Erasmus+

EPIC

Educational Package For SMEs to Increase Their Innovation Capabilities And Productivity

Research Summary Report

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TREBAG Intellectual Property- and Project Manager Ltd.

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1. Introduction

The EPIC project is co-funded by the Erasmus+ programme in the framework of Key Action 2: Strategic Partnerships in VET Education. The consortium of the project consists of 7 partners from 7 countries: Hungary, Slovakia, Cyprus, United Kingdom, Greece, Romania and Portugal. The primary objective of the EPIC project is to improve the effectiveness of SMEs' staff engaged in managing innovation.

This document is a short summary of the final research report developed in the framework of the Intellectual Output 1 "Study of innovation management skills/competencies/knowledge" of the EPIC project, conducted by IDEC with the active contribution of all partners.

The aim of this research was twofold:
- to assess the competences, skills and knowledge their employees are lacking or should improve in terms of innovation management to be able to carry out successful innovation projects;
- to find out the methods and parameters (length, depths, design) of a training that would be suitable and motivating for employees to do.

The research report consists of 3 sections corresponding to the 3 steps of Research Methodology:

1. Face-to-face interviews
2. Quantitative research/questionnaire
3. Desk research

The first section, reports the main conclusions of the Interviews conducted with SMEs Managers and provides the qualitative part of the research. Due to the pandemic restrictions, all these interviews were conducted online or by telephone.

The second section, Quantitative research/questionnaire presents the results of the on line survey, through Google forms, handed to SMEs staff engaged in innovation process in order to assess the required skills for innovation practitioners as well as their preferred learning format.

The last section, "Desk research" briefly presents the research conducted by each partner using documentation available online and from various official, governmental, professional and academic resources.

2. Face-to-face Interviews

The first step of the research consisted in face-to-face interviews with SME managers and owners. The objective was to conduct 35 interviews with middle/top/innovation managers of SMEs, i.e. 5 interviews per partner. The partnership reached a total of **36 interviews** with professionals-managers working in innovation. Each partner conducted 5 interviews, except for IDEC who conducted 6 interviews.

The interviews aimed at understanding the needs, concerns and specific issues concerning innovation management faced by the informants in their work life. The answers give a direct insight into sector-specific innovation management and provide a better understanding of our target group's preferred training methods. In addition to the interviews, the partnership sought to gather information on the Competences, skills and knowledge that are required or need to be improved for achieving effective innovation management and to understand how the SMEs would like solutions delivered so that they can absorb and implement the content. The SMEs were also asked to provide KPIs of the innovation process (efficiency, cost, impact) in order to understand how the SMEs quantify the results.

2.1.Innovation Management Systems

A substantial part of the interviews was dedicated to Innovation Management in terms of its systematic approach and to the role of Innovation Managers in their organisations.

First, the interviewees were asked if they are familiar with any systematic approach of Innovation Management and if they knew the CEN/TS 16555 Innovation Management Standard (IMS) and/or the ISO 56000 Innovation Management standard. The vast majority was not aware of a systematic approach of Innovation Management—11 responded that they were aware of standards but did not acquire an in-depth understanding of them. In addition the ISO 56000 seems to be more popular than the CEN/TS 16555. Although they were not aware of these standards, the managers were willing to learn and implement them.

Then, the participants were asked if any measure of Innovation Management was implemented in their organisations in order to assess the extent of systematic approach of innovation management. No organization had implemented an IMS and only 4 respondents took innovation measures as part of ISO 9001 and ISO 27001, as part of R&D and as part of Project Management tools.

We asked if the interviewees had established and implemented a process to motivate/encourage innovation in their Organisations. Respondents mentioned a wide range of processes to encourage innovation, varying from traditional methods such as financial rewards to methods related to work mentality. In conclusion all interviewees were willing to encourage innovation but the majority lacked knowledge on basic principles of effective Innovation Management.

2.2. Innovation Managers and Dedicated Resources to Innovation

The research also aimed at figuring out if organisations had dedicated resources (human- internal or external, material, training) to manage innovation and what would be, or which is the role and skills of an innovation manager in their organizational structure.

In terms of dedicated human resources, only 1 interviewee was an innovation manager and in 7 out of 36 cases, interviewees clearly mentioned internal human resources. Nevertheless other types of resources allocated to innovation were reported, as: staff trainings, R&D departments, external cooperators/ academia, or dedicated staff in case of Greece and Hungary.

Regarding the role and tasks of the innovation manager, the interviewees converged on the following competence areas:

- **Communication:** the innovation manager should be the bridge between different teams of the organization and make sure that information smoothly circulates within the company. Also the manager should be a driver by encouraging other employees to be innovative. At last, the manager should also foster cooperation inside and outside of the organisation (e.g. partnerships, networking)

- **Research:** looking for new funding opportunities, incentives for innovation, being aware of new trends and forecast future needs of labor market.
- **Management:** skills for efficient management of innovation projects
- **Technical**: testing new products, sector specific knowledge, digital literate.

2.3. Efficiency of Innovation Management

A specific question was dedicated to the efficiency of their current innovation management systems and possible problems they could encounter. A minority of respondents was satisfied with its current innovation management processes (in 2 out of 7 countries). The other mentioned several obstacles related to the following factors: lack of resources and work overload; lack of transparency and information sharing inside of the company; innovation takes more time than 'traditional work' and is more complex; issues related to communication and decision-making; absence of strategic knowledge management; and managerial and staff mentality.

2.4. Skills, Competences and Knowledge

In order to obtain feedback on the needs of the Innovation Managers for trained staff in innovation, we asked the respondents to share the required skills, knowledge and competences for each category of innovation management. In specific, the categories were: 1. Innovation and innovation management, 2. Idea management, 3. Strategic intelligence management, 4. Decision-making management, 5. Innovation partnership, 6. Change management.

The answers varied as they were referring to different industries and sectors, though transversal skills proved dominant in all categories. However, emphasis was put on the following soft skills and hard skills by the majority of the interviewees, which appear to be the essentials of the Innovation Manager:

SOFT SKILLS	HARD SKILLS
Creativity / open-mindedness / out of the box thinking/ Innovative and Critical thinking	Digital Data literacy
Entrepreneur mentality	Financial analysis
Flexibility	
Curiosity	Writing skills
Courage / brave thinker	
Communication skills / listening skills	ICT skills
Positive mindset	
Realism / self-criticism	Knowledge of and experience in the specific sector/industry
Persuasiveness	
Collaboration skills	
Management Skills: Human Resources	
Management skills	
Project management	
Risk management	

2.5. Experience sharing – best practices

We also asked the respondents if they had best practices to share in the following fields: Leadership; Networks & partnerships; Structure; and Culture. The following were reported:

Regarding **leadership**, the manager should make the employees feel safe and important. She/he should also create a stimulating environment to foster creativity and idea sharing. Team leaders should also invest in the upskilling of their teams, team work encouragement and cooperation.

For **networking and partnerships**, the core best practices include mutual trust, confidentiality, market development and creation of entrepreneurial networks.

In terms of **structure**, it is worth noticing that interviewees did not all agree on a best structure, since strict hierarchy and more flexible styles of structure were reported as catalyzers of innovation. A Greek respondent also mentioned the importance of a work routine.

As far as **culture** is concerned, respondents agreed on an open, friendly company culture with team building activities to foster cooperation among collaborators.

2.6.Training preferences

According to the responses, the training should blend both practical and theoretical content. Also, most respondents would like to learn through case studies, learning games and discussions, practical solutions and best practices. In terms of training method, they prefer small groups and in person training at their workplace. The majority of the interviewees would be able to dedicate around one or two hours per week to the training, or the training could take place all at once during one or two days.

2.7. Key Performance Indicators (KPI)

Finally, we asked how innovation was measured, evaluated, or improved in their organisations and with which indicators. Measuring innovation is not obvious but the respondents came up with many tools to assess the level of innovation they want to achieve. Two types of indicators were reported: quantitative (e.g. number of clients, financial resources spent on innovation, efficiency rates, interest rates from users) and qualitative (Objectives and Key Results or OKRs, cross-function initiatives, EFQM standard).

3. Quantitative Research

Based on the findings of the qualitative interviews, IDEC has developed a questionnaire (google form) that partners handed to SMEs staff engaged in innovation processes to get a general overview of SMEs' needs for skills, competences and knowledge. The questionnaire was filled by around 30 employees per country. A total of 216 participants answered the questionnaire.

3.1.Demographics

Female and male respondents were equally represented, with respectively 47.9% of women and 48.3% men. Most of them have completed a master's degree (46%) or a bachelor's (31%) degree. The most represented sectors are Engineering, Manufacturing & Construction (22%), Education (15%), Management Consultancy (11%) and Information Technology (10%).

3.2.Innovation Management

First, respondents were asked in which type of innovation they are involved. In most countries, respondents work mainly in **product (service) innovation,** except for Cyprus where respondents were not aware of their type of innovation and in the UK where respondents mostly work in process innovation and organisational innovation. The second most popular answer was **process innovation**. It should be noted that a great number of participants selected more than one option.

The respondents were also asked if they were familiar with Innovation Management Systems and if they applied the CEN/TS 16555 Innovation Management Standard (IMS) and / or ISO 56000 Innovation Management standards. In all countries, except for Portugal, most respondents **did not know at all** about innovation management systems (62.6%), or only partly (21%). Similarly, a striking majority of respondents **does not apply** (75%) the Innovation Management standards, except for the UK where 32% partly apply it.

To the question, "does your organization implement an Innovation Management Process?" the vast majority of respondents responded that they **didn't implement** (61%) any Innovation Management Process. The second most popular answer was the intention to implement a process in the future. Only in the UK a significant proportion of respondents (24%) declared having implemented a process and being certified.

3.3.Competences, Skills and Knowledge

Respondents were asked to use a scale to rank the importance of some competences and skills needed for an Innovation Manager. The top rated skills were creativity, strategic thinking, problem-solving, good communication, innovative thinking, curiosity, and motivation.

Subsequently they were asked which type of skills—hard skills or soft skills—they considered to be the most important for Innovation Managers and Employees. Most respondents agree that **soft skills and hard skills are equally important** (around 115 responses)**,** except for Portugal and the UK where soft skills are considered to be more important than hard skills.

According to their professional experience, the participants were asked which competencies, skills and knowledge were lacking from innovation management staff and should be included in the training programme**.** Some skills came up in almost every country such as: **communication, innovative thinking, networking/stakeholders management, team building/human resources management/collaboration, organisational skills and creativity**. Interestingly, most popular answers included **soft skills** and respondents declared that upskilling was needed in this area of competences. However, some of them also mentioned important **hard skills** such as knowledge of intellectual property rights and of innovation standards and ICT skills. Some responded that they needed support on basic theoretical understanding about the concept of innovation.

Finally, respondents were asked to evaluate the factors considered to be key barriers for innovation management. **Inadequate communication and lack of resources** were among the most popular answers, while **lack of time, vision and skills** came second in popularity. Respondents from Cyprus pointed out their unsupportive work environment (70%) as the main obstacle.

3.4.Training preferences

In terms of training methodology, **t**here was a consensus on **self-learning** and **individual coaching/mentoring,** except for Greek and Portuguese participants who would prefer a training at work or outdoor activities for team building.

In terms of learning way, the project-based learning and problem-based learning were the most popular methods for learning about innovation.

In terms of time they could dedicate to the training course**,** answers significantly differ from country to country, but in average respondents were willing to spend around 2 or 3 hours per week on the training.

For the learning style they would prefer, the majority would prefer a **visually verbal** learning style (49.8%), while tactile-motor would come second in terms of preference (22%). The exception is Cyprus who would prefer the visually non-verbal learning style.

4. Desk research

This section sums up the state of the art regarding Innovation in each Partner Country. The level of innovation greatly varies from one country to another depending on the countries' economic stratus and on the legal framework for entrepreneurship. The consortium both includes countries performing well in the field of innovation, such as the United Kingdom, Portugal and Greece, and countries with much fewer opportunities for innovation such as Romania, ranking last for innovation in the EU.

The state of innovation, the incorporation of the CEN/TS 16555 Innovation Management Standard (IMS) in daily corporation practices at the national level and incentives or motivations for innovation are all summed up per country in the table below.

HUNGARY	- No specific innovation management system for SMEs - The CEN/TS 16555 Innovation Management Standard (IMS) is not integrated - Tax incentives and financial subsidies for research and development
SLOVAKIA	- Innovation managed by the State: poor chances for SMEs to develop their innovation potential - National innovation standard available - Tax incentives with a super deduction, De minimis aid scheme Portfolio
CYPRUS	- Both innovation and R&D are neglected in SMEs for financial reasons - Innovation is tackled as part of the ISO 9001:2015, no awareness of the CEN/TS 16555 IMS

	- Innovative Business Certificate by the Cyprus Deputy Ministry of Research, Innovation and Digital Policy, a tax discount scheme for investors who invest in SMEs' innovation
UNITED KINGDOM	- High scores of innovations and institutional legitimacy IKE Institute of Innovation - The CEN/TS 16555 IMS is integrated - R&D tax relief is available to SMEs, Innovate UK Smart Grants, funding opportunities by the UKRI (UK Research and Innovation): 'Business Innovation Greece', 'Digital skills for digital Greece', The 'Research and innovation strategies for smart specialization-RIS3', legal framework on state aid schemes for mechanical equipment and new independent SMEs
GREECE	- Innovation management systems are underutilized in Greek SMEs - The CEN/TS 16555 IMS is not integrated - Sector-specific incentives and motivation measures as tax incentives and sectoral funding opportunities for innovation
PORTUGAL	- National innovation standards launched in 2007 that resulted in a boost of innovation - National innovation standard available - Public bodies: National Innovation Agency, IAPME (Agency for Competitiveness and Innovation), INTERFACE Program, COTEC Portugal, StartUP Portugal – National Strategy for Entrepreneurship (2016)
ROMANIA	- Weakest performance in innovation in the EU - Innovation is tackled as part of the ISO 9001:2015, no awareness of the CEN/TS 16555 IMS - De minimis aid scheme distributed through 'innovation checks'

5. Conclusions

Our 3 step research process enabled the acquisition of a national and European overview of the state of innovation management in SMEs, and based on the results we can conclude that Innovation Management Standards are not popular and are not implemented by the vast majority of the partner countries. As reported, Innovation management is not approached systematically in SMEs environment, but ad hoc and often depends on the "innovation mentality" of the top managers. In addition the efficiency and type of innovation Management significantly relies on the size of the company and on the industry sector. Nonetheless, most respondents are motivated to implement innovation management processes and standards. Based on the latter statement, the outputs of EPIC project are expected to gain strong market acceptance.

Through our 3 step research approach we managed to address effectively the twofold aim of our survey and to collect valuable feedback from top managers and staff of SMEs engaged in innovation processes. Regarding the aspect of assessing the competences, skills and knowledge that need to be improved or obtained, the respondents of all levels of hierarchy reached a consensus on the critical role of soft skills and on their impact on the efficient management of innovation. The soft skills that were reported as the most required are: creativity and critical thinking, innovative thinking/ open-mindedness / out of the box thinking, communication skills- team building and management skills as Human Resources

Management skills, Project management, Risk management networking/stakeholders management. However it must be underlined that both managers and staff highlighted the importance of hard skills, as sector specific technical skills and ICT- digital skills.

Based on the results of the requested competences, skills and knowledge the partnership decided to include the following modules in the educational package:

1. Introduction and the basics of innovation and innovation management

2. Creativity and idea management

3. Communication (with special focus on the negotiation, teamwork, open innovation, innovation partnership and IPR)

4. Innovation thinking, design thinking, critical thinking (with vision)

5. Management (with special focus on quality management, risk management, time management, resource management and motivation)

6. Digitalization

Regarding the training preferences of the participants in our research, a consensus was reached regarding the importance of practical knowledge through case studies, best practices and project-problem based learning. Therefore, the educational package should include both theoretical and practical content. Also, the majority was willing to devote 2-3 hours per week in the training with visually verbal approach.

As the EPIC project aims to develop an educational package tailored to the needs of the end users, the great diversity of sectors should be considered—the learning material should be flexible and easily adaptable to different areas of activities and different organisational needs. Also, the reported challenges that hinder the effective management of innovation should be taken under consideration—especially the lack of resources and the communication obstacles between different hierarchical levels—by introducing methodologies that can be applied to small and bigger organisational structures. In conclusion, the research revealed the knowledge gap about innovation management systems in SMEs, which should be effectively addressed by the educational package that will be developed by the partnership. The 3-step research conducted by the consortium provides a sound basis to build a tailor-made educational package in order to foster innovation, which is crucial for the competitivity of European SMEs at the national, European and international level.