.
- There is the possibility for SMEs to finance their own inhouse infrastructure development. Such services should be such that SMEs can recoup the cost of investment within a short period of time.

Assuming these parameters are in place, the challenge as realised in the DINNOCAP project are:

- How should the service be delivered nationally in such a way that the public sector and SMEs can exchange data without technical, semantic, legal and operational barriers?

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- How should the service be delivered transnationally in such a way that different public agencies in different member states can exchange data without technical, semantic, legal and operational barriers?
- How should the service infrastructure be developed in such a way that SMEs can finance their part of the infrastructure and the public sector can finance their part?
- How will the public infrastructure be maintained and who will pay for it?

These are hard questions, and they are much harder if the questions are broken into sub-questions. Although the infrastructure financing part is important. The challenge is in the service design part, taking into consideration the variance in the operations between SMEs and the public sector as well as that between two public sectors from different countries. In DIGINNO, the approach was to develop public-private transnational networks to solve these problems. However, in DINNOCAP the same idea was adopted but with a twist. The twist is the reliance on specialised public-private groups in the transnational networks. The focus in DINNOCAP in the development of the governance framework was on the semantic framework for e-services. Based on the working approach, the governance framework proposes regional collaborative governance groups for the development of the semantic interoperability of e-services. This can be extended to having separate regional governance groups for the development of the technical, operational, and legal interoperability issues respectively. The regional groups consist of relevant stakeholders from each member state.

However, there has to be a relay-like approach as to how the governance groups relate to each other. Having the technical description of the e-service in place provides a basis for discussion of operational and legal feasibility, followed by the semantic data exchange and financing possibilities. These imply that these transnational groups sort of work independently but also rely on information from each other. Inputs from the different regional groups will then form the basis for national and regional discussion on the need, viability, cost, and revenue sharing possibilities for the e-services.

This proposal inspired from the governance framework, provides an overarching idea of a framework that can be implemented in each member states

CONCLUSION

In this report, the results and lessons learned in the implementation of DIGINNO outputs in the DINNOCAP project are presented. The value of these results and lessons is that it provides practical guidelines and proposals that will:

- Enable SMEs as well as Industry associations and Knowledge institutions assist SMES to:
 - access and utilise knowledge in their digital transformation process,
 - Adopt creative approaches toward accessing financing, access to knowledge and infrastructure development.
- Enable and inspire public authorities to identify approaches they can adopt to support the digital transformation initiative of SMEs.

The implementation of these guidelines and proposals by and for SMEs enables them to acquire knowledge needed in building their capacity to embark on the digital transformation Journey. The awareness creation processes enable SMEs to acquire knowledge required to develop the operational skills, and processes needed for their digital transformation journey. The recommendations enable SMEs to either develop and/or acquire resources needed for their digital transformation journey. The e-service developed in the project reduces the barrier to the cost of delivering end-to-end infrastructure for SMEs. Hence, they are empowered by the e-services to develop digital infrastructure that enhances their service digitally.