

Results Work Package 7

Transfer and dissemination

Result 7.3 Handbook

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Partner

Baltic Sea Academy (Lead Partner), Germany
Satakunta University, Finland
The Baltic Institute of Finland
Tasowheel Group Oy, Finland
POLITECHNIKA GDANSKA, Poland
Pomeranian Chamber of Handicrafts for SMEs, Poland
Hydromechanika Sp. z o.o. Sp. k., Poland
Centre for European and Transition Studies, Latvia
Latvian Chamber of Commerce and Industry, Latvia
Vides Dizains, Latvia
Arbeit und Zukunft e.V., Germany

Languages

English

Content

Summary and Introduction

Innovative Entrepreneurs and Innovation Support for SMEs: Knowledge
Alliance "Human Resources and Organizational Development"

Summary and Introduction

For SMEs in the Baltic Sea Region to remain competitive in the long term, it is necessary to increase their innovation capacity and reduce the gap between qualification requirements and demands. For this reason, the Knowledge Alliance "Human Resources and Organizational Development", consisting of eleven partners from four countries, relies on increased cooperation between universities and companies in order to realize education and innovation promotion. To reach as many SMEs as possible, chambers strengthen the partnership between universities and companies.

Human capital is the most important resource for strengthening innovation and productivity. Hence, the project focuses on the comprehensive promotion of Workplace Innovations. While there is great need for further development in this area in the countries south of the Baltic Sea, Workplace Innovations are already more advanced in the Scandinavian countries. Therefore, the project involves countries from both regions.

The alliance, which will be extended to 68 partners from 13 countries and permanently continued, focuses on cooperation in two areas. First, the development, testing, and implementation of SME-specific methods, instruments, and projects through R&D work at universities, that create workplace innovations in areas such as employee recruitment, motivation and digitization, a more innovative working environment and more efficient use of human capital. Second, the strengthening of awareness and competences in this new area of innovation promotion for small and medium-sized enterprises in the Baltic Sea Region through qualifications. The project will develop and implement:

- a) three comprehensive continuing education programs: "Digitization & Human Capital", "Employees on the way to Co-entrepreneurs" and "Innovation Processes".
- b) a dual bachelor's degree course: "Human Resources and Business Administration".

All products and further results will be transferred to 72 actors from 13 countries.

The work to develop the output of Work Package 7 "Transfer and dissemination" was carried out entirely as planned in the project application.

According to the project proposal, a book with all the results of the project was produced, published in the established series of the Baltic Sea Academy and distributed through the book trade. In addition, the lead partner has purchased a large number of copies, which will be distributed to interested parties without charge.

The text of the book is given below.

**Innovative Entrepreneurs and Innovation Support for SMEs:
Knowledge Alliance "Human Resources and Organizational Development"
(KA4HR)**

Dr. Jürgen Hogeforster

Edited by
Baltic Sea Academy e. V.
Dr. Max A. Hogeforster
Blankeneser Landstrasse 7
22587 Hamburg, Germany

Editorial Correspondence: editor@baltic-sea-academy.eu

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Printed and published by: BoD-Books on Demand, Norderstedt, Germany

ISBN 9783752641240

The project with the grant number 600923-EPP-1-2018-1-DE-EPPKA2-KA is co-funded by the Erasmus+ Programme of the European Union. The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein. We are very grateful to the European Commission for the financial promotion, in particular to the “Education, Audiovisual and Culture Executive Agency” for the support and advice.



Co-funded by the
Erasmus+ Programme
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1 | Introduction

For small and medium sized enterprises (SMEs) in the Baltic Sea Region (BSR) to remain competitive in the long term, it is necessary to increase their innovation capacity and reduce the gap between qualification requirements and demands. For this reason, the Knowledge Alliance "Human Resources and Organizational Development", consisting of eleven partners from four countries, relies on increased cooperation between universities and companies in order to realize education and innovation promotion. To reach as many SMEs as possible, chambers strengthen the partnership between universities and companies.

Human capital is the most important resource for strengthening innovation and productivity. Hence, the project focuses on the comprehensive promotion of Workplace Innovations. While there is great need for further development in this area in the countries south of the Baltic Sea, Workplace Innovations are already more advanced in the Scandinavian countries. Therefore, the project involves countries from both regions.

The alliance, which will be extended to 70 partners from 13 countries and permanently continued, focuses on cooperation in two areas. First, the development, testing, and implementation of SME-specific methods, instruments, and projects through R&D work at universities, that create workplace innovations in areas such as employee recruitment, motivation and digitization, a more innovative working environment and more efficient use of human capital. Second, the strengthening of awareness and competences in this new area of innovation promotion for small and medium-sized enterprises in the Baltic Sea Region through qualifications. The project will develop and implement:

- a) three comprehensive further vocational education programs:
 - 1. Digitization & Cooperation,
 - 2. Employees on the way to Co-entrepreneurs and
 - 3. Innovation Processes.

b) a dual bachelor's degree course “Corporate Management 4.0”

All results will be transferred to 70 actors in 13 countries for further implementation.

This publication summarizes important results of the project. Further results and materials can be found on the project website <https://ka4hr.eu/>.

The project was carried out from 01. November 2018 to 31. January 2022 by eleven partners from four countries. The following list clearly shows the participating institutions and their representatives within this project:

Baltic Sea Academy (Lead Partner), Hamburg, Germany

Dr. Jürgen Hogeforster

Mira Alexander

Christian Wildt

Work and Future, Hamburg, Germany

Alexander Frevel

Satakunta University of Applied Sciences, Pori, Finland

Dr. Sirpa Sandelin

Dr. Kari Lilja

The Baltic Institute of Finland, Tampere, Finland

Johanna Vannes

Tasowheel Group Oy, Tampere, Finland

Jarmo Kuikka

Petri Keski-Korpela

University of Latvia, Riga, Latvia

Zane Zeibote

Denize Ponomarjova

Dr. Romans Putans

Latvian Chamber of Commerce and Industry, Riga, Latvia

Līga Sičeva

Jānis Tīlibs

Elīna Valdmane

Vides Dizains, Riga, Latvia

Jānis Balodis

Gdansk University of Technology, Gdansk, Poland

Dr. Marzena Grzesiak

Dr. Anita Richert-Kaźmierska

Pomeranian Chamber of Handicrafts for SMEs, Gdansk, Poland

Małgorzata Wokacz-Zaborowska

Maria Muszyńska

Hydromechanika Sp. z o.o. Sp.K., Ostaszewo, Poland

Anna Jsnopek

Jaroslav Cieslak

We thank all our partners for their great commitment and the excellent cooperation.

2 | Knowledge Alliance and Center of Competence “Human Ressources for Small and Medium-sized enterprises” (HR4SMEs)

2.1 | Overview: Knowledge Alliance

The establishment of the Knowledge Alliance "Human Resources for SMEs" (HR4SMEs) with the eleven project partners from Finland, Germany, Latvia and Poland and with relevant actors like economic chambers, vocational education and training institutions, universities, public institutions, and further stakeholders is part of the project KAforHR. The alliance is founded during the project, expanded to include other relevant institutions, systematically built up and further developed.

The Lead Partner - Baltic Sea Academy - develops and coordinates the alliance in cooperation with the project partners. Additionally, it also develops and implements rules for collaboration, instruments of cooperation and the provision of information, etc. The alliance meets on a regular basis, accompanies the entire project implementation by providing advice. The individual members take part in project workshops and during international consultation and transfer conference. Different members of the alliance are involved in certain project tasks.

The Lead Partner develops and ensures cross-border exchange of experience and information as well as cooperation as well as involves and informs the 70 transfer recipients and implementation partners from 13 countries who participate as associated partners in the project.

Towards the end of the project, a Baltic Sea Region wide competence center "Human Resources for SMEs" was established, into which the work of the Knowledge Alliance has been incorporated and continued. For this, the following activities were carried out:

- development & coordination of concept for a Centre of Competence (CoC),
- attracting universities as CoC partners,

- development and coordination of organizational and working forms of the CoC with cooperation of chambers and vocational training providers,
- development & coordination of a management and business plan for the CoC,
- establishment & launch of operations of CoC.

For the work of the Knowledge Alliance, the following have been developed and implemented:

- a) information, communication and cooperation instruments and procedures,
- b) a platform "Information & Cooperation Workplace Innovations".

This platform includes:

- the website www.KA4HR.eu,
- dialogue and cooperation forum for Knowledge Alliance and Centre of Competence,
- service pages for the various target groups (SMEs, SME employees, students, lecturers) with all target group-specific offers of the project;
- service pages for third-party institutions of vocational education and training, further education and higher education with all cooperation and funding offers;
- information and promotion pages of the Centre of Competence "Human Resources for SMEs".

All these results can be found on the project website www.KA4HR.eu.

2.2 | Extension of the Knowledge Alliance

The Knowledge Alliance, which began its work in the first months of the project, focuses on collaboration in two areas. First, through R&D work at universities, SME-

specific methods and tools are being developed, tested and implemented to create innovations in areas such as recruitment, motivation and digitalization, a more innovative working environment in SMEs and more efficient use of human capital through workplace innovation. On the other hand, further training and a dual study program will increase awareness and competence in this new area of innovation support for current and future SMEs in the Baltic Sea Region.

The Alliance was founded by eleven project partners involved from four Baltic Sea Region countries (Finland, Germany, Latvia and Poland). Since the goal is to expand the Knowledge Alliance to all countries in the Baltic Sea Region, additional potential Alliance partners from the countries in the Baltic Sea Region need to be acquired:

a) Higher Education Institution:

They are key partners of the Alliance, cooperating with each other across the Baltic Sea Region, sharing experiences, implementing joint development projects and doing the following work at the local and regional level:

- Promotion of innovation and realization of R&D tasks with and for SMEs.
- Development of curricula and continuous further training of owners, managers and specialists of SMEs based on these curricula.
- Development of curricula for the permanent implementation of further training for SMEs by other training providers and SME promoters.
- Development and permanent implementation of Train the Trainer programs for
 - o Teachers and counsellors of chambers and other VET providers.
 - o Managers of SMEs who are involved in dual study programs as training partners and also teach at the university.
 - o Own lecturers for the realization of educational tasks in the field of Workplace Innovations.

In this way, a sufficient number of qualified teachers will be provided at all participating institutions in all Baltic Sea countries. Providing instructors to conduct educational and outreach programs through chambers and other educational institutions.

b) SME promoters, chambers and other educational institutions:

The large and colorful diversity of SMEs is contrasted by only a few higher education institutions concentrated in a few central locations. The higher education institutions have only limited opportunities to establish contacts with SMEs and exchange information with them. In addition, their work processes do not match the conditions of SMEs, which have little management capacity. There is fear of contact, speechlessness and a lack of understanding on both sides. The Alliance must therefore involve supporters of SMEs (chambers and SME associations) who establish contacts with SMEs on a needs-oriented basis, advise SMEs, provide SMEs with targeted advice and further training, encourage SMEs to participate in dual study programs and participate in the implementation of teaching and development tasks.

Through the participation of the SME promoters, SMEs - also from rural regions - are involved in a large scale and connected to the higher education institutions. Also, the chambers are officially represented in political bodies at the regional and national level, so that they can achieve reform processes very well.

The chambers carry out the following work at the local and regional level:

- mediation between SMEs and universities
- advice and support for SMEs in the implementation of dual study programs
- participation in R&D tasks in SMEs
- organization of initial vocational training and conducting courses on new technologies
- implementation of further vocational training for SMEs and their employees
- acceptance of all examinations in vocational education and training
- advising and supporting SMEs on all relevant issues

- representing the interests of SMEs vis-à-vis all social groups

To cover all sub-regions, the Knowledge Alliance is to be expanded to include

- a) 50 economic chambers, SME associations, VET providers and other SME supporters (four of them are involved as project partners),
- b) 20 higher education institutions (three of them are involved as project partners) and
- c) 3 SMEs, who are involved as project partners from 12 Baltic Sea countries.

The members of the extended Knowledge Alliance are involved in the project work as associated partners and participate in individual project activities (e. g. participation in workshops, train the trainer programs, etc.). They receive all project results and individual implementation advice.

The expansion of the Knowledge Alliance is completed by formal resolutions of the 50 chambers and 20 higher education institutions. The 73 partners from 13 countries manage the extended Knowledge Alliance and jointly establish a Baltic Sea-wide Center of Competence "Human Resources for SME", which will continue the work of the Knowledge Alliance permanently after the end of the project.

2.3 | Survey on the Development of Centers of Competence

For the development and expansion of the Knowledge Alliance, the cooperation between higher education institutions, SMEs and chambers was explored. As the Center of Competence will be established in the project, which the members of the knowledge alliance will join, a study on competence centers is included in this document.¹

¹ The surveys are based on the results of the project „Qualification, Innovation, Cooperation and Key-business for Small and Medium Enterprises in the Baltic Sea Region – QUICK“. Hanse-Parlament, Hamburg, Center of Competence for Innovation Support of SMEs in the Baltic Sea Region

2.3.1 | Cooperation between Universities and Chambers/SMEs

SMEs often lag large enterprises regarding innovation. Large enterprises generally have their own research departments while SMEs are often too small to finance their own and suffer from limited access to research institutions (financial and non-financial barriers). Although there are a lot of activities and programs provided by the EU aiming at improving the cooperation between SMEs and universities, the success is still low. The application procedures for many programs are too complicated and time-intensive for the enterprises. And often, entrepreneurs do not even know about these programs.

A successful way of improving the cooperation between universities and SMEs is to start at the bottom, i. e. at the level of the SMEs and universities. The present study follows this approach. First, the current situation, including the problems and best practices of cooperation between SMEs and universities, has been evaluated. Second, the aims and the next steps are elaborated.

This study does not only consider the cooperation between SMEs and universities but also between economic chambers and universities. Since the capacities are deficient in SMEs for communication and building up business contacts to universities, first contacts between universities and SMEs via chambers, which closely work together with SMEs in their daily work, are more practical. However, it must be taken into account that membership in chambers is not mandatory in most of the BSR countries. Therefore, the role of the chambers differs accordingly.

What are the current problems of the collaboration between universities and chambers/SMEs?

There are major differences in collaboration between universities, SMEs and chambers. The level of engagement varies greatly, even within the same group. When it comes to improving collaboration between these institutions, the focus should be on the engaged organizations rather than trying to get every institution on board.

Cooperation depends highly on the persons involved and is rarely institutionalized. Often, one very committed and motivated person in each institution keeps cooperation going. If this person leaves the organization (for example a professor retires), the partnership needs to be redefined by the successor. Furthermore, the cooperation between a university and an SME/chamber is highly related to one topic or research area. Therefore, several people in one organization might be involved in different forms of cooperation. But there is hardly one person or one department, which is responsible for the coordination of all existing cooperation of the organization and, thus, no single contact person is responsible for cooperation in general. This lack of structure creates a problematic situation, especially for outsiders who want to initiate collaboration with an organization but do not know who to contact. Some universities are establishing project coordination departments, which are responsible for gathering information about new research programs and share this information with the different departments. However, even those structures are missing in most chambers and SMEs.

The financial structure differs among universities, chambers and SMEs, and so does the wish to start cooperation. While universities mainly try to get funding for existing or new researchers, SMEs are interested in new products or outcomes, which increase the profit of the enterprise. These differences are also reflected in the preferred duration of projects. While universities try to get funding for projects with a longer duration, SMEs favor shorter projects with a fast delivery of results and outputs, which can then be capitalized. SMEs and even chambers have little experience and resources for complex project applications.

Universities, on the one hand, and SMEs and chambers, on the other hand, often talk in different “languages”. In the world of universities, project results are measured in number and quality of research papers published in various scientific journals. These research papers include a description of the theoretical background and the chosen approach as well as a detailed analysis. In contrast, SMEs and chambers need the results to be written in an understandable language. They prefer short reports instead of theoretical research papers. It must be possible to easily transfer the written results into action (improved processes, new products, etc.).

Both universities and chambers, offer seminars and other courses for SMEs. There is no coordination between the institutions so that it might happen that a university and a chamber in the same town offer very similar seminars. In doing so, they compete.

There is little communication between universities, chambers and SMEs. There are few possibilities where representatives of universities, chambers and SMEs meet by chance. Few universities take part in vision-processes of SMEs. Then again, SMEs and chambers also hardly take part in curriculum development of new study programs at universities. The interaction between universities and SMEs is low even though both institutions could contribute to the success of the respective other. Due to a lack of possibilities for representatives of the different institutions to meet each other and thus to come in contact, it is increasingly difficult to start cooperation as meetings, and face-to-face communications are essential for it.

Future Aims

The future objective is to share responsibilities among chambers and universities, to overcome the overlapping offers of universities and chambers, particularly seminars for SMEs but also consultation services. The two institutions should agree in advance on their offers for SMEs. That way offers become more attractive which is especially beneficial for chambers without mandatory membership. One possibility might be a division of the offers for SMEs according to the target group: universities provide seminars for the management level, chambers for the skilled workers. Another possibility is that the seminar offers can be divided according to content (management skills by chambers, technical skills by universities) or according to the degree/certificate that will be obtained.

It is desired that every institution has one post (or department) who is responsible for external communication, particularly for the cooperation with other institutions and SMEs. This does not only enable coordination of responsibilities between universities and chambers but also provides external institutions or SMEs with a central contact

person to turn to. That way communication processes are institutionalized. This primary contact person can then pass on information internally. The name and contact details of this person must be available publicly, e.g. on the institution's website or newsletter. Internally, all employees need to support the communication manager, i.e. sharing cooperation activities of staff, relationships and contacts with other institutions and SMEs, as well as thematic orientation.

A second aim is aligning the interests of chambers, universities and SMEs to receive funding and make a profit. Currently, universities are looking for funding for research projects to finance present and additional employees. SMEs are looking for solutions which quickly result in additional profits. While universities generally look for longer research projects, SMEs prefer to have shorter projects with fast delivery of results.

Finally, research should be adapted better to work on the ground. This includes practice-oriented research topics. One way to better understand the problems of SMEs and to detect possible gaps for research is to send students in the enterprises (e.g. via an internship or for a bachelor's or master thesis). Besides the main task of getting practical training, the students can act as intermediary between the enterprise and the university. This has already been carried out successfully by German universities, which provide dual study programs. Students are employed in an enterprise and concurrently study at a university. In doing so, they can apply their practical experience at the university and their theoretical knowledge to the company.

The face-to-face communication between universities, chambers and SMEs should be improved and institutionalized. Only face-to-face contacts can create a basis for sustainable cooperation. Conferences, workshops, fairs, etc. are places where universities, chambers and SMEs meet. However, it must be secured, that different institutions talk to each other instead of only being in the same room (e.g. round tables at conferences, etc.). Therefore, special side-events during larger events must be organized for craftsmen and professionals. Special forums are another possibility to bring together universities, chambers and SMEs. In these forums, the different institutions can exchange ideas, problems and experiences.

As mentioned before students can act as an intermediary in enterprises to transfer experiences from one institution to the other. However, it must also be possible for SME employees to gain experience at universities, e. g. through practical training or an internship at a university lab.

Especially cross-border cooperation requires good language skills, which is often a problem, particularly for smaller SMEs. It must be possible that SMEs can ask questions in their native language and not in English.

There are some excellent examples universities supporting SMEs, e. g. when students work on specific tasks for the companies. The opposite, SMEs and chambers supporting universities, is rather uncommon. Since most students end on working in a company, the qualification needs and needs of companies must be considered in the curricula of the higher education. SMEs could, therefore, work on the development of new or the adaption of existing curricula.

2.3.2 | First Cooperation Concepts for Universities and Chambers/SMEs

The most important vision is close cooperation between universities and SMEs including

- Research that is more oriented towards the practice and needs of SMEs,
- SMEs influencing activities of universities, e. g. development of curricula.

Particularly in Eastern European countries, systematic and closer cooperation between higher education institutions and SMEs must be initiated from the top, e. g. through political decisions or lobbying. Good PR could sensitize the relevant institutions to rapprochement and cooperation. In addition, round tables must be organized with representatives from all three institutions to elaborate on curricula or other study-relevant topics.

As mentioned above, joint events can bring together representatives from universities, chambers, and SMEs. In order to make them talk to each other. Such events should include sessions with smaller working groups where the representatives of different institutions can exchange knowledge and experiences, and they can start to get to know each other.

Since there are some good examples for fruitful cooperation between universities, chambers and SMEs, an international exchange of these good practices is required. This exchange must not only be on the level of institutions (universities exchange with universities, chambers with chambers, etc.) but must go beyond. However, it is important to remember that smaller SMEs in particular have difficulty releasing employees (for hands-on training or even for knowledge transfer events) because they need every single employee to do their daily work. Last but not least, universities need to transfer scientific results in a more practical format for the enterprises (results written in an easy language on 1 to 2 pages maximum).

To improve the cooperation between universities, chambers and SMEs, every institution needs one key contact person.

First, information about the main contact person must be available to outsiders. This requires that there is initially a central contact person or department at each institution. Once an institution has agreed on a central point of contact, it must create awareness of it within the institution. All staff should know about this position and be required to use it. An organizational chart must be created with relevant information about the positions, the names of the contact persons, and their responsibilities. This organizational chart can be used for both internal and external parties.

Round tables can be organized for persons with the same tasks or working area. These round tables can improve the cooperation between universities, chambers and SMEs on working level.

In order to intensify the cooperation between universities and SMEs, students must be more involved in the practical work of enterprises.

A stronger inclusion of practical work into the curricula must fit in the overall legal framework of the countries. For example, in Germany, dual study courses are permitted by law, which allows students to work and study concurrently. Another good example is the Satakunta University of Applied Sciences: here, the curricula include practical work in enterprises as part of the study courses.

4) Particularly in cross-border-cooperation, command of English is essential - not only for students but also for teachers.

In order to improve the knowledge of English of employees, English courses must be offered. At universities, participation in English courses should be accredited with credit points. In addition, it is not only necessary to talk about language courses, but also professional courses can be taught in English. Another possibility to improve English skills at university level is an exchange of teachers and the employment of foreign, English-speaking teachers in the courses.

Conclusion

Although cooperation between universities and SMEs is a major concern of the EU, it still lacks behind set goals. A successful way of improving the collaboration between universities and SMEs is to start at the basis, i. e. at the level of the SMEs and universities. The present study followed this approach. A small group of representatives of universities and chambers from countries around the Baltic Sea elaborated in a workshop (future workshop) existing problem of the cooperation between universities, chambers and SMEs, future aims (how would the cooperation look like) and first action concepts for the realization of the most critical objectives. In continuation of this work, the Hanse Parliament, which has been successfully promoting SMEs in the entire Baltic Sea Region for many years, founded the Baltic Sea Academy, which currently comprises 20 higher education institutions from 9 Baltic Sea Region countries.

The Baltic Sea Academy promotes cooperation between universities, chambers and SMEs. The main issues that need to be addressed have been identified:

- lack of a central person/department, who/which is responsible for the cooperation with other institutions,
- different financial structures in universities, chambers, and SMEs,
- different aims of the institutions (research papers versus increasing profit),
- same offers for SMEs by universities and chambers without coordination between the institutions,
- little communication between universities, chambers and SMEs,
- little interaction between universities and SMEs,
- few possibilities for representatives of the different institutions to meet each other (little face-to-face-contact.)

Future aims for cooperation between universities, chambers, and SMEs:

- sharing responsibilities among chambers and universities (reduction of overlapping offers for SMEs),
- central contact person for external communication and the development of cooperation,
- mutual interest to get funding and profit,
- research should be adapted better to practice,
- improved face-to-face-communication between universities, chambers and SMEs,
- exchange of students and staff among universities and SMEs (in both directions),
- no language barriers (particularly for cross-border-cooperation),
- participation of SMEs in the development of curricula.

Initial activities have been developed for the four main visions. The cooperation between universities, chambers, and SMEs through practical research and SME influence on university activities can be reached by:

- political decisions and lobbying,
- round tables for representatives of all three institutions to draw up curricula,
- joint conferences with smaller working groups,
- international exchange of good practice,
- scientific results in a short, understandable written form.

As mentioned before, there should be one person in each institution, who is responsible for cooperation and external communication. This person (or department) must be visible for staff members as well as for external parties (e.g. through an organigram). Round tables for persons in different institutions with the same working areas can improve the collaboration on working level.

Staff of colleges and universities should specify their competences and areas of interest in dealing with SMEs. This information should be entered into a central database (e. g. a knowledge bridge) so that SMEs have the opportunity to find a potential partner quickly and in a targeted manner. This would increase the efficiency of communication.

In order to intensify the cooperation between universities and SMEs, students must be more involved in the practical work of enterprises, e.g. through a stronger inclusion of practical work in the curricula.

2.3.3 | Study of the needs and conditions²

Starting from the '90s in Europe, many Centers of Excellence (CoE)³, practically in all areas and disciplines, have been created. Although the concept of a Center of Excellence is often used, it is still somewhat ambiguous. Intuitively, each organization may be recognized as a "Center of Excellence", when it comprises and attracts excellent actors (ex. researchers, companies or others), earning a reputation as a significant resource for the progress of science and technology and the spread of innovation. In literature, the most basic definition of Centers of Excellence is "CoE is a team of people that promote collaboration and use best practices around a specific focus area to drive business result"⁴. A Center of Excellence is defined more broadly as "a premier or-organization providing an exceptional product or service in an assigned sphere of expertise and within a specific field of technology, business, or government, consistent) with the unique requirements and capabilities of the CoE organization".

In literature, we can find a list of some key features which are part of the CoE concept. Each Center of Excellence should be characterized by:⁵

- a "critical mass" of high-level scientists and/or technology developers,
- a well-identified structure (mostly based on existing structures) with its own research agenda,
- an ability to integrate related disciplines or complementary skills, necessary to achieve strategic goals
- a capability of maintaining a high rate of exchange of qualified human resources
- a dynamic role in the surrounding innovation system (adding value to knowledge)

² Dr. Marzena Grzesiak, Dr. Magdalena Olczyk, Gdańsk University of Technology, Gdansk, and Dr. Marzena Starnawska, University of Warsaw, Warsaw

³ The term "Center of Competence" is hereinafter used to mean the name "Center of Excellence"

⁴ <https://agileelements.wordpress.com/2008/10/29/what-is-a-center-of-excellence/> (December

⁵ http://www.kpk.gov.pl/centra_doskonalosci/index.html

- high levels of international visibility and scientific and/or industrial connectivity,
- adequate stability of financing and operating conditions over time (the basis for investing in people and building partnerships) and, eventually, sources of finance that are not dependent on public funding over time.

CoE's activities include mainly conducting basic and applied research, implementation of projects and research programs and conducting educational activities, service and training.

Depending on the scope of activities, there are different types of Centers of Excellence: i. e. conducting research in a specific area, conducting broad interdisciplinary cooperation, engaged in research, based on research infrastructures, involving academic-industrial collaboration or developing the industrial implementation of R&D.

A written survey of all project and associated partners was conducted. As far as the organizations that responded to the Center of Excellence's survey are concerned, there have been three main groups. Almost 45% of the respondents classified themselves as Chambers of Crafts, and only 9% as Chambers of Commerce and Industry. Slightly more than one-third of respondents were Higher Education Institutions. As a result, the opinions and interest in participation in different forms of CoEs are mainly based on the Chamber of Crafts and Higher Education Institutions.

Respondents were asked what kind of CoE they would be interested and able to participate in. In the survey, they had a choice between five categories of CoE's:

- "Environment",
- "Energy",
- "Personnel and organizational development",
- "Construction"

- as well as “Other”.

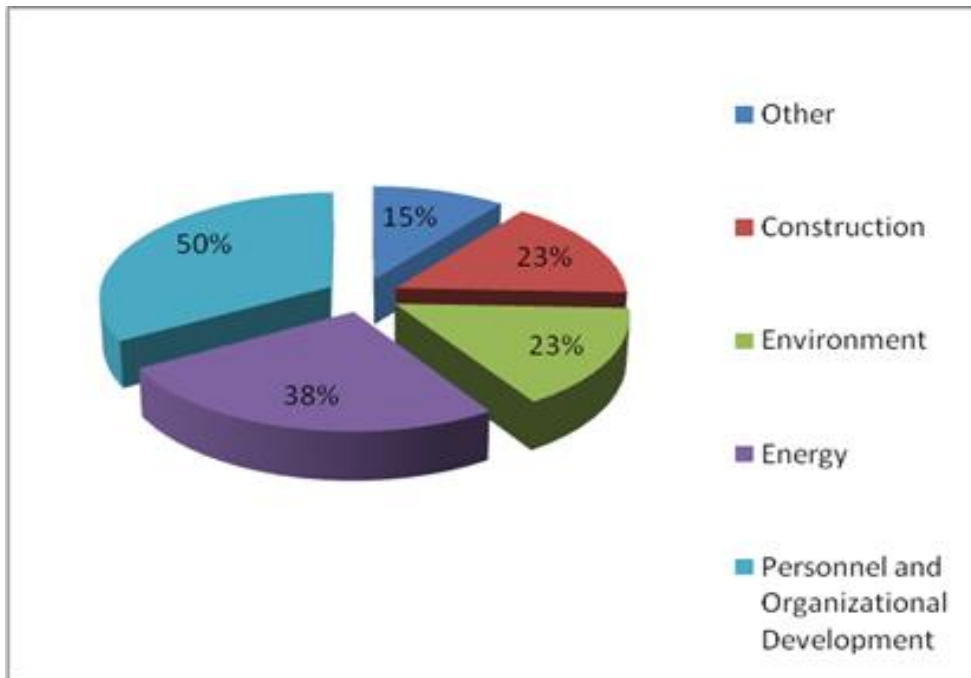


Figure 1. Answers to the question: What kind of CoE could you participate in?

Percentage of answers

The option “Personnel and organizational development” is represented in 50% of all answers given to this question. “Energy” is the second most frequent answer – 38% of all responses. “Environment” just like “construction” constitutes 23% of all answers. “Other” includes “vocational training (for SMEs)”, “SME management and financing”, “promotion of craft sector and entrepreneurship”, “service quality management”.

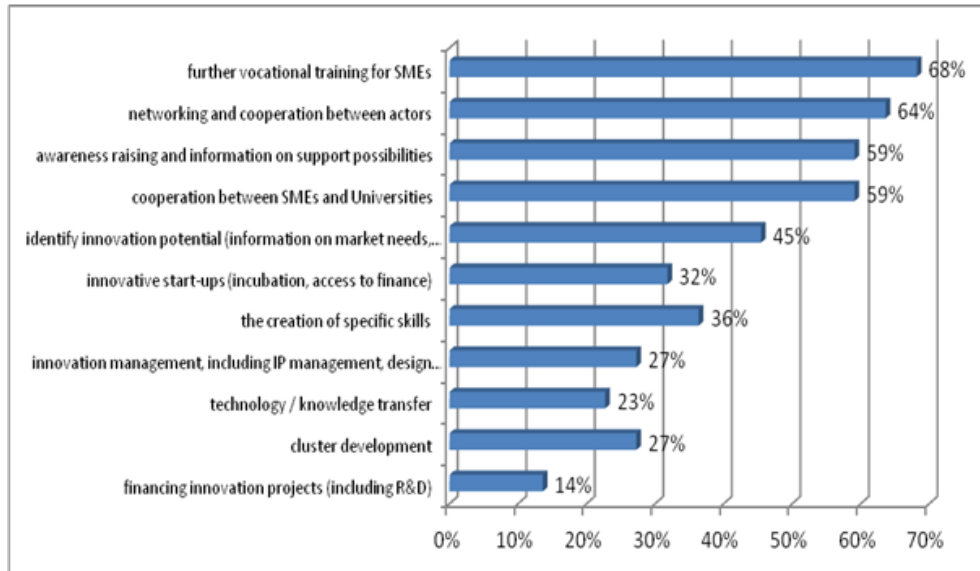
Almost 60% of all respondents are interested in the participation in “Personnel and Organizational Development”. As for “Energy” – 45% of them choose it, and 27% of organizations can participate in “Construction”, as well as “Environment” CoEs.

We also asked what type of innovation support respondents' institutions/organizations could be involved in. Almost seventy percent of respondents (68%), indicate that they can be involved in support of further vocational training for SMEs whereas 64% of organizations can be involved in support of networking and cooperation between actors. Almost 60% of the surveyed institutions can be involved in support of raising awareness and information on support possibilities and in support of collaboration between SMEs and universities. Around 45% can do so in terms of supporting the identification of innovation potential. It is interesting to see that 27% can be involved in support of cluster development and innovation management issues, including IP management and design. Respondents display relatively high interest (36%) in their organizations supporting the creation of specific skills.

Similarly, the most frequent option chosen by respondents is the interest in "support for vocational training for SMEs" (15%), and "support for cooperation and networking between actors" (14%). Thirteen percent of all answers refer to "support for cooperation between SMEs and universities" and also "support for raising awareness and information on support possibilities".

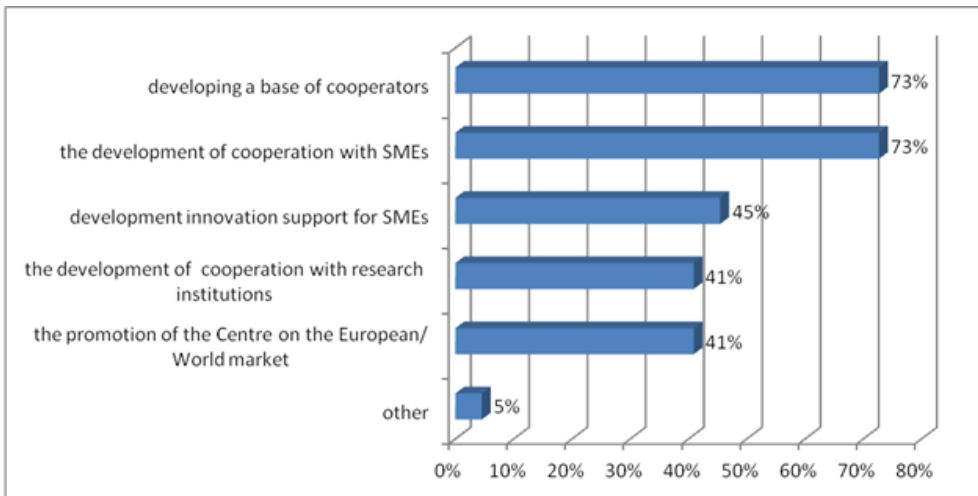
Respondents were asked what benefits they expect from CoE participation. It is interesting to see that 77% of them expect participation in joint projects (e. g. R&D, other EU projects). Also, a little more than 70% expect the development of innovation support for SMEs. Almost 60% look forward to benefiting from the development of further vocational training for SMEs. Approximately 40% of surveyed institutions expect benefits such as cooperation in technology and knowledge transfer, whereas 36% of them would expect benefits in terms of cooperation with research experts. Only 23% would envision a benefit from the development of dual bachelor's study courses.

Figure 2. Answers to the question: In the Center of Excellence, what type of innovation support could be your institution/organization involved in? *Percentage of respondents*



Similarly, the most frequent option, chosen as a benefit out of CoE is participation in joint projects (27% of responses), development of innovation support for SMEs (25%), development of further educational training (20%). Some respondents mention the exchange of contacts as well as international networking opportunities for cooperation in other markets.

Respondents prompted about actions that should be taken by members of CoE for their development acknowledge that “development of the base of cooperators” and also “development of cooperation with SMEs” is required (by more than 70% of



organ-izations). 45% of organizations believe that CoE members should “develop innovation support for SMEs” as part of CoE activity. A little more than 40% of organizations believe that CoE members should “develop cooperation with research institutions” and “promote CoE on the European/World market”.

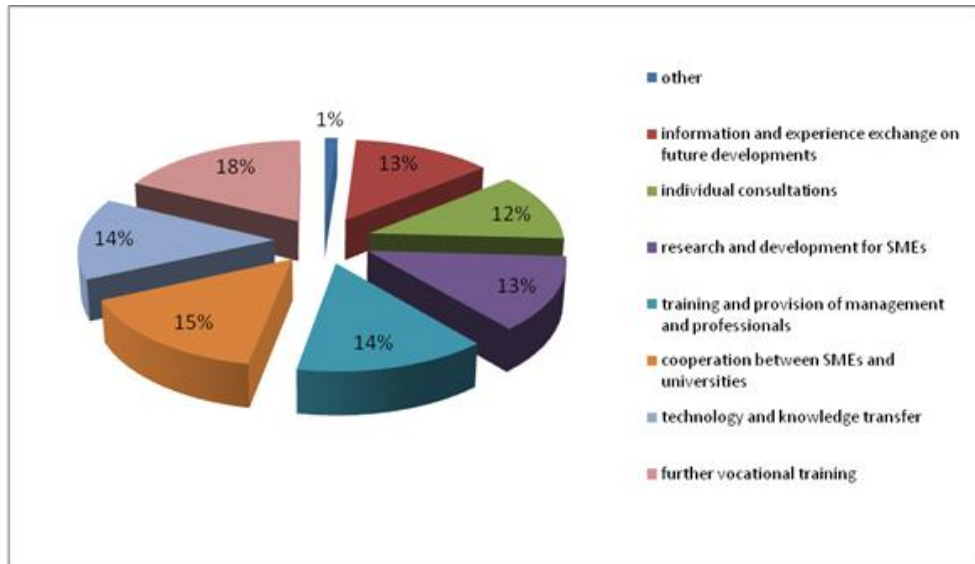
Figure 3. Answers to the question: What actions should be taken by the members for the development of Centers of Excellence? *Percentage of respondents*

Likewise, 36% of answers given to this question, stand for “developing a base of co-operators” and “development of cooperation with SMEs”.

One respondent indicates that members should make attempts at acquiring funds for CoE operation and promotion of CoEs.

For the surveyed institutions and organizations, “further vocational training” as a measure for promotion of innovations in SMEs is especially important – almost 70% of re-spondents acknowledge this. Nearly 60% find “cooperation between SMEs and uni-versities” as important, and between 50-55% of them regard “technology and knowledge transfer”, “training and provision of management and professionals”, “in-formation and exchange of experiences” together with “R&D for SMEs” as especially important.

Figure 4. Responses to the question: What measures to promote innovations in SMEs, that should be realized by Centers of Excellence, are especially important? *Percentage of respondents*



Similarly, the most frequent answer signifies the importance of “further vocational training” (18% of all answers), “cooperation between SMEs and universities” (25% of all answers), “technology and knowledge transfer” (14% of all answers) and “training and provision of management and professionals” for CoEs’ tasks and activities. One organization recognizes the importance of starting contacts between actors from different systems – there should be a body/person responsible for networking and cooperation for finding business partners and investors for universities. There should also be a larger emphasis on making bodies responsible for sustainable relationships between business and universities more visible and recognizable.

2.4 | Concept for Center of Competence “HR for SMEs”

The Center of Competence should be the approach to bring together science (teaching, research and development) and local/regional actors (e. g. chambers, SME associations, economic and regional development, etc.) as well as SMEs on a common topic in order to exchange experiences, carry out qualifications and design joint developments (product and process innovations).

Such a group (innovation incubator) meets at regular intervals. The group has a coordinating person who moderates the meetings and also ensures that topic-specific expertise (e. g. from a college/university) is called in. The demands on persons and institutions involved are above all, according to the underlying understanding of dialogues:

- Being open to interdisciplinary and transdisciplinary cooperation (i. e. also to the exploration of the interpretation/perception of the other disciplines and the operational practitioners).
- Being interested in a joint solution (winning together = win-win).
- Being able to translate technical language into understandable statements in order to facilitate joint learning.
- Being ready to understand the understanding of others (listening = to appreciate with head and heart the perceptions and statements of others in respect).

Partners of the Center of Competence are different kind of higher education institutions, chambers and other SME supporters and educational institutions. Local/regional politics including public funding institutions are to be involved for political support as well as for financial funding; further national and international funding is to be acquired, e. g. for investment funds, but also for the development of a personnel infrastructure including start-up financing for the coordinating institution as well as material resources and travel expenses. Potential companies must be acquired in good time and involved in the conceptual development.

It should be started rather small, which also means accept normality with regard to demand, but create excellence in supply. In any case, this means using the existing networks, tackling rather low-threshold topics, not wanting to integrate all disciplines, not involving too many companies - but starting and testing are desirable and promising.

The international organisation Hanse Parlament embodies:

- Baltic Sea Chambers: An association of fifty chambers of commerce, SME association and VET institutions from thirteen countries, dedicated to promoting SME implementation of dual vocational training and further education and strengthening of innovations.
- Baltic Sea Academy: An association of twenty colleges and universities from nine countries, implementing dual Bachelor's degree programs and promoting vocational training and innovation in SME.

With an experience of more than twenty years, the Hanse Parlament suggests that measures on innovation promotion in SME should be broadly defined, covering and including all relevant areas, such as,

- ✓ implementation of research and development projects
- ✓ knowledge and technology transfer
- ✓ qualification measures for management and employees
- ✓ internal, inter-company, and international cooperation
- ✓ group and individual business advice

It is key for SMEs to receive funding and services from a single source, tailored and just in time. A pivotal task of chambers is to secure these parameters, as the chambers are or should be the first and regular contact partner for businesses. They establish networks promoting SME, bundling their forces for sharpening their focus on SME. In such networks, chambers undertake a lead initiative, they coordinate tasks and they are the central point of contact, also involving further funding institutions, especially universities and colleges. Having such a single point of contact, SME can draw upon the potential of an entire region.

In such networks, the task of chambers is also to ongoingly advocate SME-specific interests vis-à-vis policy makers, administrations, universities, colleges, etc.

Being a supportive network structure for the BSR, chambers, and by carrying out the mentioned essential promotional tasks for SME, the “Baltic Sea Chambers” of the Hanseatic Parliament is assuming central development work, promoting innovation and attracting also other institutions, mainly colleges and universities for a cooperative pro-vision of funding.

Higher education institutions are indispensable institutions for qualification measures and the promotion of innovations in SMEs. Therefore, together with eighteen higher education institutions, a second Baltic Sea Region-wide network for the promotion of SMEs was founded, the Baltic Sea Academy.

This established system of innovation support has made the chambers associated in the "Baltic Sea Chambers" a first point of contact for companies. Now they cooperate with higher education institutions associated with the Baltic Sea Academy and involve them in development and promotion tasks to enable SMEs under the auspices of the Hanse Parliament,

- a) to use funding of their local chambers via Baltic Sea Chambers, as well as to draw upon best practice, expertise and on potential of all further chambers across the BSR.

- b) to secure via the Baltic Sea Academy knowledge, capacities, etc. of all involved colleges and universities across the entire BSR.

Thanks to an extensive network of chambers, colleges and universities, collaborating with the Hanse Parliament, businesses in all countries and in most regions of the Baltic Sea Region can be reached, giving SME tools, via their respective regional chambers,

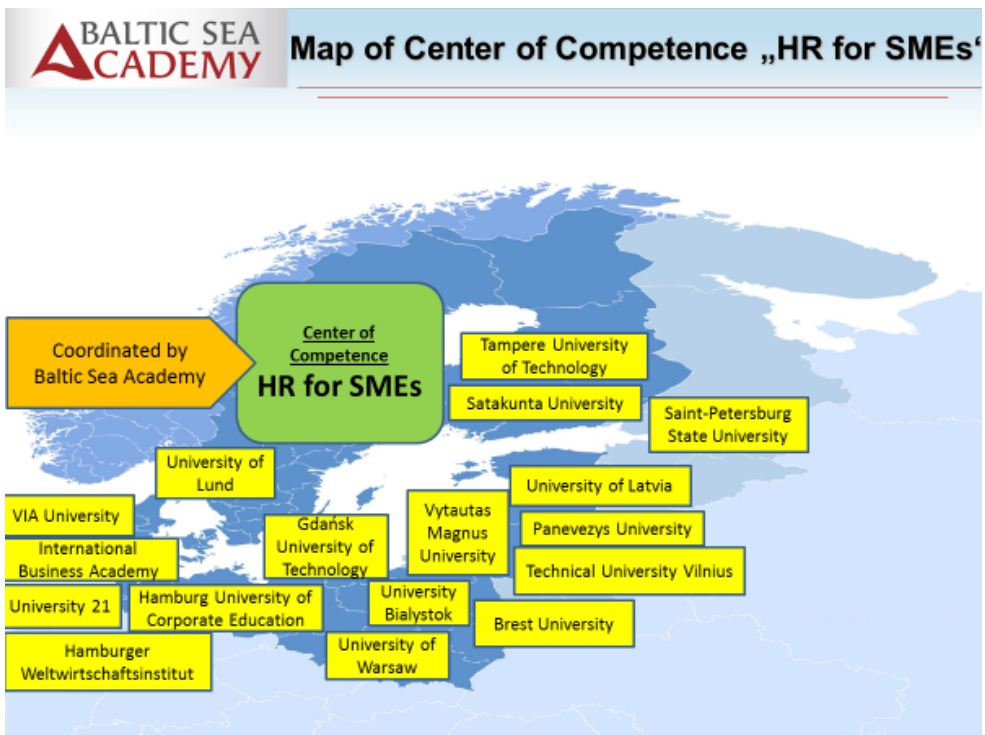
and regardless of their location, to exploit knowledge and funding capacities of the entire Baltic Sea Region.



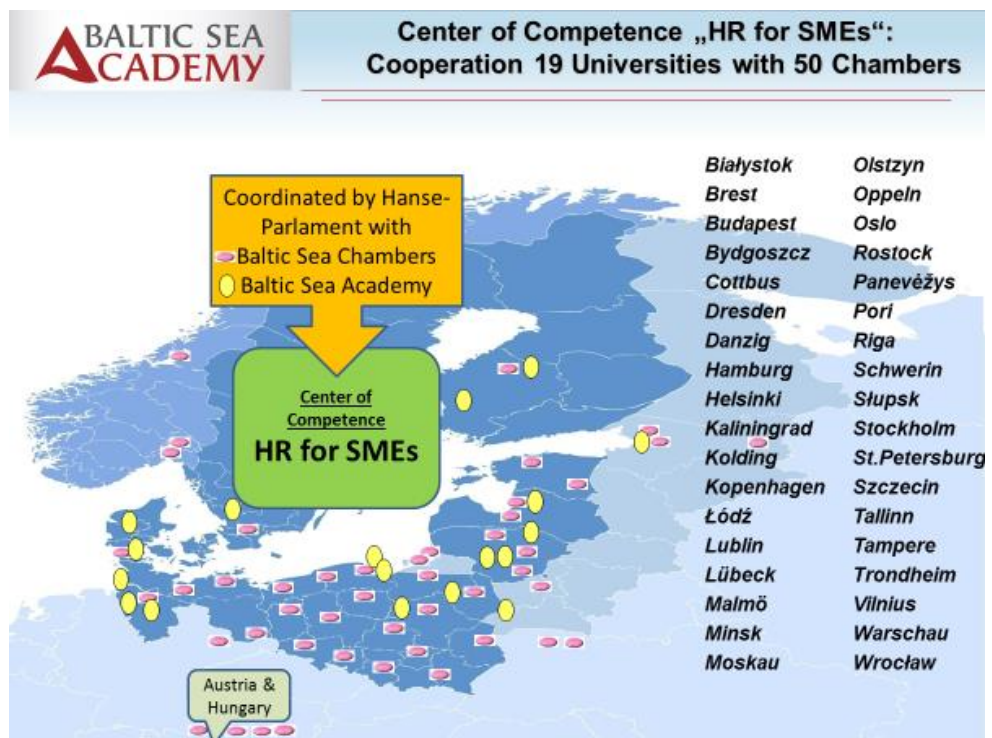
For the establishment of the Baltic Sea Region-wide competence center "Human Resources for SME", a driving force and hub for the qualification and innovation development of SMEs in the field of workplace qualification, the development of educational measures, the implementation of knowledge and technology transfer and the performance of R&D tasks, will become the existing SME support network, which has been successful for many years.

The Baltic Sea Region-wide competence center "HR for SME" is strengthened by cooperation with higher education institutions from various Baltic Sea Region countries, which are united in the association of the Baltic Sea Academy. The participating higher education institutions agree on a division of tasks, which enables the individual partners of the center to specialize in certain task areas while covering all relevant topics

and issues related to innovation in the workplace. The Baltic Sea Academy is the coordinating party in this center of competencies (CoC). As a command center, it ensures the cooperation of the process participants and acts as an impulse generator, coordinator, think tank and service provider for the continuous implementation of qualification and innovation strategies for SMEs. In this context, the Baltic Sea Academy will also take over the ongoing operation of the "Information & Cooperation Work-place Innovations" platform developed in the project and ensure regular updates and further developments.



Fifty chambers of commerce, industry and crafts, SME associations and other vocational and education (VET) institutions, united in Baltic Sea Chambers, are associated partners of the CoC, acting as a hub between SME and the CoC. They are advocating concerns and needs of SME towards colleges and universities on an ongoing basis. They also transfer the results to SMEs, advising them on implementations, participating in development tasks, and continuously performing qualification tasks for SME, and participating in implementation of dual bachelor's degree courses. Joint work in the Hanse Parliament ensures smooth cooperation among chambers and colleges/universities.

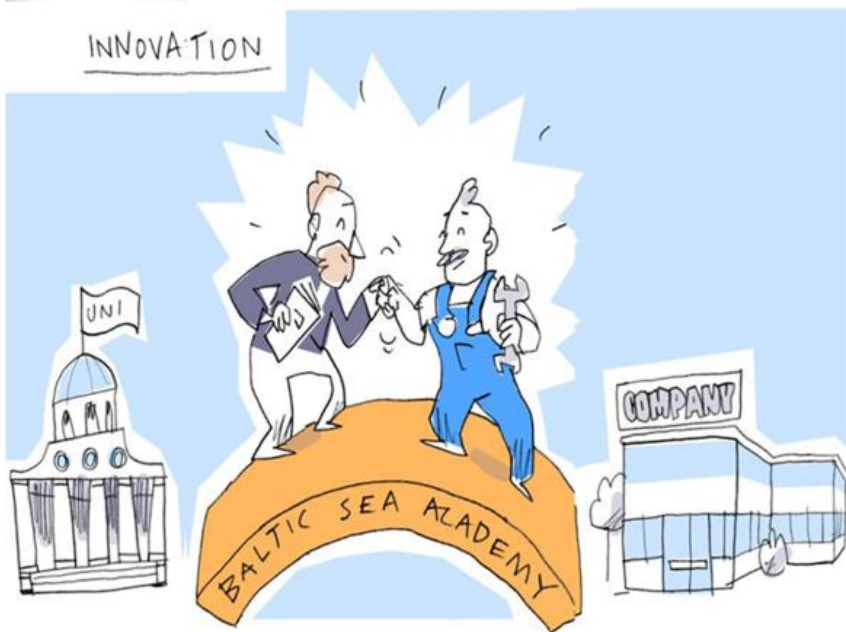


Individual CoC higher education institutions work directly for SMEs across the entire Baltic Sea Region. They also carry out R&D tasks, e. g. by developing curricula or innovation-enhancing instruments. Furthermore, they support implementation of their results via train-the-trainer programs or via individual implementation advice. All CoC services, funding, results, etc. are available free of charge to all members of the Hanse

Parlament, thus enabling them for implementing result-based innovation funding for SME across the BSR. In close collaboration among the partners and chambers, the CoC can propose ready offers from a single source, including transfer, advice, R&D, further education etc., providing all services required by SME.

The work concept of the CoC “HR for SME”

- promotes an excellence-driven center of competence for individual SME, covering education, R&D and development, and promoting workplace innovation for SME in the BSR;
- enables the establishment of an effective one-stop innovation support center for SMEs in all countries and almost all BSR regions, coordinated by the Hanse Parliament, always in close cooperation with its dense network of SME promoters;
- involves SMEs in innovation funding across the board, regardless of their location, thus ensuring access to innovation promotion in peripheral regions.



The Center of Competence “HR for SMEs” is developing under the project “Innovative Entrepreneurs and Innovation Support for SME: Knowledge Alliance - Human Resources and Organisational Development” as a network for the BSR. It will commence its activities after the completion of the project and will continue the project activities by continuously implementing and developing the following measures developed in the project:

- maintaining the platform “Information & Cooperation on Workplace Innovations” by Baltic Sea Academy;
- Train-the-trainer program for qualification of teachers and advisors of chambers and colleges/universities to generate a pool of always-available well-qualified staff for carrying out the support measures across all regions of the Baltic Sea;
- Implementation of best practices in workplace innovation and new methods and tools for SME on workplace innovation by transfer to SME, advising them on implementation;
- Continuous training for SME and their employees carried out by chambers

a) employees on the way to co-entrepreneurs

b) digitilisation and human capital

c) innovation processes

- Implementation of the dual bachelor’s degree program “Human Resources and Business Administration” by individual universities, with the support from respective local chambers.

In addition to continuing the project activities, the Competence Center “Human Resources for SME” will assume lighthouse functions for the entire BSR, implementing joint development projects. In this context, the universities will take over the following tasks:

- carrying out complex research and development tasks

- ensuring the transfer of best practice, knowledge and technology
- staff of colleges and universities should specify their competences and areas of interest in dealing with SMEs. This information should be entered into a central database (e. g. a knowledge bridge) so that SMEs could find a potential partner quickly and in a targeted manner. This would increase the efficiency of communication.
- carrying out R&D tasks for individual SME or SME groups, e. g. industry-related projects
- drafting curricula for related dual bachelor's courses and implementations
- developing further training courses and support of implementations by provision of lecturers
- implementing advice and train-the-trainer seminars for all HP members
- developing related capacities and provision of experts and lecturers for tasks of chambers and involved colleges and universities
- carrying out development tasks for individual chambers, as well as for colleges and universities

As associated cooperation partners of the CoC, chambers, SME organisations and other vocational training institutions take on the following tasks, in particular:

- communication between SMEs and higher education institutions
- transfer of best practice, new technologies, etc. to SME, and implementation support
- participation in R&D tasks in SME
- advise and support of SMEs as training partners in implementation of dual study programs
- organisation of initial VET and implementation of courses on new technologies

- carrying out continuing VET for SMEs and their employees
- organising all VET examinations
- advising and supporting SMEs in all relevant matters
- representation of SMEs interests vis-à-vis any social groups

Based on the above concept, work and business plans for commencing activities and on implementation of complex tasks upon completion of the project will be developed, coordinated and adopted for the Center of Competence “HR for SME” during the project.

2.5 | Work and Business Plan for the Center of Competence

2.5.1 | Continuation of Project Activities

According to the concept, the Center of Competence "Human Recourse for SME" started its work on December 31, 2021. The following activities are carried out in continuation of the project “Innovative Entrepreneurs and Innovation Support for SME - Knowledge Alliance “Human Resources and Organisational Development””.

- a) Baltic Sea Academy
 - coordination of all operations
 - supporting partners in implementations
 - ongoing operation, updating and further development of the “Information & Cooperation Workplace Innovations” platform
- b) Colleges and universities
 - further development of curricula for further trainings, and support in implementations by provision of lecturers
 - carrying out of the train-the- trainer program for teachers and advisors of chambers and universities

- carrying out of the dual bachelor's study program "Human Resources and Business Administration"
- c) Chambers and SME associations
- carrying out three training programs for SME and their employees
 - participation in development projects in SME
 - best practice transfer, support in implementations and advising SME

2.5.2 | Further Development and Expanding the Center of Competence

Within the scope of further development and expansion of Baltic Sea Region-wide Center of Competence "Human Recourse for SME", four main goals are pursued:

- enhancing international cooperation and a regular, profound exchange of experience, as well as an open information transfer to third parties (e. g. to companies, administrations, interested public etc.)
- implementation of new forms of cooperation between universities and SME. Implementation of R&D tasks for and together with SME, and comprehensive promotion of workplace innovations.
- development and implementation of innovative qualifications in vocational training, further education and higher education based on the work-based-learning approach, as well as tailored securing of the future generation of entrepreneurs.
- implementation of R&D work and further relevant funding projects for the development and implementation of new qualification and innovation promotion measures.

For achieving the goals described above, the following activities in the field of workplace innovations are planned:

- a) Hanse Parliament, Baltic Sea Chambers and Baltic Sea Academy
- management and coordination of the CoC by the Baltic Sea Academy,
 - ensuring cooperation with chambers and coordinating cooperation with Baltic Sea Chambers,
 - joint consultations, regular information exchange and mutual experience exchange at general member meetings and working sessions of the Hanse Parliament,
 - providing information as part of day-to-day business; advising and providing documents dedicated to various target groups, e. g. companies, educational institutions, politics, public administrations etc.,
 - transfer of ready funding concepts and curricula, including best practice examples, to relevant funding institutions and educational institutions
 - demand-oriented implementation of process advice and support during implementations,
 - profound experience exchange, promotion and broad communication of details on needs, concepts and the implementation options of dual vocational and higher education.

At all general meetings and working sessions of the Hanse Parliament, consultations, feedback, further development of existing and new additional educational and promotional measures are the subject of exchange. For the accomplishment of these extensive tasks further appropriate promotion projects are accomplished.

- b) Higher education institutions
- carrying out of complex research and development tasks
 - ensuring the transfer of best practices, knowledge and technology

- implementing R&D tasks for individual SME or SME groups, e.g. industry-related projects
 - development of curricula for relevant dual bachelor's courses and implementations
 - development of further training courses and support in implementations by provision of lecturers
 - implementation advice and train-the-trainer seminars for all HP members
- c) Chambers, other SME sponsors and VET institutions
- communication between SME and colleges/universities
 - transfer of best practice, new technologies, etc. to SME and implementation support
 - participation in R&D tasks in SME
 - advising and support for SME as training partners in the implementation of dual study programs
 - organisation of initial VET and implementation of courses on new technologies
 - implementation of professional development for SME and their employees
 - advising and supporting SME in all relevant matters

2.5.3 | Business Model for Future Work

The ongoing implementation of the above work is coordinated by the Baltic Sea Academy and the Hanse Parliament as part of their day-to-day business. This work comprises joint consultations, regular information exchange and mutual sharing of experiences. As a result of these consultations, a decision is made, guided by the Hanse

Parlament, on further development of existing and new complementary measures, including the division of tasks between the partners.

A regular exchange of information and experience, as well as manageable works are financed by the Hanse Parlament and its members. More complex projects and development tasks are carried out within the framework of existing or new funded projects.

The ongoing implementation of educational measures is financed from various sources:

a) VET

As it is the case with all other recognised professional training courses, all measures are financed from national funds.

b) Continuing VET

Cost-covering fees are charged to participants to cover the ongoing implementation of the professional development measures. Where possible, existing financial subsidies are used to reduce the participation fees, e. g. from the employment service or other regional/national funding programs.

c) Higher education study courses

Dual bachelor's degree programs are financed by public higher education institutions from national funds. In the case of private universities, participation fees are charged. Usually, the participating companies cover the fees, or they are split in equal proportions, among students and the participating companies.

Innovation funding and development projects are carried out in connection with advanced trainings and university degree programs and, accordingly, they are financed from sources described under b) and c).

For more complex projects, such as in-depth development work or R&D tasks, projects are developed with funding from national and EU funds, which are applied for and implemented by the Hanse Parlament together with individual colleges/universities and chambers of commerce from different countries.

Based on past experience and the available results, it was decided at an early stage that larger interrelated funding projects should be developed and applied for under the auspices of the Hanse Parliament, in particular:

- three-level centres of professional excellence: qualification, entrepreneurship and innovation in Green Economy
- recruiting the Young Generation Workforce: innovative HR management
- customer-oriented innovations in SME

All three projects have been developed, submitted for EU funding and already approved. They are carried out over the next three to four years, starting in autumn 2020, and will also significantly stimulate and shape the work of the Centre of Competence "Eco Innovation".

2.5.4 | Best Practices and Outlook

The structure, organisation, working and cooperation forms of the Center of Competence "Human Recourses for SME" use instruments, experiences and procedures from two best practice models from Sweden. Lund University, which is a founding member of the Baltic Sea Academy, has developed two models which have been operated very successfully for many years.

The Full Scale Lab is

a) a concept to specify the needs and interests of companies with the option of access to various knowledge disciplines and to arrive at a systemic solution

b) a room equipped with flexible analogous materials (e. g. for setting up a production unit made of light materials such as cardboard, polystyrene or like simulate optimal processes, plus training equipment such as laptops, white board, fashion rationing material, flipcharts etc.) and with Virtual Reality Technology (optical track-ing systems),

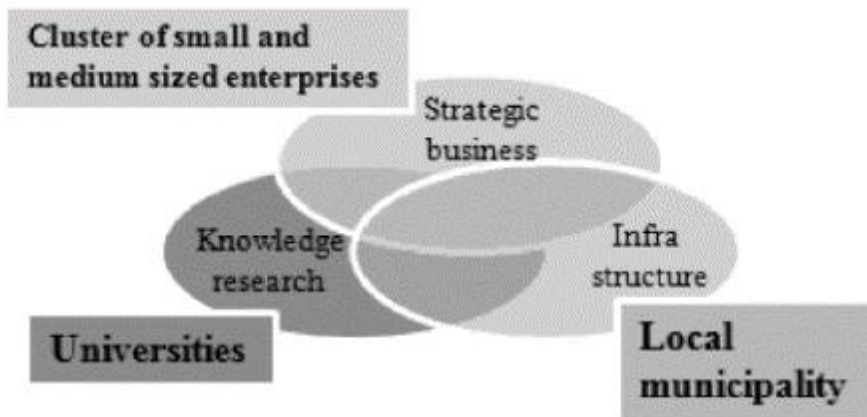
in which companies can conduct trials and seminars with their employees and staff from universities and educational institutions.

The laboratory is primarily used for spatial design or technical developments. For this purpose, the expertise of the corresponding disciplines can be accessed.

In accordance with this concept, a centre for human resources will be established by involving various disciplines. In addition to work design, this centre will deal with questions of organisational and personnel development, test aspects of risk assessment, offer opportunities for qualification, seminars (e.g. for the development of corporate guidelines), etc. and create an environment for creative solutions.

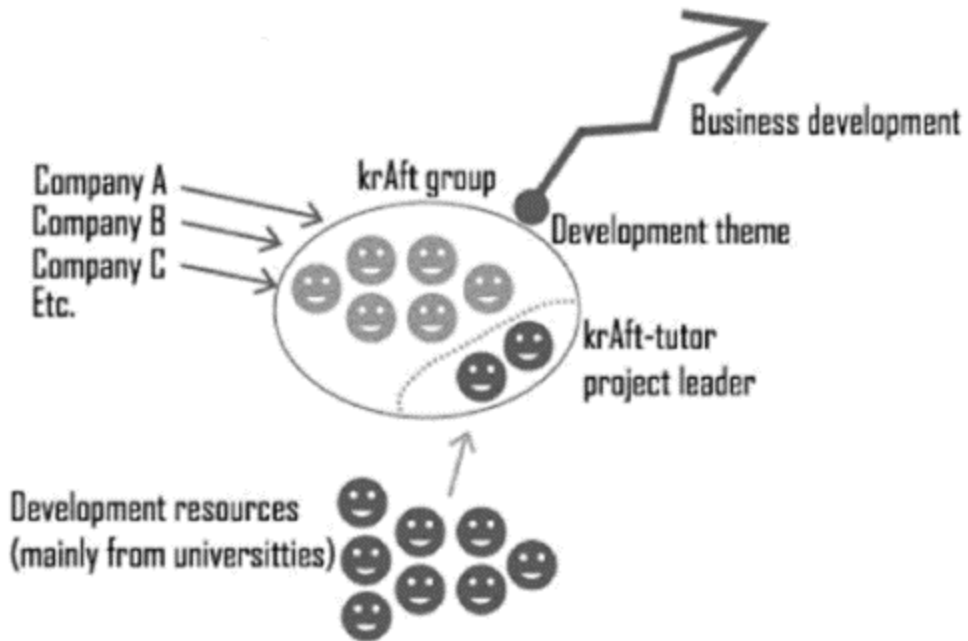
The krAft programme is

the approach of bringing together science (research and development) and local/regional actors (e.g. technology promotion, business and regional development, chambers of commerce, etc.) and SMEs on a common theme in order to exchange experiences and - if necessary - design joint developments (product and process innovations).



BSA (ed.): SME relevant sectors in the BSR ..., Hamburg 2012, p. 13

Such a group meets at regular intervals. Necessary is a topic of interest to everyone (e.g. age-appropriate work design, recruiting and training, cooperation with educational institutions, development of a company work ability management system etc. pp.) The group has a coordinating person who moderates the meetings and also ensures that topic-specific expertise (e.g. from a college/university) is called in. The programme also stipulates that the experienced group members are subsequently able to supervise and moderate other krAft groups, etc.



BSA (ed.): SME relevant sectors in the BSR ..., Hamburg 2012, p. 17

According to the underlying understanding of dialogues the demands on persons and institutions involved are above all:

- To be open to interdisciplinary and transdisciplinary cooperation (i.e. also to the exploration of the interpretation/perception of the other disciplines and the operational practitioners).
- To be interested in a joint solution (winning together = win-win).

- Being able to translate technical language into understandable statements in order to facilitate joint learning.
- Being ready to understand the understanding of others (listening = to appreciate with head and heart the perceptions and statements of others in respect).

The Center of Competence "Human Recourses for SMEs" will start rather small, which also means accept normality in terms of demand, but create excellence in supply. This also means using the networks already in place, tackling rather low-threshold topics, not wanting to involve all disciplines, not involving too many companies. The medium- and long-term expansion of the HR Centre will follow the two best practices mentioned above, especially with regard to the establishment and testing of an HR laboratory (Work Well-being Lab).

2.5.5 | Vote

The present concept on expansion of the Knowledge Alliance "KA4HR", as well as on the development and ongoing operation of the Baltic Sea Region-wide Center of Competence "Human Recourses for SME" was developed within the project "Innovative Entrepreneurs and Innovation Support for SME - Knowledge Alliance "Human Resources and Organisational Development"". Together with the involved partners, the concept was thoroughly discussed and adopted at workshops. Further consultations and coordination took place at an international consultative and transfer conference, including all CoC partners and representatives from companies, politics, and administrations. At the general Members' Assembly, the members of the Hanse Parliament discussed the concept and decided to implement it.

3 | Train the Trainer Program

A train-the-trainer program was developed, tested and evaluated. Based on the evaluation results, the concept, curriculum and extensive teaching materials were revised and finalized and transferred to twenty higher education institutions. In the future, these universities and colleges will carry out the train-the-trainer program on an ongoing basis, so that qualified teachers and consultants are always available in all regions of the Baltic Sea Region for qualification, consulting and promotion of Workplace Innovation in SMEs.

3.1 | Concept and Curriculum of a Train the Trainer Program (TTT)⁶

Target groups

There are two target groups for the Train the Trainer Program:

- delegates - managers, scientific staff, lecturers or similar from institutions like universities, chambers, institutes who will carry out **the Train the Trainer program** afterwards,
- consultants - persons who carry out **consulting processes** afterwards.

Aims/task of the training

The overlapping teaching objectives are:

- a) The trainers – respectively the delegates from institutions who train the trainers – get an overview of the structure and contents of the Train the Trainer concept, of analysis and intervention methods in process consulting and of three selected

⁶ Alexander Frevel, Arbeit und Zukunft, Hamburg

consulting topics, as well as an in-depth insight into the structure of consulting processes with the KAIN concept.

The institutions should be able to carry out the TTT seminar independently with the aim of enabling persons to carry out process consulting.

- b) The consultants (coaches) should be able to support companies in the development of their HR-policy as well as in workplace innovations through consulting and qualifying support.

The training material contains beside the PowerPoint presentation (Appendix 1) several additional attachments which should be read before training measures or consulting processes are carried out.

Seminar structure

Target groups / participants	(a) Managers/Lecturers and (b) Consultants from (or delegated by) the project partners (chambers, universities, other partners)
Duration	2 days, 16 lessons (each 45' minutes)
Language	English
Teaching methods	Lectures, teaching talks, working in small groups, case studies/ examples
Teaching materials	Information material (basics & backgrounds, thematic introductions, ...), ppt-presentation, questionnaires, question guides, checklists, analysis results, good practice examples ...
Course Contents	<ol style="list-style-type: none"> 1. Basics/overview of essential tasks and contents of employee-oriented and productivity-enhancing measures in HR-policy und workplace innovation 2. What is and how to apply with the KAIN-method (Knowledge Acquisition according to Individual Needs)

	<p>3. Overview of the contents of 3 SME-specific training courses:</p> <ul style="list-style-type: none"> ○ Employees on the way to Co-entrepreneurs ○ Digitisation & Human Capital ○ Innovation Processes <p>4. Instruments for analyses and interventions – How to</p> <ul style="list-style-type: none"> • moderate internal working groups and responsibility circles, • facilitate dialogues to develop goals and measures, • support implementation processes • evaluation of results and process progress <p>5. Attitudes and behaviour in consulting processes</p> <p>6. Supporting activities by Centres of Competence</p>
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Contents, Methods used and rough time Schedule

	Method	Time (in min)
Basics/overview of essential tasks and contents of employee-oriented and productivity-enhancing measures in HR-policy and workplace innovation – Concept of Work Ability	bring in one's own experiences (what do you know / think about ...)	45'
	lecture (ppt) and teaching talk	90'
What is and how to apply with the KAIN-method (Knowledge Acquisition according to Individual Needs)	lecture (ppt) and teaching talk	60'
	working out the application of the method with a case study in small groups	120'

<p>Overview of the contents of 3 SME-specific training courses</p> <ul style="list-style-type: none"> • Employees on the way to Co-entrepreneurs - Recruiting, retaining and achieving top performance • Digitisation & Human Capital - Cooperation and Communication in New Ways - Promoting Human Capital with Digitisation • Innovation Processes – Winning with innovations – employees, customers and business partners as innovation drivers 	<p>Lecture and teaching talk</p>	<p>Each 30' + 15' questions & discussion (Sum: 135')</p>
<p>Instruments for analyses ... Questionnaires, checklists, good practice examples</p> <p>... and interventions – How to</p> <ul style="list-style-type: none"> • moderate internal working groups and responsibility circles, • facilitate dialogues to develop goals and measures, e.g. prioritisation of the most important fields of action according to the need and the internal possibilities for action • support implementation processes 	<p>lecture and teaching talk</p> <p>facilitating of dialogues: testing the formulation of objectives and planning of measures along a case example</p>	<p>150'</p>

Attitudes and behaviour in consulting processes	Exploring own experiences and prejudices lecture and teaching talk	60'
Supporting activities by Centres of Competence	lecture	30'
Final debate and course evaluation		30'
Sum		720'

All teaching materials and the eight appendices listed below can be found on the project website in the results category www.ka4hr.eu:

Appendix 1: Presentation (PowerPoint presentation)

Appendix 2: Definitions of Human Resource Policy and Workplace Innovations

Appendix 3: Basics/Overview: Essential tasks and contents of employee-oriented and productivity-enhancing measures in HR-Policy and Workplace Innovation – Concept of Work Ability

Appendix 4: Training method “KAIN” -Knowledge Acquisition according to Individual Needs

Appendix 5: Questionnaires for the Analysis of existing – and desired – HR-Policies for Workplace Innovations

Appendix 6: Suggestions and recommendations

Guide and checklist for the offer and implementation of seminars “train the trainer / train the consultants”

Appendix 7: Effective Teaching and Training Techniques. Pori 2015

Appendix 8: Evaluation of a Change and/or Consulting Process – Questionnaire

3.2 | Implementation of the Train the Trainer Program⁷

Tasks

- Development of the Train the Trainer program

The support of SMEs in the targeted development or optimisation of

- a demographically stable,
 - age and ageing-appropriate personnel (human resources) policy
 - that promotes the work ability of employees
- requires support from experienced, external consultants.

In order to qualify this group of people, trainers for consultants should be trained.

- Testing and Evaluation of the Train the Trainer Program

The pilot test should be carried out with participants from the defined target group.

The task of course evaluation was the responsibility of Satakunta University of Applied Sciences.

Implementation of the development task

Based on the survey of SME organisations and companies (see "Identification of SME Conditions and Qualification Needs"), the curriculum for the Train the Trainer Program was developed in consultation and cooperation with the project partners.

At the request of the project partners, the approach was extended to training for consultants in order to include more practical aspects of consulting tasks and thus be able to address a broader target group for the pilot testing.

⁷ Done by Alexander Frevel, Arbeit und Zukunft, Hamburg

These two target groups for the pilot test were identified:

- Delegates (managers, scientific staff, lecturers or similar – in particular partner organisations in the KAforHR-project) from institutions (universities, chambers, institutes) who will carry out the train the trainer/train the consultant's program afterwards,
- Consultants = persons who carry out consulting processes afterwards.

The curriculum was based on these two target groups and included the goals and learning objectives, planned content, schedule and methodological guidance.

The course materials include the following parts:

- Presentation (PowerPoint presentation)
 - Short definitions of Human Resource Policy and Workplace Innovations
 - Basics/Overview: Essential tasks and contents of employee-oriented and productivity-enhancing measures in HR-Policy and Workplace Innovation
 - Concept of Work Ability
 - Training method “KAIN” – Knowledge Acquisition according to Individual Needs
 - Consulting Process
 - Questionnaires for the Analysis of existing – and desired – HR-Policies for Workplace Innovations
 - Suggestions and recommendations
- Guide and checklist for the offer and implementation of seminars “train the trainer / train the consultants”

- Effective Teaching and Training Techniques. Pori 2015
- Evaluation of a Change and/or Consulting Process – Questionnaire (example)

Course implementation

The pilot testing of the training seminar took place on 16th (10 lessons) and 17th (6 lessons) October 2019 at the University of Latvia in Riga.

Reaching the target group

In total, 15 people participated in the course, mainly project partners from Latvia (7), Poland (3), Finland (2), and Germany (3).

The participants corresponded to the intended target group

- Train the Trainer (predominantly from chambers and universities)
- Train the Consultants (only to a small extent)

as most people from chambers and universities have no practical experience in business consultancy; the qualification of consultants has not yet been implemented by the participating institutions.

The participants' limited prior knowledge of concrete consulting processes in companies somewhat limited the desired / intended practical relevance of the training.

- Nevertheless, the contents seemed to be familiar and comprehensible.
- But some of the tasks of consultants were at best theoretically known.
- In some cases, a more directive rather than a participatory approach to support development processes seemed to be favoured.

In this respect, a significantly improved basis of knowledge and skills on counseling processes and their practical testing is required before counselors are trained. This was not planned conceptually and could not be achieved within the framework of this seminar.

Time structure

The course was completed in the planned time.

However, the instructor who led the course had the impression that not all the content was fully understood and with the intended purpose (e.g., attitude in consulting

processes, question development regarding the actual needs and opportunities of the consulting firm).

Contents

The ideas for topic-specific consultations

- Employees on the way to Co-entrepreneurs
- Digitisation & Human Capital
- Innovation Processes

were presented in this pilot test. They were mainly technically orienting, but not action-instructive for further tt/rtc seminars. The time (about three teaching hours) can be used much better for testing counselling tasks and/or the exchange of professional experience.

Conclusions

The developed curriculum is suitable in the central subject areas for the training of consultants and for the training of trainers for consultants.

For a successful application it seems necessary

- either to define more precisely the competence requirements of the participants – and the compliance with this rule –
- some few days more should be set aside for training, including more extensive case studies and the participation of companies as well as experienced consultants.

Further adjustments in the curriculum a) in the contents and b) methodically/didactically are not necessary, especially since a different time structure must be provided for further applications anyway as soon as subject-specific aspects form the focus.

3.3 | Evaluation concept, results and application notes⁸

3.3.1 | Evaluation concept

Introduction

Evaluating the training, teaching and learning has been an emerging issue in the 1980's when it was actively researched within several disciplines like education, pedagogics, psychology and organizational sciences. During the 1990's the enthusiasm flagged, but the interest woke up again in parallel with the waves of refugees and immigrants arriving to the Europe. The needs to include newcomers to the hosting society, to teach local culture, habits and language, and to train professional skills to comply with the local requirements have highlighted the importance of developing new teaching and training methods. These new methods and tools in teaching and training should be compatible with the requirements set by cultural diversity of both the refugees and immigrants, and the societies more or less voluntary receiving the incomers.

Furthermore, during the past two decades the western countries have met - in addition to enormous flood of settlers - another phenomenon that challenges the education system: The post-war baby boom generation reaches age of retirement. This has two consequences, both requiring the answers from school systems. Firstly, the western countries should have a capability and capacity to educate and train more and more nursing personnel to cover both the vacuum left by those retiring, and to answer to the needs of ageing population. Secondly, these countries should be capable to renew their education systems to be able to satisfy the needs of business, to be able to train skilled labor and to be able to educate more persons that are both capable and willing to create their career as entrepreneurs and to continue the work of retiring entrepreneurs. If this fails, the consequences for European economy might be fatal or even disastrous.

This challenges not only schools and universities or teachers and trainees, but also those developing the courses and teaching and training methods used in the courses.

⁸ Dr. Kari Lilja and Dr. Sirpa Sandelin, Satakunta University of Applied Sciences, Pori

Evaluating the learning of trainees, used methods and the impact of these methods on the learning would help teachers, designers and analysts to improve the methods.

The aims and targets of the evaluation are context dependent issues. Thus, in ideal world, the courses, the methods used in the courses and the means to evaluate the outcome of the course, the learning of trainees and the efficacy and success of the methods should be designed together so that the whole course is seen as main process inside which the training and evaluation are parallel subprocesses. This would be the best way to ensure that exactly those goals set to this unique program are measured during the evaluation. In this case “Train the Trainer” -training program has been planned parallel with the planning of the evaluation.

Train the Trainer program

The “Train the Trainer”-program has been developed to respond the challenges met by those aiming to strengthen the awareness and competences for target-oriented HR-policy and workplace innovations in SMEs via training and consulting the entrepreneurs and personnel of SMEs. The trainers, consultants and coaches should be able to support companies in the development of their HR-policy as well as in workplace innovations through consulting and qualifying support.

The target group of the program is lecturers and consultants from (or delegated by) chambers, universities, other partners. The planned duration of course is 2 days, 8 lessons per day. Each lesson lasts 45 minutes. Methods used in lessons will be lectures, teaching talks, working in small groups, case studies and examples from real world. Material used during the teaching consists of e.g., information material (basics & backgrounds, thematic introductions etc.), presentations, questionnaires, question guides, checklists, analysis results, good practice examples and so on. Course should contain at least following issues:

1. Basics/overview of essential tasks and contents of employee-oriented and productivity-enhancing measures in HR-policy und workplace innovation
2. What is and how to apply with the KAIN-method (Knowledge Acquisition according to Individual Needs)

3. Overview of the contents of 3 SME-specific training courses:
 - a. Employees and Co-entrepreneurs
 - b. Digitisation & Human Capital
 - c. Innovation Processes
4. Instruments for analyses and interventions – how to
 - a. moderate internal working groups and responsibility circles,
 - b. facilitates dialogues to develop goals and measures,
 - c. supports implementation processes
 - d. evaluation of results and process progress
5. Attitudes and behaviour in consulting processes
6. Supporting activities by KAforHR / Centres of Competence

Evaluation of courses including gained results and found problems is essential to be able to develop further the existing training programs as well as to consider the experiences gathered from these programs when building new curricula. The evaluation process of each course has been designed hand in hand with the course itself.

When evaluating courses, the goals and real results should be compared. This is not always possible or fair and just. The evaluation should be targeted only to such measurable issues on which the designer, teacher, facilitator or student himself has an impact. Evaluating the impacts of training programs against the presented main goals would require large societal research including the recording of the initial situation before starting the programs and the long-term follow-up research in which the conducted interventions and actions (In this case new forms of training and education) and their impacts on change of variables is followed (Figure 1). The final conclusions can be drawn just after some years or after decades. In this project this is not possible and the whole evaluation process must be rethought and simplified.

The most important variables, on point of view of achieving the goals set, are the motivation of student, the support he gets, the relevance of issues in curricula, the quality material and training and the ability of facilities to support training and learning. Although most of the variables presented above are so called soft variables, which can't be measured directly by targeting the measurement tool to some point or phase in the process, they can be assessed indirectly by assessing the feelings and comments of participants and other stakeholders.

Common steps of evaluation



Figure 1: Evaluation process

The assessment of feelings and comments can be done with many alternative tools, e.g., surveys, interviews and follow-up studies in which a researcher follows lessons and training in practice and observes the students and teachers collecting comments and registering e.g., the atmosphere in the classrooms and during the training in the work-places.

In this case the experiences and comments of participants will be surveyed by simple questionnaire with questions approaching the common impressions, the applicability of facilities, the relevancy and importance of each issue and the experienced quality of each lesson and material used.

Evaluation concept

The objective of the evaluation is to determine whether the goals of the program will be achieved in the implementations evaluated, and how the program has impact on student's career and opportunities.

The type of the evaluation follows standard course evaluation methods, i.e., formative, process and outcome evaluation, the latter only partial:

- The formative evaluation will provide feedback to the curriculum designers, developers and implementers to ensure that designed and implemented courses really meets the needs of the intended audience, i.e., assure or improve the quality of program. Formative evaluation and analyses will answer to the following questions:
 - Were the goals and objectives suitable for the audience?
 - Were the training methods and course materials appropriate for the audience?
 - Should the program or some part of it be developed further and if, how?
 - Furthermore, formative evaluation also provides information that benefits the development of the program, facilities, and timing.
- The process evaluation will provide information concerning the training and lectures, like asked questions and verbal feedbacks.
 - Process evaluation answers the question “What did you do?”
 - It focuses on procedures and actions used to produce results.
 - Process evaluation takes place during the training delivery and at the end of the training.
 - The co-organizer (Responsible for the course) monitors the training, describes the training process as a whole, and records the findings into the written report.

- The outcome evaluation tries to find out how the knowledge, attitudes, and behaviors of the audience developed. It takes a long time to find out the outcomes of the education and training, so in this stage only the main topics participants are able to do at the end of training, will be assessed.

The evaluation process will be as follows:

1. Semi-structured questionnaires will be created for the participants (Appendix A)
2. Time for the survey (approx. 15 minutes) will be allocated in the end of the course
3. In the beginning of the course the co-organizer (Responsible for the course) will inform participants about the evaluation and its importance for further development actions
4. The co-organizer (Responsible for the course) distributes the questionnaires to the participants to be filled in before leaving the course. The purposes of the questionnaire and how the data will be used should be explained clearly to the participants. This will help to improve the response rate and encourage them to make comments that can be useful to improve future programs.
5. The participants complete the questionnaires and return them to the co-organizer.
6. The co-organizer collects the questionnaires and deliver them to the evaluator.
7. The evaluator compiles all feedbacks and summarizes written analysis on the evaluations.

The evaluation approach will be based on a combination of qualitative and quantitative methods. The Microsoft Excel package will be used to transcribe the feedbacks and interviews. Open questions will be categorized, and qualitative analysis of the groups will be done.

The final evaluation report will discuss the following issues:

- Did the curriculum reach the targets?
- How well was the knowledge creation and sharing realized?

- Did the participants assimilate knowledge and tools?
- Was the venue and equipment appropriate for the training course?
- What kind of further development will be needed, if any?

Schedule of the evaluation

The schedule of the evaluation should be matched to the phases of the curriculum. There is no sense to evaluate the course before the students have a true and fair view of the course, its phases and contents. Thus, the survey will be conducted in the end of the course.

The appendices belonging to the evaluation are to be found at the project website: www.ka4hr.eu.

3.3.2 | Evaluation report

Introduction

The first Train the Trainer seminar for consultants and trainers was held in Riga 16th -18th October 2019. The aims of this seminar were a) train the first trainers within the frames of KA4HR-programme, and b) test and evaluate the training concept for further development.

Evaluation was conducted according to the process defined and described in the Evaluation concept. 11 participants completed the evaluation questionnaire in the end of the seminar. Questionnaire consisted of both the structured questions and free speech questions. Structured questions were claims concerning the common issues of the seminar and topics of the seminar. The truth of each claim was evaluated in Likert scale (1 = Strongly disagree – 5 = Strongly agree).

In the free speech questions, comments concerning the common issues and the course of the training, like “What was good” and “What could have been done better” were asked.

In the following chapters, results of the survey and recommendations derived from the results will be presented.

Results

The participants were most satisfied to the facilitation (Average 4,45). They also felt to have had enough time scheduled for the lessons (4,27). However, the probability to be able to utilize the knowledge when consulting the clients (3,36) or in their own future career (3,82) was not seen to be very high. (Figure 1).

Answering to this part of the questionnaire was more complicated, because the topics (or modules) were not named in the questionnaire. Most of the respondents identified six (6) different topics, one had divided SME-connected issues into three subtopics, two had identified only 5 topics and some had completed all the topics with same grade (4 vs 5)

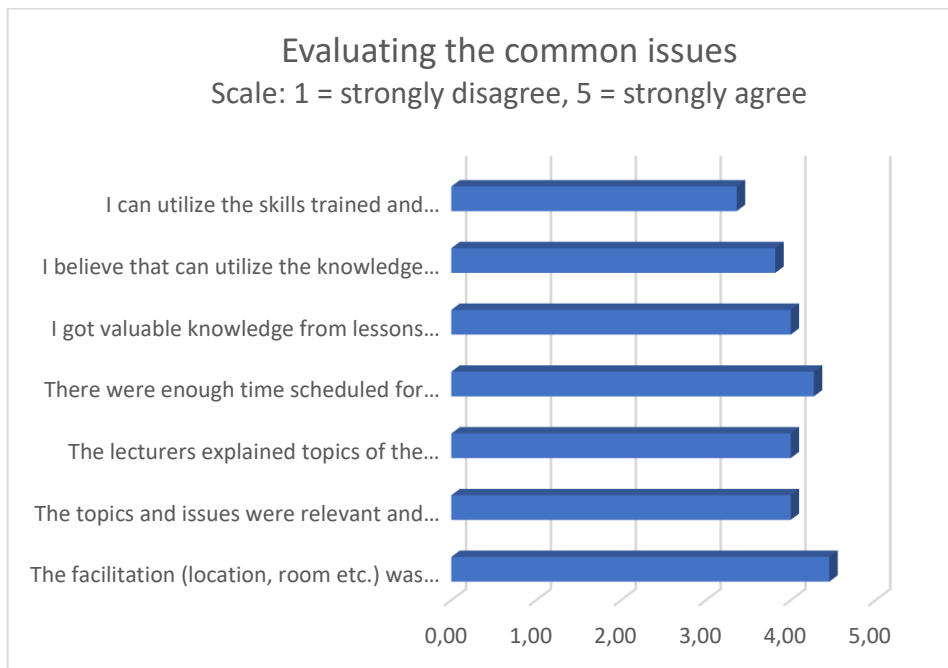
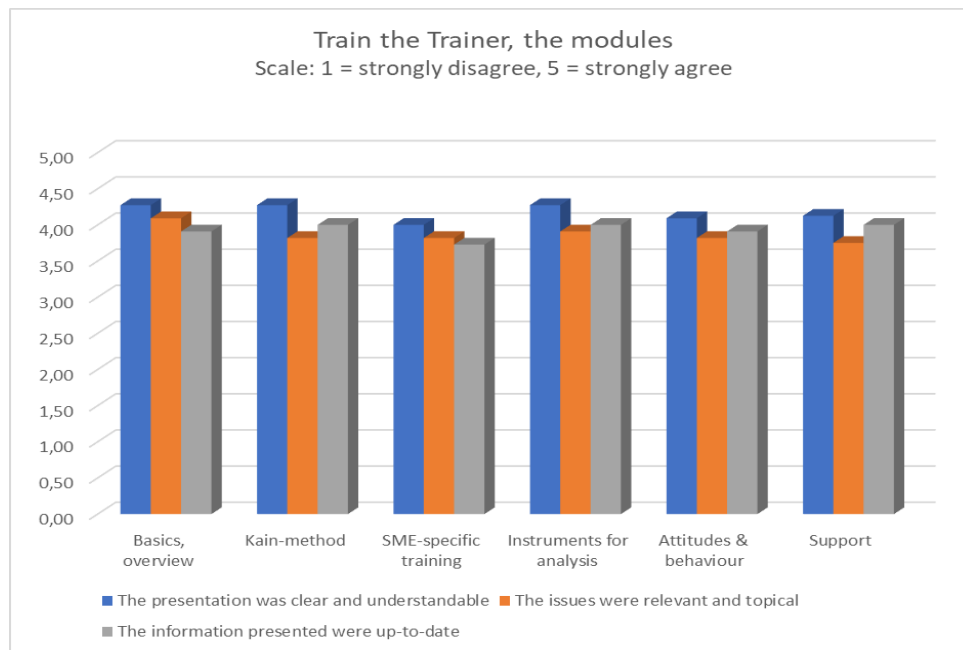


Figure 1: Common issues, average of the answers

The respondents were satisfied with the presentations which seemed to be clear and understandable (Average went below 4 only in SME-specific training). However, the relevancy and topicality of the issues and up-to-dateness of the information were in common below the grade 4 (Figure 2).



The free speech

In the free speech – questions, some issues were highlighted. For example, the contents and titles of the modules were found to be slightly ambiguous and might need some clarification. Also, the simulation game may need stronger direction. However, in common, the atmosphere was found to be good and relaxing, the group work and the mix of different methods were good points and those who hadn't been consultants, learned what it is to be a consultant. Nevertheless, the speakers should be better prepared, and the focus should more precisely have been set to the HR. Some had also found it confusing to have the TtT-seminar and workshop mixed together and somebody found it disturbing that some of the participants used their laptops not in tasks of workshop or seminar, but other businesses not connected to the theme. Only few

would recommend the course – in this form – to somebody they know. To support their customers, participants need knowledge, methods, willingness to do changes and practical advises.

Conclusions and recommendations

The participants in this course were mainly staff of project partners. In common, they did not have a lot of experience in consulting, although some of them had long experience. In this kind of situations there are two alternative ways to conduct the course. The first one is to utilize the experience of experienced consultants for example by asking them to tell true stories – this would give the practice some of the respondents were missing. The other alternative is to try to form the group as homogeneous as possible, so that all the participants are on the same line. However, in most cases this is not possible.

Clarification of basic concepts would be recommendable. This should be done in the beginning of the course. Rethinking the target group, to whom this course is meant and how much do they know about the topics and issues could help in this.

The relaxed atmosphere was the most mentioned positive argument. It would be a good idea to keep the course informal and casual in the future too.

Appendix: The list of free speech answers

- a) Common issues
 - a. The contents and titles were ambiguous and need some clarification
 - b. Well developed, presenters were really professionals, topics were refreshing, valuable, good simulation of real business life
- b) What was good
 - a. The atmosphere created in the room by the organizers / trainers was calm, relaxing, task oriented (5 pcs)
 - b. Group work (2 pcs)

- c. Mix of methods (2 pcs)
 - d. We learned what it means to be a consultant (2 pcs)
 - e. facilitator
 - f. Meeting other partners
 - g. Presenters, topics
 - h. Everything
 - i. Simulations
- c) What could have been done better
- a. The simulation game: Clear roles, organization etc (2 pcs)
 - b. Lecture after the lunchbreak in 1st day was a little difficult, something interactive could have been better
 - c. Not all speakers / presenters were specially well prepared
 - d. HR Focus was missing, the roles for the simulation were not clear
 - e. More information on HR in general
 - f. The workshop and the TtT should be clearly separated
 - g. No other works with laptops by the other participants
- d) Would you recommend the course to someone you know, if not, why not
- a. For people who likes listening, making notes etc, but it is not suitable for active people who would like to be more involved in the process
 - b. Yes, even for non-consultants, the methods are very useful (4 pcs "Yes")
 - c. Not as it is now.
 - d. Nothing new
 - e. No, to whom was TtT targeted?

- e) What do you need for supporting the customers
 - a. More practice
 - b. n/a
 - c. Knowledge, methods and willingness to do changes
 - d. More practice, training a new usage of methods, outside view, outside experiences
 - e. Translated materials
- f) other comments
 - a. This course was very suitable for people who are strong in analytic thinking, they like everything clear and defined. For those who like summarized information, texts and explanations were too long. Their attention will probably be lost.
 - b. Topic 3 would have been better if contents of trainings were already more developed
 - c. Thank you very much (2 pcs)

4 | Management Tools and new Practices

In order to create a uniform data basis for all the work of the Knowledge Alliance and to include regional specificities, comprehensive analyses of Economic Development, Demography, Education and Labour Markets in the Baltic Sea Region Countries were carried out. The report⁹ aims at giving a comprehensive overview of the demographics, economy as well as labour and educational markets of the Baltic Sea region as a whole and of the individual countries. While a clear divide between the countries North and South of the Baltic Sea can be seen with regards to economic indicators, this does not uphold regarding softer factors, i.e., work life conditions.

All European countries face the challenge of ageing and declining society. Therefore, special attention needs to be paid to attracting and retaining skilled workers, especially in bottleneck occupations in manufacturing, construction as well as health and social care. This can be done by attracting migrants and refugees as well as making the workplace more attractive through Workplace Innovations.

With regards to the educational system, the different cultures and achievements provide an excellent basis for learning from and with one another. The focus here should lie on general and vocational education.

4.1 | Identification of SME conditions and qualification needs¹⁰

4.1.1 | Introduction and Overview of Contents

The requirements of modern Human Resource Policy are easier to describe than to implement them in their manifold diversity in operational practice as well as to teach them to future executives. It becomes clear that the personality of managers and leaders

⁹ The comprehensive report can be found on the project website <https://ka4hr.eu/>

¹⁰ Done by Alexander Frevel, Arbeit und Zukunft, Hamburg

is particularly important, i.e., their values, their attitudes, and their approach to employees. Stephan A. Jansen states in his article “Learning from the Old”:

Successful companies and their managers have the task – not accidentally described as a force – of transforming tensions into an orienting energy: clear hierarchies with great freedom of action for teams, cost pressure with increased creativity, the cultivation of rituals and the promotion of innovation. The aim will be to realize the advantage of the last mover and to create peace and quiet and reserves in the organization so that it can accelerate quickly when needed. It is important to establish a culture of error also for the management, to combine fearless employee retention with honest feedback, to combine massive self-confidence with modesty. [1]

“For SMEs in the Baltic Sea Region to remain competitive in the long term, it is necessary to increase their innovation capacity and reduce the gap between qualification requirements and demands. [...] Human capital is the most important resource for strengthening innovation and productivity. Hence, the project focuses on the comprehensive promotion of Workplace Innovations.” [2]

The overarching goals of the project are:

- Create working environment and workplace innovations in areas such as employee recruitment, motivation, and digitization.
- More efficient use of human resources.
- Strengthen awareness and competences in the area of innovation promotion for small and medium-sized enterprises through qualifications.
- Develop and implement a dual bachelor's degree course: “Human Resources and Business Administration”.

The article presented here is an excerpt from the report.

Analysis of the Qualification Needs of Small and Medium-sized Enterprises in the Field of Workplace Innovations

The full version of the report is available at the project website www.ka4hr.eu.

Overview on the content of this article

The findings of the studies on the identification of conditions and qualification needs report on the one hand the results of the survey of educational institutions and companies (chapter 2.1) and on the other hand essentials from the analysis of research publications and from expert discussions (chapter 2.2).

Referring to the European Qualifications Framework chapter 3 describes the qualification and competence needs and identifies/derives the requirements for Professional Further Training (3.1) and a Dual Bachelor Study Program (3.2). With regard to the target group of future business leaders and managers, chapter 3.3 is dedicated to the importance of Leadership and Management. The essential similarities and differences are emphasised.

Based on these considerations, chapter 4 formulates hints and advice for vocational training and the dual study programme. A compilation of possible teaching and learning contents for action and social competences (4.1) leads to a choice of key qualifications and competences of potential leaders (4.2). A number of possible questions that could trigger or promote operational (collective) self-reflection and innovation (4.3) as well as individual's self-reflection and personality development / one's own strengths and weaknesses (4.4) are presented as indications for the exploration of and as guidance for the treatment in the context of the study programme.

Chapter 5 summarises the results and offers suggestions and recommendations for the dual bachelor's programme "Human Resources and Business Administration".

4.1.2 | Identification of SME Conditions and Qualification Needs

The analysis of SME conditions and qualification needs [3] was carried out with an internet research and literature analysis for the two subject areas

a) Human Resource Policy (HR-Policy) and Organisational Development (OD) and

b) Workplace Innovation.

Parallel to this, surveys were conducted on the status quo and desired policies and needed qualifications for personnel development and workplace innovations. The results from the surveys done are presented in the following chapter.

Qualification Requirements in the Company's Fields of Action 'Human Resource Policy' and 'Workplace Innovation' – Results from the Survey "SME Conditions & Qualification Needs"

The survey "SME Conditions & Qualification Needs" [3] was conducted with three questionnaires:

① Questionnaire for **all members of Hanse Parlament and Baltic Sea Academy** (chambers, institutions related to SMEs and universities):

What do you see as being the key challenges for HR-policy in companies?

How do you support companies in HR?

② Questionnaire for **companies**

The contents are

- a) structural data
- b) key challenges for HR-policy
- c) range and depth of systematic approaches for <subject ...> ... and internal responsibilities.

③ Questionnaire/checklist for an **in-depth analysis** of **companies** provides a broader approach on different aspects of HR-Policy, especially work ability, and company's organisation of working conditions.

This checklist could be a basic instrument to start consulting projects. It is also suitable for self-analyses by companies.

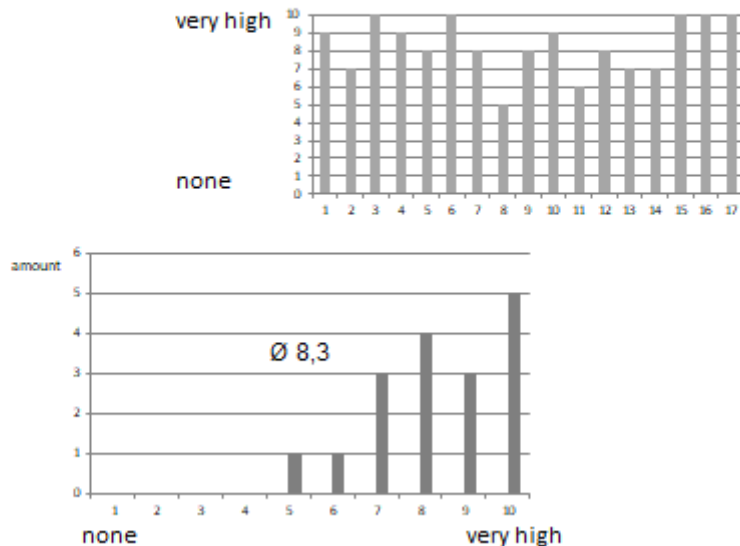
Some results and condensed essentials of the analyses are summarized as follows.

A total of 17 organisations from 9 countries (plus 1 not stated) replied on **Questionnaire 1**.

- On a scale of zero (none) to 10 (very high), the assessment of the relevance of Human Resource Policy topics is very high in the organisations with an average value of 8.3 (spread from 5 to 10)



What significance does the Human Resource Policy theme have in your organization?



- In the assessment of these organisations the estimate of Company's five (5) most important key challenges in HR-policy are:
 - Recruitment in general
 - Training on the job / building routines
 - Retain (qualified) existing employees
 - Career development / further training for professional development
 - Competent and attentive superiors and managers
 - Life-course oriented employment and work assignment
 - (Systematic) Knowledge Management

Company's 5 most important key challenges in HR-policy – in the assessment of external organizations



- Usually, specific services for personnel development are offered. Fundamental or basic offers to supporting HR-policy in general are not identified. The offered support for companies is spread widely
 - Capacity building through international cooperation/projects
 - Annual training
 - To members: One-to-one advice
 - Information, training, consulting
Assisting international relations
 - Information and consulting, support in searching for candidates, training
 - Coaching and Workshops

- Vocational training for company employees, qualification exams, legal and tax advice
- Legal consultancy, pedagogical courses, vocational courses
- Individual Personal-Coaching, Craft-specific regional specialist for labour exchange exclusively for members of the chamber, network maintenance with national players such as EURES
- Educational and experience exchange trainings and seminars for the companies
- Information and training
- Thematic training oriented towards the needs of companies or their employees
- Training, Information, Consulting, Advice
- Social guaranties, training, good interrelations among colleagues, good working conditions
- Education, information, further development courses, consulting, development projects (including supervising of bachelor's / masters theses), support for work ability, assessments of work satisfaction etc.
- ... But the content of offered services does not meet the Human Resource oriented topics accurately.
Some examples:
 - Further development of apprentice education and training, including improved economic support from the Government
 - Expansion of professional knowledge, digitalization, technological innovation. Finding suitable professionals for this.
 - Dual students should remain in the company as far as possible, be broadly and deeply supported by the company in terms of their specialist knowledge.
 - Digitization, further qualification, competence development

- Qualification examinations, vocational training
- Work experience
- Labour law, employee retention and acquisition, increasing the attractiveness of workplaces in craft companies
- Conformity with the qualification criteria
- Professional development and further training
- Competence, Up-to-date, Targeted to user
- Confidentiality, work with clients, specific knowledge
- Social guaranties
- Knowledge, work ability, R&D

Two comments from organisations surveyed bring it aptly to the point:

Today, hundreds of thousands of small businesses face daily labour force shortages, skills shortages and bureaucratic regulations, which are made especially for large companies. Small businesses do not have the staff to work on their solutions. Therefore, the importance of targeted services in this area is much greater. The organisations representing them do not receive adequate support for this, there are no such projects either in Brussels or at national level.

Flat hierarchies promote motivation and the spirit of innovation in companies; classic company hierarchies function less and less; are less and less productive and less innovative; the company boss at the same level with his employees as team player and yet the ultimate responsible person is increasingly a model for the future in personnel policy.

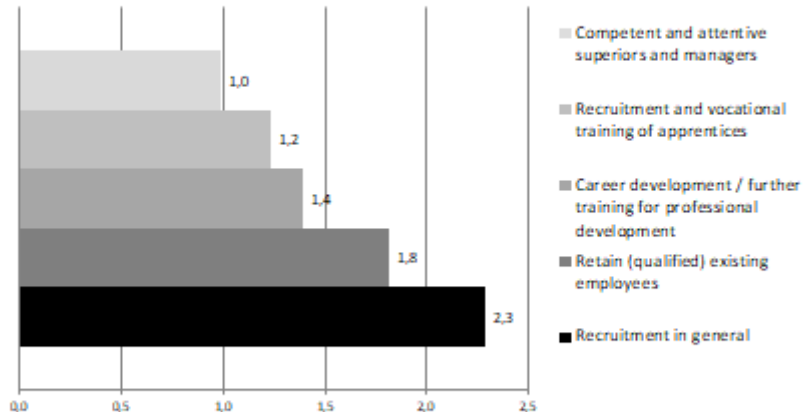
Questionnaire 2 looked for **company's** key challenges for HR-policy as well as systematic approaches for several topics of HR policy.

- A total of 69 companies from four countries (Finland, Germany, Latvia, Poland plus 2 not stated) replied.
Usual aspects (variables) like branch, number of employees, annual turnover ... do not discriminate satisfactorily.

- About 40% have a personnel management, 20% have a personnel development, and 17% name the existence of organisational development.
- In the assessment of these organisations the estimate of Company's five (5) most important key challenges in HR-policy are:
 - Recruitment in general
 - Retain (qualified) existing employees
 - Career development / further training for professional development
 - Recruitment and vocational training of apprentices
 - Competent and attentive superiors and managers



Company's 5 most important key challenges in HR-policy

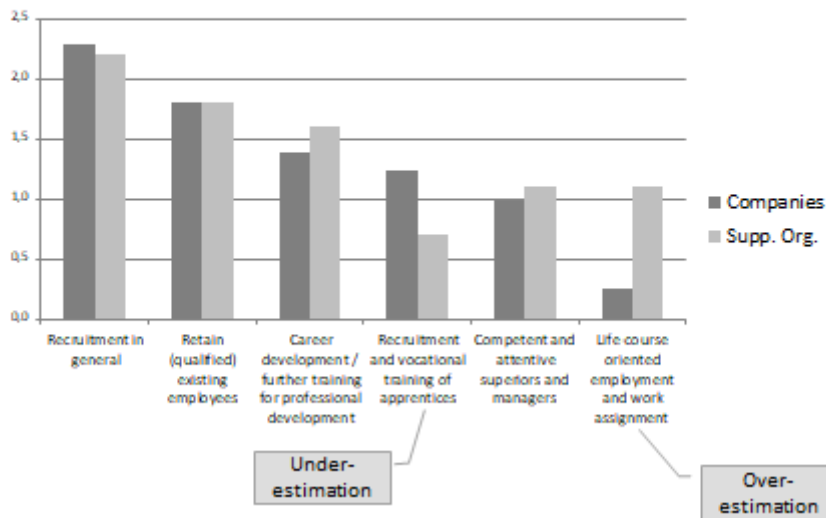


- Compared with the assessments from the organisations there is no complete match in the topics and in the weighting.

The "classical" topics like recruitment and retaining personnel predominate among companies, whereas supporting organisations (chambers, associations and universities) overestimate the importance of newer topics like Life-course oriented employment.

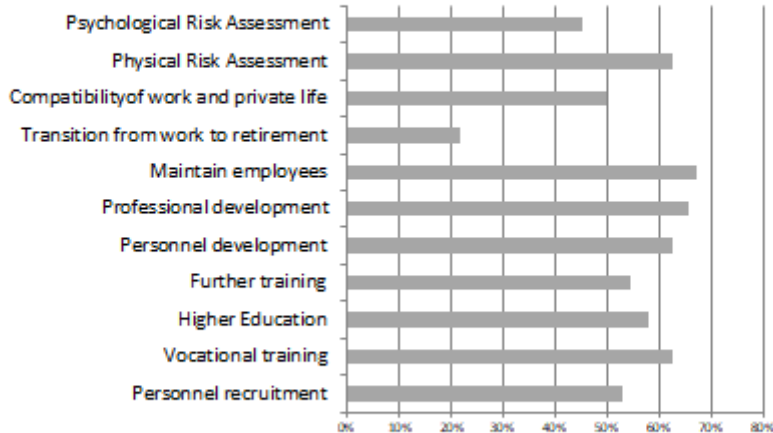


Comparison of the assessment of the most important tasks in HR



The questions about the existence of various partial aspects of systematic HR-Policy are answered positively by more than half of the companies in almost all cases.

Questionnaire 3 is designed as a self-assessment tool (checklist). The in-depth analysis of companies provides a broader approach on different aspects of HR-Policy, especially work ability, and company's organisation of working conditions. It can be used independently or with external advisory support.



Identification of SME Conditions and Qualification Needs¹¹ – Preliminary Essentials and Theses

Subject to additions and references from the project partners and further in-depth analyses, the following initial summary conclusions can be formulated.

- There are noticeable differences between the companies which are more dependent on the size of the enterprises than on the branch or the location. This applies to both the HR-Policy and Workplace Innovation topics dealt with here.

¹¹ The results of the analysis in this chapter refer basically on the mentioned results of the own evaluation and additionally on material from Germany and Finland. Most studies as well as specific curricula in the subject area investigated here were/are not available in English, but in the respective national languages. From the author's point of view, the elaborations available are sufficient to provide at least a satisfactory overview. Of course, the specific national conditions must be taken into account in the concrete activities and training courses.

- For example, the variations range from here.

For example, the variations range from

- + *"Of course, do we manufacture with CAD-CAM supported 3-D printers and some customers send us the CAD drawings directly."*
- *"I don't know how to use those frightening digital technology like electronic mail."*
- + *"We take care that competences are retained when employees leave the company (knowledge management). This is fully implemented and evaluated in our company."*
- *"We have never thought about taking into account the changes in the physical, mental and social competences of our ageing employees and we don't have a concept to offer appropriate activities and career paths."*
- In all Baltic Sea bordering countries, we have a similar demographic development.

The fact that we are ageing on average in statistical terms is important for pension policy on the one hand, but on the other hand it is connected with the fact that the trend towards longer working lives is on the increase - and with it the need to make working conditions age-appropriate and to promote the work ability of employees.

In the longer term, the demographic "de-juvenation" is the most serious problem because

- a) social immigration is not universally accepted and
- b) the fight for qualified junior staff will increase in companies.

When companies cannot recruit enough and sufficiently qualified personnel this can lead to the loss of jobs as a result of the forced abandonment of companies; but it can also lead to companies being called upon to make working conditions more attractive. Then it will be decided whether the quality of work or the level of salary will be improved, i.e. whether small companies or larger companies will win.

- Skill shortages are – more or less – not country specific, but skill requirements may be. All companies are equally affected by the need to design working conditions in such a way that as many people as possible can be employed

and that they have a beneficial career path in order to be able to retire as healthily and with a good work ability balance as possible.

Although there will be great differences in the ability to cope with the challenges, which are particularly socially connected with the availability of suitable qualification offers and operationally connected with the capital resources. SMEs must compensate for their disadvantages of scale with imagination, creativity, innovation, flexibility and speed of adaptation, in particular in the case of unforeseen circumstances.

- Coping with the consequences of demographic change can only be achieved by investing in people (skills), in good working conditions and in the demand- as well as in benefit-oriented application of new (digital) technology.

At least three subject areas are therefore suitable:

- Recruiting, retaining and promoting employees (professional life course)
- Digitisation to relieve from heavy and/or difficult work and to increase productivity
- *And in general:* Creative innovation processes for beneficial workplaces and supportive HR-Policies.
- It is significant that, in addition to economic differences (gross national product, purchasing power, etc.), the extent of demographic change, geographical structure (urban-rural relationship), degree of technological penetration, etc., there are, in particular, historically developed social cultures (attitudes, values), laws and rules as well as manifested structures that have evolved over time. These are reflected in the relationship between companies and customers, employees, institutions and associations as well as in the internal relationship between company owners, managers, and employees.
- In all countries there are traditionally solidified structures of the education system, of understanding what and how is taught, of the way and depth of cooperation between companies, and educational institutions etc.

In Germany, as a result of the long-standing tradition of dual vocational training, dual study is also already relatively widespread, whereas the education system in Finland does not recognise the kind of dual studies. So, in Finland dual system is offered to students who want to take both matriculation examination and VET education at the same time. Nowadays it is quite common that students already holding a VET certificate continue their studies at universities of applied sciences. In engineering – here using the example of Satakunta University of Applied Sciences – at least 40 % of the new students have VET background. Entrepreneurship education offers several possibilities also to those students who already run their own company.

This does not mean, however, that there are no mutual learning processes between countries and national stakeholders. Testing of new approaches, the adoption or adaptation of the experiences of others are necessary components of pilot projects. Nevertheless, it should be noted that the adjustments, especially structural changes, do not happen 1:1 and need time to be integrated into the "educational landscape" in a fitting manner.

In other words and formulated in general terms: The social and corporate "culture", the values and attitudes and individual behaviour, are decisive for living together and for economic success.

Culture is defined as the collective "mental programming" of the human mind. International compared culture distinguishes one group or category of people from another. These influencing patterns of thinking are – only partially knowingly – reflected in the meaning people attach to various aspects of life and which become crystallised in the institutions of a society. This does not imply that everyone in a given society is programmed in the same way; there are considerable differences between individuals. It may well be that the differences among individuals in one country culture are bigger than the differences among all country cultures. We can, nevertheless, still use such country scores based on the law of the big numbers, and on the fact, most of us are strongly influenced by social control. Please realise that statements about just one culture on the level of "values" do not describe "reality"; such statements are generalisations and they ought to be relative. Without comparison, a country score is meaningless.¹²

¹² <https://www.hofstede-insights.com>

- At the micro level of business activities, the size of a company is a significant factor influencing the scope for business development. There are restrictions due to human and economic resources for processing. Economically speaking, economies of scale must be taken into account: Recruitment of staff and investment in plant and buildings – especially in SMEs – will only take place once a reasonably certain assessment of market developments and thus of the necessary quantitative and qualitative changes has been made. The so-called jump fixes costs are an economic challenge.
- On the one hand, this means that investments in procurement (personnel recruitment and material goods) must be carefully calculated.
- On the other hand, it means that regular maintenance
 - must be invested for persons over the period of employment through personnel development (further training, promotion of work ability, age- and ageing-appropriate career paths),
 - in the case of infrastructure, equipment, working materials, machinery, and plants, investments must be made at least until the end of depreciation possibilities by means of maintenance, repair, and modernisation.

Despite all the more or less established, often ideal-typically formulated requirements for good, target-oriented initial and continuing education and training, it must be noted that there is still a great task to be done.

It was found that the providers of vocational or higher education and training sometimes favour other topics than those that meet the needs of the companies and of the students accurately.

Institutes and training providers are urgently advised to intensify the contacts with companies and to offer advisory services for company development processes. Investing in people is the best asset companies can make and the greatest treasure they have.

It is essential to establish a closer link between Human Resource Policy (Personnel Development), Organisational Development, and Workplace Innovation in order to maintain the employability and work ability of employees throughout their working lives and to inspire people to hire and stay employed in a company. To achieve this, a proactive strategy must be developed that puts all areas of the business to the test.

Knowing all the given differences between enterprises with regard to the sector and the size of the enterprise, the sales market for products and services and the labour market, the economic and ecological situation in the region, the demographic situation, the school and vocational training system, etc. pp. is a necessary prerequisite for compiling study contents. However, knowledge only becomes sufficient through an attitude oriented towards humane working conditions. Therefore, it is advisable to perceive enterprises as well as each individual in their uniqueness and to support them in their specific situation and manageable development.

The main differences are rooted in corporate culture and leadership, which are the decisive moments for shaping good, sustainable working conditions and labour relations. Communication and participation are the keys to success.

All this means the offer for an open, participatory teaching for (prospective) managers/ superiors, entrepreneurs and owners of SMEs in in the three interlinked fields of action 'Human Resource Policy', 'Organisational Development' and 'Workplace Innovation'.

The task is to identify needs as well as opportunities for change by providing indications of options. Diversity and openness as well as orientation towards the possibilities and objectives of the participants promise more success than exclusive knowledge transfer.

Knowledge can be acquired in different ways. On the technical-instrumental level there are enough supporting tools including checklists as well as the material for self-reflection, as-is analysis and development planning of companies.

But the most important challenge is the development of people-oriented values, attitudes and behaviour. That means: learning to learn and seeing the other person as a

congenial partner with specific abilities in order to strengthen the strengths and weaken the weaknesses – in oneself and in others.

4.1.3 | Exploration of Qualification and Competence Needs – Identification of Requirements for Professional Further Training and a Dual Bachelor's Degree Programme

Requirements for Advanced Vocational Training

In addition to standardised contents, the identification and determination of qualifications and competence requirements must necessarily be oriented to the specific cultural framework and, if necessary, to the individual prerequisites of persons (or groups of persons). Here too, it is important to explore supra-individual commonalities that are suitable for collective learning situations.

In accordance with the sequential elements and definitions of the European Qualifications Framework (EQF), the higher education courses relevant here must extend from level 5 (up to elements of level 7, if applicable). They therefore require basically a three-year vocational training, an advanced technical college or a higher education entrance qualification.

Specialised further training for qualifications and competences for leadership and management tasks correspond to EQF-level 5 in terms of requirements:

- Knowledge: Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge
- Skills: a comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems

- Responsibility and Autonomy: exercise management and supervision in contexts of work or study activities where there is unpredictable change; review and develop performance of self and others

As a result of the considerations made so far, the usual technical topics for further training needs and offers can be identified without significant national differences. These are largely uncontroversial and certainly part of the usual range offered by training providers.

A much greater challenge is the description of existing skills and desired competence requirements, especially in the areas of action and social competence. The literature provides only very general, sometimes very superficial information, ranging from rules of conduct (how to behave in meetings) to generalities (Finland has an open negotiating culture).

Nevertheless, it would be a suitable option and it is recommended to extract individual topics relevant to the companies from the compilation of topics for the dual Bachelor's study programme "Human Resources and Business Administration" [4] and offer them as continuing education modules.

As a possible strategy, five steps are required as a procedure for the in-depth needs analysis in the area of further training:

- (1) Along a rough compilation of conceivable (ideal) learning contents
- (2) happen a check of the existing offers (completeness, actuality) and
- (3) a review of past demands (both as quantitative and qualitative assessments).
- (4) This picture is completed by an assessment of qualitative needs and possible demands.
- (5) After the comparison of target and current demand, the development of necessary additional offers takes place.

In view of the statements made in the subjunctive in chapter 5, the above-mentioned points (1) and (4) are closely connected; answers can only be given by conducting a somewhat broader survey on the status quo and on learning content that is desired or

considered necessary. This should necessarily be done under national, and where appropriate, regional responsibility.

Particularly in the combination of practical and university education, as is the case of a dual study program, the linking of challenging tasks for mastering practice in projects is necessary and as well possible. The basic principle of the method “Knowledge According to Individual Needs” (KAIN)¹³ has proven to be a suitable didactic approach.

Certainly, elements of the VET as well as from specific study programmes are used for continuing vocational training in the sense of professional lifelong learning (LLL)¹⁴.

In addition to implicit and explicit learning at work, continuing training takes place in a structured way outside work, usually in the form of short (hours or days) or longer (weeks or months) continuing training measures (courses, workshops; internships).

In each country LLL with regard to vocational education and training has quite different systematisation and structures, due to societal tradition and solidified basic pattern of learning and teaching.

National differences in the importance of post-entry training can be seen in the participation in such measures. Data from Eurostat show that the participation rate (participation in the last four weeks) in 2019 differs greatly, with an average value for the EU 27 of 20.7 %: Finland, with 36.7 %, has the highest participation rate of the countries considered here, Estonia, with 28.0 %, is also above the EU average; Germany 18.6 %, Latvia 16.8 %, Lithuania 17.3 %, and Poland 14.3 % have a below average participation rate.

¹³ The successfully applied method is described in detail in the overall report.

¹⁴ Lifelong Learning has a basic definitional pattern: "... ongoing, voluntary, and self-motivated" pursuit of knowledge for either personal or professional reasons. Therefore, it ... enhances ... self-sustainability, as well as competitiveness and employability [see: Department of Education and Science. Learning for Life: Paper on Adult Education. Dublin 2000; Commission of the European Communities: Adult learning: It is never too late to learn. Brussels 2006]. Lifelong learning comprises all purposeful non-formal and informal learning activities aimed at the continuous improvement of knowledge, skills and competences (Eurostat).

As an example of the interconnectedness and permeability of the VET system, Finland can be cited, where credit points from continuous education trainings (CET) can be credited.

Some possible material for further training and study programs are described in detail in the overall report.

Examples of possible learning objectives:

- ⊗ Know methods how the knowledge and skills of employees can be actively used for change processes
- ⊗ Have the knowledge and ability to initiate participatory innovation processes
- ⊗ Have the ability to recognise the individual strengths and weaknesses of the employees and to develop the skills in line with requirements
- ⊗ Be able to adapt work requirements to individual functional capacities (health, skills and competence)
- ⊗ Use the knowledge of the connections between work, age(s) and health to design work requirements appropriate to age and ageing.

Requirements for the Dual Bachelor's Study Programme

For developing the dual Bachelor's programme, the task seems to be easier, since it is "merely" a matter of supplementing the standardised subject area of cognitive knowledge. The "merely" is to be abolished immediately, because especially in the area of personality-forming and personality developing motives (matters, objects) no universally valid subject canon is possible.

It is therefore necessary to examine whether there is a meta-level above relevant topics, which generates learning effects and which can be developed in a didactic shell of impulses (stimulating questions), self-reflection, dialogical exchange etc.

The terms of requirements in Level 6 are:

- Knowledge: Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles
- Skills: advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study
- Responsibility and Autonomy: manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts; take responsibility for managing professional development of individuals and groups

Surprisingly – and only comprehensible with political influence – the further training to business economist of skilled crafts (“Betriebswirt des Handwerks”¹⁵) is assigned in EFQ-level 7. For the sake of completeness, the requirements are also listed here.

- Knowledge: Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research critical awareness of knowledge issues in a field and at the interface between different fields
- Skills: Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields
- Responsibility and Autonomy: Manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams

¹⁵ itb - Institut für Technik der Betriebsführung im Deutschen Handwerksinstitut e.V. (Hrsg.) [Institute for Management Technology at the German Crafts Institute (Ed.)]; Bundeseinheitlicher Rahmenlehrplan "Geprüfter Betriebswirt/Geprüfte Betriebswirtin nach der Handwerksordnung" [Standardised Federal Framework Curriculum for "Certified Business Economist According to the Crafts Code"]. Karlsruhe 2011

It must be checked whether these descriptions of competences sufficiently describe the requirements for (potential) managers. In the opinion of the author, aspects of personality (self-knowledge and goals of one's own values and attitudes), self-efficacy, behaviour towards third parties etc. should be put more into focus.

This means that basic principles of sociological, psychological, social-psychological and philosophical theories should be taught and individually reflected in the sense of understanding and perception.

On the Importance of Leadership and Management

The requirements described in the EQF in the relevant levels form the framework of qualifications and competences. For the training of future managers, it is important to describe the requirements for different forms of leadership and management to be able to develop them appropriately in the study programme.

The dual study programme "Human Resources and Business Administration" is designed to enable persons to achieve three competences:

- A) Master a profession technically, i.e., carry out manual or other productive work (skills and abilities).
- B) Execute managerial tasks.
- C) Be able to perform tasks of personnel management in the sense of leadership.

It is immensely difficult and relatively rare for a person to master all three areas of competence with equal excellence. Certainly, there are so-called natural talents and usually there are mixed forms with sometimes more and sometimes fewer intensive manifestations.

The task of the study programme must enable and empower persons, i.e.

- (1) on the one hand to provide them with all the necessary professional qualifications and to confront them with the professional requirements in such a way that they know and can (in principle) apply the respective basic knowledge elements and methods,

- (2) and secondly, to support them in exploring their dispositions and interests and in recognising their values and attitudes in order to understand the importance of personality in the leadership task and to gain an orientation for themselves for the professional focus.

- While the first aspect can be taught (cognitive and manual requirements),
- the second is much more difficult, as only the person him- or herself can find out, because only they themselves can best judge their being-there and being-so. – This requires appreciative and mindful coaching.

Patricia Pitcher's highly recommended book “The Drama of Leadership. Artist, Craftsmen, and Technocrats ...” [5], is a veritable source of inspiration for the description that management and leadership in business is a multifactorial challenge. Henry Mintzberg aptly states in his foreword (op. cit. 9; own translation):

“Leaders must be one of two things: they must either be brilliant visionaries themselves, truly creative strategists ... Or they must be true empowerers who can move others to do their best. Managers who are not either can be harmful to an organisation ... [Patricia Pitcher] calls the first artists, the second craftsmen and the third technocrats.”

Pitcher characterises the types very roughly as follows:

- The Artist: emotional, visionary, imaginative, entrepreneurial [op. cit. 42]
- The Craftsman: steady, realistic, wise, responsible [op. cit. 56]
- The Technocrat: serious, detail-oriented, meticulous, methodical [op. cit. 74]

It is obvious that there are significant differences between management and leadership:

Management is a discipline. Leadership is a matter of character.

Therefore, the main differences are summarised below.

The usual descriptions¹⁶ are shown opposite each other in the form of a synopsis. This certainly serves some stereotypes, but in this way the differences in the functions and roles are presented in greater contrast.

A Comparison of roles and functions as well as status and attributed characteristics of management/managers and leadership/leaders is presented from different perspectives in four tabular compilations in table 1.

Management	Leadership
lays down the structure and delegates authority and responsibility	provides direction by developing the organizational vision and communicating it to the employees and inspiring them to achieve it
includes focus on planning, organizing, staffing, directing and controlling	focus on listening, building relationships, teamwork, inspiring, motivating and persuading the followers
gets authority by virtue of position in the organization	gets authority from the followers
follow the organization's policies and procedure	follow their own instinct
is more of science as the managers are exact, planned, standard, logical and more of mind	is an art
managers are required	leaders are a must/essential

¹⁶ Prachi Juneja: Leadership and Management - Relationship & Differences. Source: <https://www.managementstudyguide.com/leadership-management.htm>

Prachi Juneja: Leader versus Manager. Source:

https://www.managementstudyguide.com/leader_versus_manager.htm

deals with the technical dimension in an organization or the job content	deals with the people aspect in an organization
measures/evaluates people by their name, past records, present performance	sees and evaluates individuals as having potential for things that can't be measured, i.e., it deals with future and the performance of people if their potential is fully extracted
is more reactive	is more proactive
is based more on written communication	is based more on verbal communication

Managers	Leaders
have people who simply work for them	have people follow them
administer the work and ensure that the day-to-day activities are getting done as they should	motivate people to comprehend and believe in the vision set for the company and to work on achieving committed goals

Basis	Manager	Leader
Origin	A person becomes a manager by virtue of his position.	A person becomes a leader on basis of his personal qualities.
Formal Rights	Manager has got formal rights in an organization because of his/her status.	Rights are not available to a leader.

Followers	The subordinates are the followers of managers.	The group of employees whom the leaders lead are his/her followers.
Functions	A manager performs all five functions of management.	Leader influences people to work willingly for group objectives.
... Basis	... Manager	... Leader
Necessity	A manager is very essential to a concern.	A leader is required to create cordial relation between person working in and for organization.
Stability	It is more stable.	Leadership is temporary.
Mutual Relationship	All managers are leaders.	Not all leaders are managers.
Accountability	Manager is accountable for self and subordinates behaviour and performance.	Leaders have no well-defined accountability.
Concern	A manager's concern is organizational goals.	A leader's concern is group goals and member's satisfaction.
Followers	People follow manager by virtue of job description.	People follow them on voluntary basis.
Role continuation	A manager can continue in office till he performs his duties satisfactorily in congruence with organizational goals.	A leader can maintain his position only through day to day wishes of followers.
Sanctions	Manager has command over allocation and distribution of sanctions.	A leader has command over different sanctions and related task

		records. These sanctions are essentially of informal nature.
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In another contribution¹⁷, the differences are also very clearly focussed on.

A Manager ...	A Leader ...
gives direction	asks questions
has subordinates	has followers
holds authority	is motivational
tells you what	shows you how
has good ideas	actions good ideas
reacts to a change	creates change
tries to be a hero	makes heroes
exercises power	develops power

Table 1: Comparison of roles and functions as well as status and attributed characteristics of management/managers and leadership/leaders

As a crucial component of management, remarkable leadership behaviour stresses upon building an environment in which each and every employee develops and excels. Leadership is defined as the potential to influence and drive the group efforts towards the accomplishment of goals. This influence may originate from formal sources, such as that provided by acquisition of managerial position in an organization.

The organizations which are over managed and under-led do not perform up to the benchmark. Leadership accompanied by management sets a new direction and makes

¹⁷ The Difference Between Leadership and Management. Source:

<https://www.nextgeneration.ie/blog/2018/03/the-difference-between-leadership-and-management>

efficient use of resources to achieve it. Both leadership and management are essential for individual as well as organizational success.

A successful company needs both:

- Managers who can plan, organise, and coordinate its staff – who have both feet on the ground and handle day-to-day business efficiently.
- Leaders who that are inspiring and motivating others to perform to the best of their ability – who have the big picture in mind and keep the company from standing still through their vision and acting.

And that is why both areas of responsibility must be taught in the course of studies.

4.1.4 | Hints for the Dual Bachelor's Study Program

A central task in the project was the creation of the curriculum for the dual study programme. This was done under the professional leadership of the project partner 'Centre for European and Transition Studies of the University of Latvia' by Romans Putans and Denize Ponomarjova: Module's handbook – Dual Bachelor's Degree Studies "Human Resources and Business Administration". Riga 2021. [4]

The aim of the handbook is to provide a concept for the curriculum of the dual study programme at Bachelor's level on the basic and current issues of business process management and human resource management with a focus on innovation in the workplace, development of leadership skills and acquisition of practical experience.

As quintessence of the study of the elaborated curriculum it can be emphasised, that the requirements for thematic broadness, depth and diversity from all necessary different subject areas and topics are fully met – and in some topics it goes beyond "classical" teaching contents. The submitted curriculum fulfils all the usual necessary requirements.

But – at the risk of misunderstanding or not fully understanding the intentions of the developers – it does not seem to be fully satisfactory and sufficient.

Certainly, a curriculum may not be the heaven for pedagogical explanations because it is essentially about topics, structure of the study programme, and time structures.

Although the objectives for achieving the required competences are mentioned, e.g.

- “Aptitude to demonstrate an understanding and application of professional ethics and culture, including intercultural awareness and respect.
- Aptitude to demonstrate an understanding and application of professional ethics and culture, including intercultural, intergenerational, inter-gender (= inclusive diversity) awareness and respect.” [4: 7],

→ a **“Spirit of “Enlightenment”** is missing.

Critically spoken, the impression is confirmed that a rather technocratic understanding of tasks, duties, and completion prevails. Business management seems to be a struggle and overwhelming challenge – the desire for personnel management, for leadership, and for learning and understanding all these challenging topics does not shine through. A systemic relationship, the view of the whole and the mutual references are not conveyed – “you cannot see the forest for the trees”. Rather, in the compilation and sequence of topics and in the fragmentation of the issues to be dealt with, the focus on the deficits seems to implicitly dominate knowledge transfer: You must learn from A via B to Z.

There is no desire to move from the “realm of necessity to the realm of freedom”¹⁸; there is no indication that learners are engaged, that they are enthusiastic about a subject or how/that they are developing an emphasis on the fact that they want to be fulfilled and how they manage to be able – and to be allowed – to do so, that they enjoy leadership, that they follow a path, that they explore and discover the world of business and work. Sennett is to be agreed:

¹⁸ Inspired by Karl Marx: Capital, Vol.3, Chapter 48

“Doing good work means being curious, researching and learning from ambiguity.”
[6 – German edition 2008²:71; own translation]

Compilation of Possible Teaching and Learning Contents for Action and Social Competence

As a solution for paying more attention to the development of social and action competence, it may be a good idea to add to the usual curriculum mental excursions (field trips, explorations) from the fields of philosophy and business ethics, sociology, occupational and organisational psychology, social psychology and other similar disciplines.

To do this, individualised exploration and learning opportunities need to be developed, which stimulate self-reflection and include feedback processes, for example through coaching and supervision and with opportunities to exchange experiences in learning groups.

The intensive exchange between companies, educational institutions and learners requires an open, at least multidisciplinary, if possible interdisciplinary and – in the sense of Kolb's learning theory [7] – transdisciplinary cooperation in mutual learning.¹⁹

The learning cycle consists of four stages (see figure 1):

- (1) Concrete Experience – a new experience or situation is encountered, or a re-interpretation of existing experience
- (2) Reflective Observation of the New Experience – of particular importance are any inconsistencies between experience and understanding.

¹⁹ Kolb defined leaning as the “process whereby knowledge is created through the transformation of experience” (Kolb, 1984:38). Kolb's entire theory is based on this idea of converting experience into knowledge. With each new experience, the learner is able to integrate new observations with their current understanding.

- (3) Abstract Conceptualization – reflection gives rise to a new idea, or a modification of an existing abstract concept (the person has learned from their experience).
- (4) Active Experimentation – the learner applies their idea(s) to the world around them to see what happens.

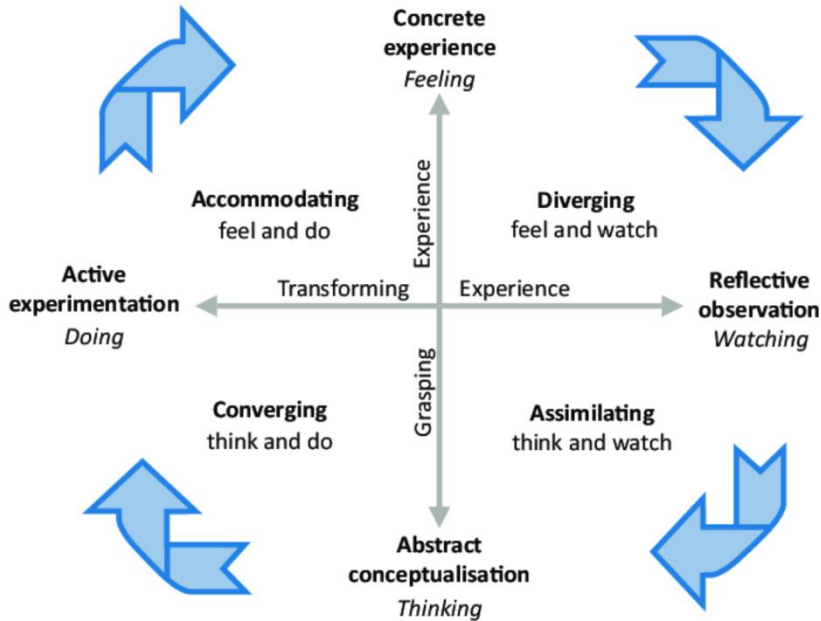


Figure 1: Kolb's Learning Style²⁰

The learning objectives could / should be:

- ⇒ To arrange one's own work in such a way that one's personal life goals are realized.

²⁰ Kurt, S.: Kolb's Experiential Learning Theory & Learning Styles. In: Educational Technology, December 28, 2020. Retrieved from <https://educationaltechnology.net/kolbs-experiential-learning-theory-learning-styles/>

The Chinese philosopher K'ung Ch'iu [Konfuzius], 551-479 b.C. recommended wisely:

“Choose a profession you love and you will never have to work another day in your life.”

This highlights the importance and necessity of taking **individual self-awareness** seriously as a fundamental component of the development of attitudes and values and to promote it in the sense of self-management, i.e. to make it an urgently necessary subject of teaching.

- ⇒ Design the leadership task in such a way that the ‘I’ in the ‘We’ does not disappear, and the development of the ‘We’ appears as an **art of and desire for leadership**.
- ⇒ Personnel management needs time to see and perceive the often unseen, those who do not stand out because they are (almost) always there, the highly committed performers. This is more than a door-to-door conversation, namely the systematic appreciative dialogue, the exchange of experiences with the most important internal advisors, the employees.
- ⇒ To attempt to realize a mutually beneficial connection of **head, heart and hand**: Hand for the skilful production of goods and services, head for the proper and professional planning and execution, heart for the quality of the work, the products and services, the participants in the company, the customers, and for oneself.
This is a qualitative extension of human-centred quality management that should receive more attention.

Desirable Key Qualifications of Potential Leaders – Choice of Core and Leadership Competences

The derivation of contents of the dual study programme „Human Resources and Business Administration" and the curricular preparation is not the task of this

contribution. Nevertheless, it may be helpful to identify some important key competences of prospective Managers/Superiors or Owners of SMEs.

Following the categorical imperative by Immanuel Kant, the philosopher and cyber ethicist Heinz von Foerster (1911-2002) demanded that one always should act in such a way that the number of choices increases. This can succeed when one strives to understand the understanding of others.

Regardless of cultural identity, gender, age, etc., individuals are to be perceived as human beings. In this sense, the following compilation of requirements in terms of desirable (ideal-typical) core leadership competencies is to be understood as a list of skills, attitudes and behaviours that characterise an excellent leader.

Some core competencies of leaders have been compiled from several sources²¹. The selection does not claim to be exhaustive, but is intended to provide hints and suggestions as appealing qualities for the formulation of specific learning objectives in the curricular approach and for the design of individual teaching units. The similarity in the various manifestations are expressions of different perspectives, they can be of interest as complementary characterisations.

Core Competencies

A leader should be able to **manage complexity**, i.e.

- on the one hand, to carry out the day-to-day work of planning the creation of products and services, the deployment and management of personnel, contacts with suppliers and customers, administrative tasks, etc.,
- on the other hand, to keep an eye on the market of competitors, developments in technology and organisation, the labour market, etc.,
- and thirdly, to master the strategic challenges of strategy development, promotion of innovative capacity and generation of uniqueness.

²¹ Due to many corresponding statements, only a selection has been made here without naming the cited source in detail.

A wide range of comprehensive and sometimes contradictory information is usually available for this purpose. The tasks are to transfer information to knowledge and knowledge to action in such a way that problems are solved in a goal-oriented, purposeful, and effective way.

A leader

- analyses multiple and diverse sources of information to define problems accurately before moving to solutions,
- is able to ask the right questions and to distinguish between relevant and less important aspects,
- structures the knowledge and organises solutions,
- queries the obvious,
- evaluates pros and cons as well as risks and benefits,
- is not satisfied with superficial answers,
- thinks in alternative terms, and
- tries to find further responses (plan B).

A leader should be able to **plan and implement solutions** by having a good time and organisational management, i.e. a leader

- is able to prioritise and focus on the most important tasks,
- creates a suitable time and work plan taking into account the unpredictable,
- describes goals and tasks according to the SMART principle (specific, measurable, achievable, relevant, time-bound),
- plans the implementation with a manageable allocation of resources (input: staff/skills, tools, funding),
- takes into account possible success factors and obstacles,
- prepares alternative plans,

- sets milestones,
- monitors the progress of the work,
- and assesses the effects (output, income).

A leader should be able to **work goal and result oriented**, i.e.

- ensures that the intended results are ambitious but achievable and that there is a good balance between costs and benefits,
- encourages and requests the participants, leading them from empowerment to ennoblement,
- arranges that the necessary resources, including any training that may be required, are available in a timely and complete manner.

A leader should be able to **create and maintain confidence** through virtues such as

- honesty,
- credibility ([it is allowed to] say what is thought and do what is said),
- transparency,
- respect,
- appreciation,
- participation,
- openness,
- reliability,
- commitment,
- integrity and authenticity.

A leader should be able to **cooperate** internally and externally **in a goal-oriented and collaborative, participating manner**, i.e.

- respects diversity and encourages different opinions and approaches and ensures a common agreement on goals with a participatory attitude,
- balances different interests, offering opportunities and choices and thus creates win-win situations,
- is fair and respectful to others and cooperates trustful in and with teams, with the company's works council or employee representatives, as well as persons outside the company,
- establishes and maintains networks, partnerships and strong relationships through open communication and learning-oriented cooperation with customers and suppliers as well as associations, organisations and institutions.

A leader

- can **value differences** and perceive them as an operational treasure that enriches the whole,
- has an interest in different cultures and points of view,
- ensures appropriate consideration and appreciation of different experiences, values, attitudes

A leader has an interest in **developing himself/herself** further,

- is self-confident, aware of oneself and can perceive the external image of oneself and the organisation in a differentiated way,
- seeks feedback from colleagues, employees, superiors, stakeholders etc. and reflects on his or her thoughts and actions,
- knows his or her own feelings and moods and can assess their effect on others,
- is eager to learn and has an enthusiasm for new things.

Leadership Competencies

A leader should have **courage, optimism and confidence**

- and be able to persevere and motivate offensively even in difficult situations

- not be shy of others even those higher up in the hierarchy
- recognise the opportunities available even in difficult situations and be able to remove obstacles to success.
- be able to assess situations and people in an appreciative and respectful way and honestly and empathetically identify development needs and point out development opportunities and to mediate conflicts.

A leader should be an energetic **impulse generator and innovator** to explore and open up new and better opportunities, i.e. a leader

- can break away from conventional approaches and the status quo, does not want to be satisfied with what is already there, leaves the comfort zone of the given,
- can see the big picture (“the whole elephant”) and uses methods of future scenarios (learning from the desired future),
- can see ahead to future possibilities of new products, services or organisational and personnel development, transferring them into strategic orientation
- assesses the market potential of inventions and innovations (possibilities and probabilities), finds creative ideas and can estimate their chances of realisation in the effort to achieve uniqueness: similar to the best and different from the others
- is able to think inspiring visions and communicate convincing arguments in a coherent strategic view. The opportunities and threats, the (internal) strengths and weaknesses, the expenses and the possible benefits as well as summarized pros and cons should be considered and formulated for an implementation concept.
- is able to convince decision-makers and staff of the usefulness and feasibility of implementation, i.e. to formulate goals and translate their realisation into feasible work steps so that all participants and stakeholders are convinced and motivated

- tries to install a culture of innovation and enables a widespread desire for change

A leader should be able to **manage ambiguity** and adapt quickly to changing conditions, i.e. a leader is able

- to engage **in dialogue** with other stakeholders [dialogue means equal participation in a process of reflection and of becoming familiar with each other in respect to issues and functions to be addressed],
- allows for "mistakes" and sees them as gain,
- can appreciate with head and heart the perceptions and statements of others with respect
- can reflect on own (pre-)assumptions and explore own reactions and behaviour,
- be "empty" for dialogical shared learning,
- allows and encourages everyone to articulate without fear what he/she really thinks.
- needs a sure-footedness walk on unexplored terrain towards the future.
- opens up protected spaces in which teams with their topics can and should show themselves in all their complexity - both in terms of content and emotion, so that knowledge, worries, and visions that were hidden become visible, audible and perceptible. - This creates sustainable clarity. The expanded view brought to light by facilitating change processes enables the comprehensive design of future solution and service quality.

A leader **builds functioning teams** of qualified participants with high identity, engagement and motivation based on shared values and attitudes, which apply their diverse skills and perspectives to achieve common goals, i.e.

- recognises that individual uniqueness in a team needs to be blended into a functioning whole.

- can put the common before his/her individual interests
- attracts and develops talents to promote the individual development of the person as well as the development of the company
- to promote and evaluate the individual development of the persons as well as the development of the company
- has a pronounced interest in personnel development and ensures conducive conditions with work design that is beneficial to learning and personality development and with the promotion of the work ability of all employees throughout the entire working life

Some Questions that Could Trigger or Promote Operational (Collective) Self-Reflection and Innovation

The following questions provide orientation for the perception of organisational strengths and weaknesses, opportunities and threats in questioning the need of change for the orientation and direction of future abilities to survive and succeed in the market. They are a first possible approach for (organizational, collective) self-reflective exploration possibilities. They are examples without a given order and can be expanded or selected as will.

- ☒ On which values, people images and goals are our organizational culture and leadership tools based?
- ☒ Are there images (myths and taboos) of performance (motivation, innovative ability ...) of different generations working in the company?
- ☒ What is / means work for us / for me?
- ☒ What is / means Work Ability for me / for our organisation?

- ⊗ What slow observations²² of developments and adjustments are necessary (how regularly) to minimize unpleasant surprises and initiate loving surprises?
- ⊗ How can we install the self-observation of our organisational assets, market development and social cohesion in our company? How can we anticipate complex assumptions and future dynamic developments (perception and forecasting)?
- ⊗ How can we develop a sense of possibilities for individual and collective development and ensure realistic assessments? What can we learn from the future?
- ⊗ How can we use self-reflective and self-critical self-perception and external perception (team, staff, customers ...) for our development?
- ⊗ SWOT-Analysis: What are the strengths of our organisation? What weaknesses does our organisation entail (age, qualification structure, diversity ...)? What opportunities do we have on the market? How can we create uniqueness: Similar to the best and different from the others? Which threats dangers lurk on/in the market?
- ⊗ What methods of self-reflective and self-critical self-perception analysis do we use? Are they effective? Why not?
- ⊗ Do we observe the changes in-progress? Do our organization's strengths/ weaknesses/ opportunities and threats changed lately? Do we draw the conclusions from the analysis?
- ⊗ Do we really understand the environment we work in? Do we recognize and understand the needs/expectations of our stakeholders?
- ⊗ How do we cope with the simultaneity of the non-simultaneous? How can we master the unexpected (situations, crises, relation to the unrelated ...)?

²² The book "Thinking, Fast and Slow" by Daniel Kahneman [8] is recommended for reading.

- ⊗ How high should the share of personnel management (leadership, coaching) and the share of organization (management and administrative tasks) be among supervisors?
- ⊗ How united is our organization in our internal and external actions?
- ⊗ What kind of systemic innovation do we need?
 - a) Internal structures: attitudes, personnel and organisational development, work content, use of technology (digitalisation), work design, promotion of work ability, information, communication, participation ...?
 - b) External offers: products, (services), marketing, cooperation with customers and suppliers
 - How do we organise innovation processes (agile, participative, bottom-up ...)?
- ⊗ Which ethical aspects are the basic of our internal and external actions: Which values are important to us as a company?
- ⊗ How can/want we manage the magic polygon of good corporate management systemically: collaboration, innovation, reliability, transparency, stability/sustainability, humanity - and profitability?
- ⊗ Which aspects are necessary to add a benefit and user view to the cost view?

Some Questions that Could Trigger or Promote Individual Self-reflection and Personality Development

The following questions provide orientation for self-reflection on the perception of one's individual strengths and weaknesses in need of change for the orientation and direction of future leaders. They are a first possible approach for self-reflective exploration possibilities. They are examples without a given order and can be expanded or selected as will

- ⊗ What are my most outstanding qualities?
How do my colleagues, my friends, my superiors see me?
How do I see myself?
- ⊗ How do I want to be guided? – How would I like to lead?
- ⊗ Am I – to myself and to others – reliable and authentic in what I do and how I do it, or are there differences between words and deeds?
- ⊗ What questions would I like to be asked by my supervisor?
- ⊗ What/who is a "role model" for me to be a "significant other" [G.H. Mead] as a leader?
- ⊗ Which task inspires me the most in my work?
- ⊗ How far are my interests/hobbies/passions related with my work?
- ⊗ How do I feel doing my obligations? What annoys? What makes me happy?
- ⊗ What is really important in my live – what is really important in my work?
- ⊗ What is my working style? Am I aware of that?
- ⊗ Do I want to be better in my work? How do I attempt to achieve the perfection?
- ⊗ How can I best use the expertise of my colleagues?
- ⊗ What do I do to build and maintain the personal trust of my employees in me?
- ⊗ How do I express appreciation and respect?
- ⊗ How do I deal with myself (health, motivation ...)?
- ⊗ What do I do to maintain and promote my ability to work? What do I need for this from the company?
- ⊗ Why/what are we/myself working for?
- ⊗ How much do I/we work, how much work is normal for me/us?

- ☒ Are "give" and "take" (psychological working contract [D. Rousseau]) in a good balance for me?

4.1.5 | Conclusions and Recommendations

The aspects presented in the summary form the framework for the requirements for the qualifications and competences of (future) managers and leaders and thus for the dual study programme „Human Resources and Business Administration". A country-specific adaptation to given (and aspired future) societal and company cultures is nevertheless indispensable.

Framework Conditions and Identification of Necessary Competences for Coping with the Future Through Employee-oriented Human Resource Policies

- In all Baltic Sea bordering countries we have a similar economical structure with the majority of small and medium-sized enterprises.
- In all Baltic Sea bordering countries we have a similar demographic development with two problems:
 - The trend towards longer working lives (later retirement age) is on the increase – and with it the need to make working conditions age-appropriate and to promote the work ability of employees.
 - In the longer term, the demographic change with the increase of older persons after active working life and at the same time with "de-juvenation" is the most serious problem.
- There are noticeable differences between companies which are more dependent on the size of the enterprises than on the branch or the country. This applies to both the HR-Policy and Workplace Innovation.
- Skill shortages are – more or less – not country specific, but skill requirements may be. All companies are equally affected by the need to design working conditions

in such a way that as many people as possible can be employed and that they have a beneficial career path in order to be able to retire as healthily and with a good work ability balance as possible.

- SMEs must compensate for their disadvantages of scale with imagination, creativity, innovation, flexibility and speed of adaptation, in particular in the case of unforeseen circumstances.
- Coping with the consequences of demographic, social, and cultural change can only be achieved by investing in people (skills and competences), in good working conditions and in the demand- as well as in benefit-oriented application of new (digital) technology. At least three subject areas are therefore suitable:
 - Recruiting, retaining and promoting employees in their professional life course
 - Digitisation to relieve from heavy and/or difficult work and to increase productivity
 - And in general: Creative innovation processes for beneficial workplaces and supportive HR-Policies.
- It is significant that there are historically developed social cultures, laws and rules as well as manifested structures that have evolved over time. These are reflected in the relationship between companies and customers, employees, institutions and associations as well as in the internal relationship between company owners, managers, and employees.
- In all countries there are traditionally solidified structures of the education system, of understanding what and how is taught, of the way and depth of cooperation between companies, and educational institutions etc. The social and corporate culture, the values and attitudes, and individual behaviour, are decisive for living together and for economic success.
 - Regular maintenance must be invested for persons over the total period of employment through personnel development (further training, promotion of work ability, age- and ageing-appropriate career paths).

- It is essential to establish a closer link between Human Resource Policy (Personnel Development), Organisational Development (OD), and Workplace Innovation in order to maintain the employability and work ability of employees throughout their working lives and to inspire people to hire and stay employed in a company. To achieve this, a proactive HR and OD strategy must be developed that puts all areas of the business to the test.
- Knowing all the given differences between enterprises with regard to the sector and the size of the enterprise, the sales market for products and services and the labour market, the economic and ecological situation in the region, the demographic situation, the school and vocational training system, etc. pp. is a necessary prerequisite for compiling study contents. However, knowledge only becomes sufficient through an attitude oriented towards humane working conditions. Therefore, it is advisable to perceive enterprises as well as each individual in their uniqueness and to support them in their specific situation and manageable development.
- The main differences are rooted in corporate culture and leadership, which are the decisive moments for shaping good, sustainable working conditions and labour relations. Communication and participation are the keys to success.
- All this means the offer for an open, participatory teaching for (prospective) managers/ superiors, entrepreneurs and owners of SMEs in in the three inter-linked fields of action 'Human Resource Policy', 'Organisational Development', and 'Workplace Innovation'.
- The task is to identify needs as well as opportunities for change by providing indications of options. Diversity and openness as well as orientation towards the possibilities and objectives of the participants promise more success than exclusive knowledge transfer.
- Knowledge can be acquired in different ways. On the technical-instrumental level there are enough supporting tools including checklists as well as the material for self-reflection, as-is analysis and development planning of companies.

- But the most important challenge is the development of people-oriented values, attitudes and behaviour. That means: learning to learn and seeing the other person as a congenial partner with specific abilities in order to strengthen the strengths and weaken the weaknesses – in oneself and in others

Analysis of the Needs for Strategies and Measures of Personnel and Organisational Development

- The biggest variation between companies/organizations is based on differences in the way they are managed. The socio-cultural characteristics shape the corporate culture. This includes the manner and scope of autonomy of action in work, the degree of participation in work design and change processes, the frequency and quality of product and process innovations, the degree of (authoritarian, functional vs. participatory) leadership vs. management etc.
- There are no suitable (discriminatory) criteria for a differentiation of companies in the fields of HR-policy which allow a clear, unambiguous systematic structuring in the sense of a typology. For this, the characteristics are too diverse and occur simultaneously in different graduations. A serious difference can only be found in the financial opportunities and the human resources to transfer good ideas into target-oriented innovations.
- On the one hand, the respective national/regional socio-cultural context must be taken into account. On the other hand, a sustainable HR policy requires innovations that are oriented towards criteria of good work design and personnel policy.
- Ideally speaking, a personnel policy is "good" if the employees' ability to work (see "Model/Concept of Work Ability") and productivity can be maintained at a sufficiently high level throughout the entire period of the employment phase, i.e. if they can enter the profession well, if there are favourable development opportunities and if they can retire healthily.
A "good" work design is shortly described as a job that is oriented at the same time to the needs of the company and the possibilities of the people. It should

fulfil the principles of humane work design. Work should be feasible and not harmful, bearable in the long term, reasonable, and promote personality. This happens when the work is comprehensible, manageable and meaningful and thus creates a task orientation and a motivation arising from the task and the requirements. The concept of work psychology is based on the fact that people also realise themselves in their work activity and that well-designed work is a means of developing personality. For this reason, the humane design of work also includes consideration of gender, age, culture and life situations.

- Due to the very different initial situations and needs, it seems helpful to give the companies the opportunity to record their current situation and to explore whether there are development needs on the basis of an ideal-typical target state.
- The self-analysis tool is a Quick-Check for SMEs which allows an initial self-assessment of the Human Resource policy in a company, looking at essential structural characteristics such as age, gender, competence, safety and health, corporate culture etc. It supports to find the relevant Workplace-, OD- and HR-Policy Innovation areas of the enterprise. With this instrument, SMEs can easily analyse the status quo of their company and quickly find out which type of HR-policy activities are particularly important.
- The participatory form of a self-determined description chosen here is intended to provide indications of possibilities. The companies should have the opportunity to reflect on their current status and to develop goals for their desired development.
- It makes sense to develop a pro-active strategy for coping with the consequences of demographic change, changes in the labour market, dynamic market developments and technological innovations. That requires clearance in goals and actions, for example, for ageing-appropriate working life and for promoting the work ability of the employees. The measures should be coordinated with each other. Regular monitoring of successes helps to optimise in continuous improvement processes.

Learning as Individual Personality Development – Promoting Leadership Skills as an Important Element in the Study of Human Resources and Business Administration

Learning can be (is often) temporary if what is learned is not understood. In this respect – subject to the absence of dementia – understanding is important because it is irreversible.

"Understanding requires the entire battery of regions in the cerebrum: the frontal cortex for cognitive processes, the parietal cortex for spatial thinking, reading and arithmetic, the temporal cortex for hearing, speaking and memory, the occipital cortex for visual impressions." [9; own translation]

Concisely summarised: Learning is an adaptation process of the brain. And because the absorption capacity of the neurons is limited, the brain discharges non-essential knowledge; quite a bit of what is learned is "forgotten" – one de-learns. → Thinking for yourself makes you intelligent! – No one can de-understand.

In terms of personnel management, the following applies:

For removing the boundaries of disciplines and of operational fields of action it is necessary to communicate, to understand the understanding of the other, and to agree on integrated strategies, approaches, and measures.

Conventional/traditional curricula focus often and very strongly on management aspects (tasks, methods, tools; knowledge, role and function).

The author is convinced that more emphasis should (must) be placed on leadership competences: attitude and behaviour, communication with appreciative dialogues, recognising expectations, participation, cooperation, own personality development and supporting the development of others by coaching and mentoring.

Additionally, three aspects are worth to be highlighted – and should urgently be subject of the training for future leaders:

- ⇒ The concept of Work Ability²³ is a suitable approach for an integrated HR policy and strategy. Attention to the holistic approach leads to integrated policies and sustainable innovations in the design of humane working conditions in alignment with individual and collective coping capacities.
- ⇒ Kolb's approach of transdisciplinary linking theory and practice (see chapter 4.1) through understanding from and with each other promotes cooperation in mutual organisational learning. It is a suitable methodological orientation for dual studies as a suggestion for the structural design of learning situations in the interconnection of operational issues and theoretical knowledge.
- ⇒ The KAIN method²⁴ as a practical application of Kolb's learning theory is excellently suited to test this connection.
The Quick-Check²⁵ as a general (rough) orientation guide and the in-depth checklists from the Offensive Mittelstand can be used well for operational analyses. The emerging topics that still need to be deepened and solved can be dealt with in a more detailed way during the course of and can be worked on as tasks for operational concepts with the KAIN method.

Certainly, there are many philosophical, sociological, psychological, etc. standard works that help understand role and function as well as attitude and behaviour in management and as a leader, to explore and develop the image of oneself and others, and generally the image of human beings. Some books as a small selection are recommended for reading and including in teaching (see literature list).²⁶

Finally, as a **summarised core message**:

An important element in vocational training as well as in studies and the subsequent development phases is to discover or promote one's own talent. In the context of the topic here, it is important to recognise whether one's inclinations are more oriented towards management or leadership or a good combination of both. Emotional/social

²³ The concept is presented in more detail in the full report – www.ka4hr.com

²⁴ The concept is presented in more detail in the full report – www.ka4hr.com

²⁵ The concept is presented in more detail in the full report – www.ka4hr.com

²⁶ The concept is presented in more detail in the full report – www.ka4hr.com

intelligence (heart) as a quality alongside cognitive (head) and manual (hand) skills and competences is necessary for all persons who take on tasks of leadership and operational management.

The meaningful as well challenging task in teaching is to explore, actively develop and promote individual talents, that is, to enable and to ennoble them.

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4.2 | Best Practices of Workplace Innovations²⁷

The KA4HR project analysed best practices for promoting workplace innovation in SMEs across the Baltic Sea. In order to be able to successfully implement the best practices evaluated and selected with all partners in the individual project countries, the national conditions for implementation were examined and corresponding adjustments made.

In a further step, new and additional tools for promoting workplace innovation in SMEs were analysed and developed, which in turn were implemented by the individual project partners themselves or transferred to SMEs.

4.2.1 | Baltic Sea wide Analysis of Workplace Innovation Best Practices

Best practices are those practices that have been shown to produce superior results, selected by a systematic process, and judged as exemplary, good, or successfully demonstrated. What is a difference between a good and the best practices? The best practice is method that has been proven to work better than other methods over time, but a “good practice” as merely something you might figure out that seems to work, but you really don’t know if it is the best method.

Firms that are serious about improving their performance continually search for better business practices. The fastest and easiest way to improve is to compare and learn from other successful organizations (for example, through using a benchmarking approach). To quote a very frequently used idiom among exponents of the use of best practice, “there’s no point in re-inventing the wheel”.

²⁷ Prepared by Dr. Marzena Grzesiak, Dr. Magdalena Olczyk, Dr. Anita Richert- Kaźmierska, Gdansk University of Technology, Gdansk

Most firms use or have used best practices at some point, consciously or not. Over the years best practices emerge and are later surpassed and proved inefficient as the world and the way business is done constantly changes, therefore so many high-performing organizations adopt a culture of continuous improvement.

There are a wide range of best practices in workplace innovations, they vary from the simple to very complex. Regardless of the complexity of your best practices, the aim is to make whatever you are doing work out better, faster and more efficiently with less problems and mistakes. That is why it is always a good idea to be aware of what the best practices are for what you are trying to achieve. It is a framework for success and the minimization of failure.

Below best practices in workplace innovation, chosen by project partners, are presented.

Types of workplace innovation chosen for the analysis by project partners

Project partners have chosen for the analysis 18th Best Practices of workplace innovations.

Best practices of workplace innovations chosen for the analysis

Best Practice (BP)	Country where BP has been implemented and its effectiveness tested	
Electronic workplace orientation (ePerehdytys)	Finland	12
FISE (Person/employee certification)		
Green walls		
Smartum benefits for employees		
Culture of self-leadership		
WELCOME TO COMPANY – guide for newcomers		
Initiative bonus tied to benefits of the initiative		
TYKY – maintaining the work ability and concept of work ability management		
Anonymous recruiting		
BIF sports		

Tampella work community		
Fastems: The Way We Rock		
Champions League 5S		
Nonmonetary motivations to ensure employees satisfaction with workplace	Poland	1
Company culture (work-life balance)	Latvia	2
CSR - Corporate Social Responsibility! Success through responsibility		
Vocational training in the company according to individual learning capabilities	Germany	3
Corpworking for SMEs		
TOTAL		

Source: own elaboration.

Descriptions of all Best Practices can be found on the Project Website <https://ka4hr.eu/>. These were prepared by the project partners using the general template and include such elements as: short characteristics of the solution, inputs and results (important for employees and employers/organizations), outcomes and impact. For those interested in finding further information about best practices, data sources (or contact persons) have been given at the end of each description.

Best Practices chosen for the analysis differ from each other due to their specificity, nature, scope, stakeholders' commitment, financial costs etc. What connects them are their positive results both – for the employees and organizations. In the following table there were presented general impacts of best practices implementation.

Groups of workplace innovations	Best Practice	General impact noted by Project Partners
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<p>Process of productive reflection as part of everyday working life</p>	<p>Electronic workplace orientation (ePerehdytys) Green walls Smartum benefits for employees WELCOME TO COMPANY –guide for newcomers TYKY – maintaining the work ability and concept of work ability management Fastems: The Way We Rock Vocational training in the company according to individual learning capabilities Corpworking for SMEs</p>	<ul style="list-style-type: none"> • increase of employee's occupational safety, accident rate reduces • increase of workplace friendliness, • increase of employee's creativity • employees' better health and wellbeing • increase of employee's motivation • competitiveness increase • counteraction of a competency gap • conditions for higher level of employee's work-life balance
<p>An interaction between stakeholders within and outside the organization</p>	<p>FISE (Person/employee certification) TYKY – maintaining the work ability and concept of work ability management Tampella work community Fastems: The Way We Rock Champions League 5S Corpworking for SMEs</p>	<ul style="list-style-type: none"> • development of the industry and its competitiveness strengthening • closer relationships between organization and its business partners and local society • organization's positive image (good reputation) in the environment • improvement of competitive position
<p>A process with built bridges between the strategic knowledge of</p>	<p>FISE (Person/employee certification) Culture of self-leadership Fastems: The Way We Rock Champions League 5S</p>	<ul style="list-style-type: none"> • reinforce the culture of continuous learning • support for the maintenance of professional skills • effective communication, reducing the number of false messages, rumors

<p>the leadership, the professional and tacit knowledge of frontline employees and organizational design knowledge of experts</p>	<p>CSR - Corporate Social Responsibility! Success through responsibility</p>	<ul style="list-style-type: none"> • long-term positive impact on improving the quality of process implementation at administrative and production positions • systematic and targeted qualification of owners, managers and employees of SMEs • process of continuous organizational development
<p>A process towards win-win outcomes for the organization and employees</p>	<p>Green walls Smartum benefits for employees Culture of self-leadership Initiative bonus tied to benefits of the initiative TYKY – maintaining the work ability and concept of work ability management Anonymous recruiting BIF sports Fastems: The Way We Rock Nonmonetary motivations to ensure employees satisfaction with workplace Company culture (work-life balance) CSR - Corporate Social Responsibility! Success through responsibility</p>	<ul style="list-style-type: none"> • increase of employee's motivation and involvement in everyday tasks • better working environment and employees' physical/mental wellbeing – higher work efficiency • higher employees' competences – better results of organization • increase of organization's flexibility – better competitiveness position

	Vocational training in the company according to individual learning capabilities	
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Source: own elaboration.

In the next table there were presented detailed results achieved in companies: for employees and the organization.

Best Practice	Results for employees	Results for employers/organization
Electronic workplace orientation (ePerehdytys)	<ul style="list-style-type: none"> • work quality improvement • work safety • equality principles 	<ul style="list-style-type: none"> • image of organization improving workplace safety • increase of efficiency and effectiveness • flexible adaptation to legal and time requirements
FISE (Person/employee certification)	<ul style="list-style-type: none"> • increase of job opportunities • linking professional development with company's responsibility • increase of the profession's esteem 	<ul style="list-style-type: none"> • high qualified employees – better competitive position • preventing occurrence of the competency gap and employees' deficits
Green walls	<ul style="list-style-type: none"> • better (healthier) working environment • less sick leaves 	<ul style="list-style-type: none"> • increase of employee's motivation, happiness – that results in an increase of productivity and work involvement • positive organization image
Smartum benefits for employees	<ul style="list-style-type: none"> • better employment conditions • extra (non-financial) benefits from their work 	<ul style="list-style-type: none"> • more sustainable workforce • increase of employee's motivation, happiness – that results in an increase of productivity and work involvement
Culture of self-leadership	<ul style="list-style-type: none"> • friendly workplace atmosphere • efficient communication (low hierarchy) 	<ul style="list-style-type: none"> • efficient communication • satisfied employees • employees' involvement

	<ul style="list-style-type: none"> and no structural pre-conditions) • high level of employee's autonomy 	
WELCOME TO COMPANY – guide for newcomers	<ul style="list-style-type: none"> • effective communication • easy entering into professional duties 	<ul style="list-style-type: none"> • every employee has the same knowledge concerning the rules, practices and health and safety issues
Initiative bonus tied to benefits of the initiative	<ul style="list-style-type: none"> • clear and fair rules for employees rewording 	<ul style="list-style-type: none"> • motivated and productive employees • organizational culture based of fair and just
TYKY – maintaining the work ability and concept of work ability management	<ul style="list-style-type: none"> • satisfied (health and safety) working conditions 	<ul style="list-style-type: none"> • decrease of sick leaves and early retirements – costs reduce • employee's involvement • positive organization's image
Anonymous recruiting	<ul style="list-style-type: none"> • equal rights for all candidates in the recruitment process • competences matter in the recruitment process 	<ul style="list-style-type: none"> • no risk of discrimination in the recruitment process • recruitment of employees with best competences
BIF sports	<ul style="list-style-type: none"> • extra benefits from the work • healthy work conditions 	<ul style="list-style-type: none"> • healthy and efficient employees • positive organization's image
Tampella work community	<ul style="list-style-type: none"> • opportunities for skills development/ learning new things • modern office facilities • new relations – networking 	<ul style="list-style-type: none"> • synergies with other organisations working with similar tasks and topics • shared infrastructure cost • possibility to create common appearance in the public
Fastems: The Way We Rock	<ul style="list-style-type: none"> • well-functioning working community 	<ul style="list-style-type: none"> • cost reduction • motivated employees

	<ul style="list-style-type: none"> stable outlook of the workplace 	<ul style="list-style-type: none"> efficient communication in the organization better competitive/market position
Champions League 5S	<ul style="list-style-type: none"> improvement of work comfort eliminating unnecessary actions increased work safety improving employee awareness 	<ul style="list-style-type: none"> effective workplace organization improvement of work organization culture improvement of self-discipline of employees increase in work efficiency
Nonmonetary motivations to ensure employees satisfaction with workplace	<ul style="list-style-type: none"> satisfaction with work friendly workplace atmosphere extra benefits from the work 	<ul style="list-style-type: none"> motivated and productive employees smaller staff change and higher loyalty to the company innovative ideas from the employees
Company culture (work-life balance)	<ul style="list-style-type: none"> satisfaction with work friendly workplace atmosphere sense of belonging to the “organization’s team” opportunities for skills development/ learning new things a sense of security (mentorship program) 	<ul style="list-style-type: none"> motivated and productive employees smaller staff change and higher loyalty to the company innovative ideas from the employees reducing mistakes made by new (young) employees
CSR - Corporate Social Responsibility! Success through responsibility	<ul style="list-style-type: none"> job security involvement in decision-making processes 	<ul style="list-style-type: none"> increased employees’ motivation and enthusiasm for work strengthening innovation and competitiveness
Vocational training in the company according to	<ul style="list-style-type: none"> systematic learning according to individual abilities and capabilities 	<ul style="list-style-type: none"> recruitment of urgently needed skilled workers company-specific qualifications increased competitiveness

individual learning capabilities	<ul style="list-style-type: none"> • integration into work life • access to all advanced further training courses and career opportunities 	
Corporeworking for SMEs	<ul style="list-style-type: none"> • satisfied workplace condition • flexible working conditions • networking 	<ul style="list-style-type: none"> • decrease of costs • organization flexibility

Source: own elaboration

Conditions for best practices implementation

Best practices are solutions that allow to obtain better results than in the case of others. Best practices are behaviour standards and reference points for other entities interested in the implementation of similar activities. Enterprises and public organizations most often use best practices to attain satisfactory market position and ensure competitiveness cheaper and faster, as compared to the circumstances in which they would have to create specific solutions on their own. Searching for best practice which could be a model is usually a task of the concerned entity (enterprise or public organization) and results from a thorough self-assessment and benchmarking process (Bogan, English, 1994).

Transfer of best practices is one of the most difficult processes in the management of organizations. The solutions which proved effective in organization Y cannot be simply copied and implemented in organization X. It must be taken into account that the effect achieved by organization Y is affected by a number of its idiosyncratic circumstances, both dependent and independent of Y. Due to other circumstances and the internal structure of organization X, applying the same solutions and actions as in the case of organization Y may yield quite different results. Caution in the use of best practices results from the situational approach in management. Representatives of this perspective focus on the description and analysis of a variety of both internal and

external conditions, the nature and interconnectedness of which justify the application of a given organizational model (Kaczmarek, Sikorski, 1998, p. 24). The basic premise of the situational approach is the relativism of the organizational rules and principles, i.e. assuming that they apply only in relation to certain categories of situations (Stabryła, Trzcieniecki, 1986, p. 183-184).

Among the critical success factors of best practice transfer in enterprises, the professionals distinguish i.a. selecting an appropriate model solution, understanding the determinants of its effective implementation or ensuring favourable conditions for the implementation in the follower organization.

Critical conditions of best practices implementation success

Related to the best practice chosen for implementation	• common goal of best practice and the implementing enterprise
	• appropriate choice, aligned with the implementing enterprise competences
Related to the workforce of the implementing enterprise	• suitable qualifications of the workforce enabling the implementation
	• proper selection of the team responsible for the implementation
Related to the management of the implementing enterprise	• internal communication and promotion of best practice ideas
	• creating an environment conducive to the best practice being implemented and willing to share its expertise
	• providing the infrastructure necessary for the implementation
	• management commitment

Source: (Jarrar, Zairi, 2000).

As reported by the American Productivity and Quality Centre, the main limitations for effective implementation of best practices in follower organizations are:

- insufficient involvement of the management in the process of identifying best practices and their implementation,
- incorrect choice of the model solution, being unsuitable for a given problem,

- silo thinking and lack of mutual communication between the different departments of the organization,
- too short a time for learning the given best practice and the conditions for its success, as well as the fast pace of implementation and too high expectations regarding the quick development of positive effects,
- missing or insufficient experience of employees preventing or slowing down the effective implementation of a best practice.

Conditions of workplace innovation best practices implementation – conclusions from the KA4HR project's best practices analysis

Implementation of best practices is a very specific process requiring a lot of management's attention and commitment. It's results determine different factors: the internal situation of the organization and in its external environment.

Among internal determinants of successful implementation of workplace innovation's best practices can be pointed: related to employers (organization) and related to employees. As the examples of these related to employers (organization) can be expressed:

- employer's (manager's) attitudes towards workplace innovation – openness and readiness for implementation of new solution, knowledge about workplace innovation, ability to cooperate with internal/external partners in workplace innovation implementation,
- organizational culture – the more employee-friendly it is, the implementation process will proceed more efficiently and without any critical problems,
- organizational structure – flat structures, with short path of decision-making facilitate implementation, increase the flexibility of the organization,
- relations between employees and dialog between employees and managers – democratic management style promotes workplace innovations, involve employees into searching new solutions conducting the workplace conditions

improvement; good communication helps to avoid misunderstandings and serves for effective implementation; effectively designed teams accept new solutions smoothly, team members help to each other to learn new solutions (if applicable).

Factors related to employees are as follow:

- performing innovative behaviour among employees; attitudes towards new solutions proposed by the management,
- readiness to get involved in new solutions (motivation),
- previous professional experience and expectations according to the workplace organization,
- structure of personal needs and the level of their satisfaction.

External factors determining best practices of workplace innovation implementation results, among others, with:

- legal conditions – not all solutions – specially involving flexible working conditions (contracts, working hours) – are allowed in labor law in different countries,
- competitors – implementation (or abandoning the implementation) of some solutions is more the result of environmental pressure then identified in the given time organization's need (competitors which use the solution build their competitive position, so others in the sector follow them),
- clients' expectations – organizations implement some workplace innovations (best practices) to build up positive image (or blurring the negative opinions).

The country where the solution (treated as the best practice) was implemented originally and where it is going to be replayed – is not relevant. Nevertheless, the socio-economic, cultural, legal etc. conditions occurring in those countries – matters.

Best practices of workplace innovation identified by project partners and analyzed in the report can be implemented in other countries. The success will depend on the internal situation of the organization (including employees) and situation in the sector (industry) where organization operates.

Tool and methods for evaluation and development of workplace innovations

Analyzing the workplace innovation processes, we found the importance of its evaluation and development. Study of workplace innovation showed that it is necessary to apply rather a set of methods for assessment and development the workplace innovation. One method is usually the basis of the other. In Table 1, we present the list of possible tools/ methods, we can be used for evaluation and development of workplace innovation. The list contains following data: name of the method, keywords, and brief description of the method (Ludvík, Peterková (2016)).

List of the methods for assessment and development of the workplace innovation

Number	Methods name	Brief characteristics of the method
1	2	3
01	Analysis of frequency and frequency levels of innovation flow	Analysis of changing of consecutive innovation
02	Analysis of the force field of innovation	Analysis of the driving and braking forces of the innovation field
03	Analysis of innovation life cycle	The course of innovation of a certain quality in time.
04	ARIZ-85C	Contradiction, the algorithm of creative problem solving, technical evolution laws
05	Balanced Scorecard	System of balanced indicators of business performance. Interconnection of strategy and operational management
06	Benchmarking	Comparisons and benchmarking of business performance

07	Bisociation	Linking previously mentally separate dimensions (perspectives)
08	Brainstorming	Group search for the greatest possible number of ideas (without rating)
09	CREAX	Contradiction, self-experience + using other methods of contradictions
10	Delphi method	Anonymous questioning of experts and the search for a consensus of opinion on the issue
11	DIVA	Contradiction, searching for variations in the properties of a product or process
12	Heuristics	Solving problems for which we do not know the algorithm or more accurate method
13	Value analysis	Functional and value view of the problem
14	Inverse value analysis	How differently and better utilize existing function (property) of the object
15	Method of genetic algorithms	Use of the principle of evolutionary algorithm to solve the problem (finding new innovations)
16	Method Ideo	Active and empathic listening to people (customers)
17	Method for measuring innovation potential	Objectified indicators for measuring the critical points in the enterprise
18	Method PAEI	Analysis of four roles in the lifecycle of enterprise.
19	Method of rules for solving complex innovation	A set of rules for managing complex innovation in the enterprise
20	Six hats method	Parallel thinking in six different roles
21	Method of applying the innovative rules (commandments) in the enterprise	Operationalization of innovative recommendations for managing innovation in the enterprise
22	Monitoring social networking and Internet diaries	Systematization and facilitating work with information from electronic networks

23	Morphological analysis	Creating permutations of the basic elements in the search for new innovations
24	Mind map	Graphical mapping of the human thought process during problem solving
25	Risk of the business innovation project	Elimination of negative factors due to dispersion of effects resulting from innovation
26	Managing the process of creative thinking	Phase of creative thinking
27	Synectics	Systematic exchange of expert opinions to generate new ideas
28	Rating system of innovation indicators by EU	Standardized set of identifiers for evaluating innovative level of the country
29	System Analysis and Synthesis	Method of solving complex problems – systemic skeleton for working with innovation
30	TRIZ	Contradictions, patents and knowledge base, possible methods for solving technical problems
31	WOIS	A comprehensive system of generation and selection of innovative solutions, evolutionary spiral
32	Classification of innovation-by-innovation orders	Characteristics for incorporation of solved innovation into certain innovation order
33	Elaboration of innovative characteristics in accordance with the Oslo Manual	Innovative interpretation of data – technical and non-technical innovations
34	Value Stream Mapping	Method of visual mapping the value flow in the product manufacturing from its concept to the hands of the customer

Source: Ludvík, Peterková (2016)

Entrepreneurs are also looking (apart from methods) for universal indicators for assessment and development of implemented workplace innovations. The literature currently provides no direct indicators for workplace innovation, but some of universal innovation measures can be adapted for evaluation and development of workplace

innovation. The Bible of most known innovation indicators is the Innovation Union Scoreboard (IUS), which provides a comparative indices of innovation performance. They allow to assess relative strengths and weaknesses of national innovation systems and help countries identify areas they need to address. Below the overview of selected IUS indicators with a potential link to workplace innovation are presented.

The overview of selected IUS indicators with a potential link to workplace innovation.

1. New doctorate graduates (ISCED 6) per 1000 population aged 25-34	Number doctorate graduates (ISCED 6) (EUROSTAT)	Population between 25 and 34 years	The indicator is a measure of the supply of new second-stage tertiary graduates in all fields of training. For most countries ISCED 6 captures PhD graduates only, except for Finland, Portugal and Sweden where also non-PhD degrees leading to an award of an advanced research qualification are included.
2. Percentage population aged 30-34 having completed tertiary education	Number of persons in age class with some form of postsecondary education (ISCED 5 and 6) (EUROSTAT)	Population between 30 and 34 years	This is a general indicator of the supply of advanced skills. It is not limited to science and technical fields because the adoption of innovations in many areas, in particular in the service sectors, depends on a wide range of skills.
3. Percentage youth aged 20-24 having	Number of young people aged 20-24 years having	Population between 20 and	The indicator measures the qualification level of the population aged 20-24 years in terms of formal educational degrees. It provides a

attained at least upper secondary education	attained at least upper secondary education attainment level, i.e. with an education level ISCED 3a, 3b or 3c long minimum (EUROSTAT)	24 years	measure for the “supply” of human capital of that age group and for the output of education systems in terms of graduates. Completed upper secondary education is generally considered to be the minimum level required for successful participation in a knowledge-based society and is positively linked with economic growth.
Workplace innovation interpretation: Indicators 1-3 could be understood in terms of a very general assessment for the “readiness for workplace innovation”. This would reflect the assumption that workplace innovation relies on advanced skills and knowledge of employees (individual level enablers). The formal school education is however an unspecific indicator which does not directly focus on the demands of workplace innovation.			
4. Non-R&D innovation expenditures (% of turnover)	Sum of total innovation expenditure for enterprises, in thousand Euros and current prices excluding intramural and extramural R&D expenditures (CIS)	Total turnover for all enterprises	This indicator measures non-R&D innovation expenditure as percentage of total turnover. Several of the components of innovation expenditure, such as investment in equipment and machinery and the acquisition of patents and licenses, measure the diffusion of new production technology and ideas.

5. SMEs introducing product or process innovations (% of SMEs)	Number of SMEs who introduced a new product or a new process to one of their markets (CIS)	Total number of SMEs	Technological innovation, as measured by the introduction of new products (goods or services) and processes, is a key ingredient to innovation in manufacturing activities. Higher shares of technological innovators should reflect a higher level of innovation activities.
6. SMEs introducing marketing or organizational innovations (% of SMEs)	Number of SMEs who introduced a new marketing innovation or organizational innovation to one of their markets (CIS)	Total number of SMEs	The Community Innovation Survey mainly asks firms about their technological innovation. Many firms, in particular in the services sectors, innovate through other non-technological forms of innovation. Examples of these are marketing and organizational innovations. This indicator tries to capture the extent that SMEs innovate through non-technological innovation.
Workplace innovation interpretation: (Indicators 4-6) The investment in work organization or organizational changes for improving innovative activities would be interesting here for measuring at least this aspect. The current indicator however comprises very different expenditures and does not refer explicitly to work organization or organizational change.			
7. Employment in fast-growing enterprises in innovative	The sum of sectoral results for the employment in fast-growing	Total employment in fast-growing	The indicator shows the degree of innovativeness of successful entrepreneurial activities. It captures the capacity of a country to transform its economy rapidly to take advantage of emerging demand.

sectors (% of total employment)	enterprises by economic sector multiplied by the innovation coefficients of these sectors. Fast-growing enterprises are defined as firms with average annualized growth in employees of more than 10 % a year, over a three-year period, and with 10 or more employees at the beginning of the observation period. (EUROSTAT)	enterprises in the business economy (without financial sector)	
<p>Workplace innovation interpretation:</p> <p>As this indicator combines employment with innovative sectors there is a possible link to workplace innovation. The innovation coefficient included in indicator 3.1.3 summarizes several aspects of innovativeness, one of them being organization innovation. Therefore, an assessment of workplace innovation could be integrated into the</p>			

IUS by weighting each of the coefficient's single indicators differently, i.e. emphasizing the indicators on organization innovation.

Source: European Commission (2014)

Of course, the above lists of methods and indicators that can be used to assess a workplace innovation is not completed/closed, but it could be the signpost for each entrepreneur, who are interested in introduction and then assessment of workplace innovations.

To diagnose what country specificities (what conditions) in Baltic Sea Region affect the successful implementation of chosen workplace innovation Best Practices a survey among project partners was conducted.

As it was declared by Partners, work ability management practices are implemented in companies in Finland (the Best Practice originally comes from Finland) and Germany. They are not – in Latvia. Representative of Pomeranian Chamber of Handicrafts for SMEs indicated that he does not know companies implementing such practices, while representative of Gdansk University of Technology – marked “yes”. Deeper analysis of those contradictory answers leads to the conclusion, that in Poland there are some companies practicing work ability management but it's not very popular (well-known). To know such companies, you have to deal with the topic.

In Finland, several companies, education institution (including SAMK), banks, insurance companies and cities implement such practices. Especially the metal and heavy engineering industry use TYKY (own gyms, more frequent health inspections, TYKY days etc.). Main reasons are:

- to tackle the biased age structure,
- to ensure transfer tacit knowledge,
- to have healthy employees,
- to guarantee pensioners earning more healthier years.

In Germany individual ministries at federal and state level practice work ability management but there are still no public programmes for funding and implementation. Individual consultancies are working on this approach and advise companies on it. A few, mainly larger, companies have started to implement such practices in their companies, e.g., the Pinneberger Verkehrsbetriebe.

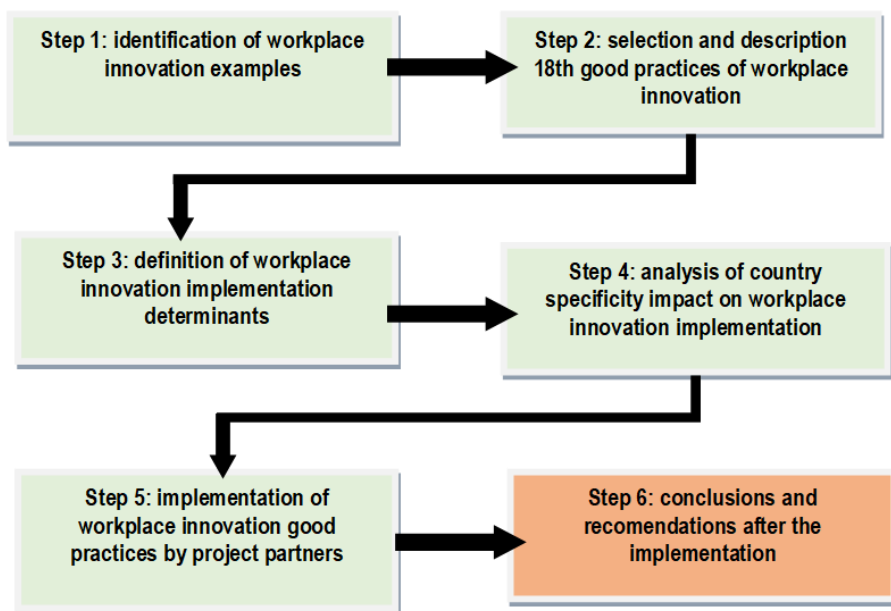
In Latvia and Poland, even if organizations implement such practices, there is no information about it. The main reasons why work ability management practices are not implemented can be as follow: too high costs, lack of awareness about benefits, no knowledge how to do it, no specialist (specially in SMEs) who could design and coordinate the implementation.

Based on the interviews with the partners and further research, national conditions were formulated and differentiated tools for the successful national-specific implementation of workplace innovation were developed. A detailed presentation of all results can be found on the project website <https://ka4hr.eu/> under "Country specificity as a factor of Workplace Innovation Best Practices' successful implementation"

4.2.2 | Implementation of Workplace Innovation

Introduction

One of the project's parts was to identify good practices of workplace innovation and their implementation in chosen organizations. See the steps how the activity was completed – Figure 1.



In 2019, after detailed analysis 18th of workplace innovation good practices had been selected and described – see Table 1.

Table 1. Good practices of workplace innovation selected and described in KAforHR project

Best Practice (BP)	Country where BP has been implemented and its effectiveness tested	
Electronic workplace orientation (ePerehdytys)	Finland	12
FISE (Person/employee certification)		
Green walls		
Smartum benefits for employees		
Culture of self-leadership		
WELCOME TO COMPANY – guide for newcomers		
Initiative bonus tied to benefits of the initiative		
TYKY – maintaining the work ability and concept of work ability management		
Anonymous recruiting		

BIF sports		
Tampella work community		
Fastems: The Way We Rock		
Champions League 5S	Poland	1
Nonmonetary motivations to ensure employees satisfaction with workplace	Latvia	2
Company culture (work-life balance)		
CSR - Corporate Social Responsibility! Success through responsibility	Germany	3
Vocational training in the company according to individual learning capabilities		
Corpworking for SMEs		

Source: Grzesiak M., Olczyk M., Richert-Kaźmierska A., Baltic Sea wide analysis of Workplace Innovation Best Practices. KAforHR Report, 2019

Afterwards, the country specificity as a factor of workplace innovation good practices' successful implementation was analyzed and depicted. There were chosen four good practices for detailed analysis

It was found that practices focused on work ability management are implemented successfully in Scandinavian countries, mainly because of well-developed intellectual background in this field (eg. Finish Institute of Occupational Health) and cooperation between employers, public institutions and universities. In other European countries there is lack of knowledge about possible solutions and methods of implementation, the support for entrepreneurs is low. Practices of transferring part of the work (workforce) from own location to the shared business spaces are present in all project partners' countries. Nevertheless, they are still not very popular. The main target group of companies to implement the practice are either very small, young companies operating in IT and creative industries (startups) or companies using network structures - outsourcing several specialists (there is no need of their presence in company everyday) or companies realizing complex projects (temporary usage of such co-working spaces). The workplace innovation focused on „integration management” is quite popular approach in Finland (a way of SMEs management), in Germany it was common some years ago, but nowadays – even if the benefits are recognized – it's not in use so often.

In Latvia and Poland some companies have been making the attempts in implementation, but there is a lack of knowledge about possible solutions and methods of implementation, mental barriers for cooperation (between organizations - fear of losing competitive advantage, trade secrets) and individuals' engagement (employees do not feel important/ responsible for companies they work for). Implementation of practices focused on nonmonetary methods of employees' motivation depends on financial situation – both: employee and organization. As partners from Latvia expressed – because of costs (for the organization) – only some of nonmonetary tools can be implemented. Partners from Poland paid the attention on employees' individual financial situation. There are still quite many employees earning “the lowest national wage” – for them the possibility of higher payment is motivating most. Another condition pointed by the Polish partner was the type of organization. Public institutions cannot implement some of the solutions/tools of nonmonetary motivation.

In the last step in this activity, four project's partners had to implement one from the analyzed workplace innovation good practice and report the result/outputs. Partners' opinions and recommendations has been collected and described in the text below.

Case 1: Latvian Chamber of Commerce and Industry

1. Implemented workplace innovation

Workplace innovations focused on improvement of everyday working life (e.g. rationalization of work organization, simplification of procedures, coaching as prevailing management style, supervisor's support)

2. What was the main motivation for choosing this one?

These innovations are common for organizations who are rapidly growing, and more serious systematization of work processes is necessary to keep things efficient and organized and in order for organization continue to grow.

3. Do employees and managers have the capability and willingness to engage in workplace innovation implementations?

Some of them yes but some of them are not so willing to engage and are rather resisting change because of feeling threatened and undermined.

4. What effects from implementation did you expect at the time of its introduction?

Resistance from several employees was expected, mostly from those whose work would be most affected by the change as well as the older colleagues who are not so flexible to accept change.

5. Did you estimate the potential benefits connected with the workplace innovation implementation?
 - Efficient work and balanced workload
 - Reaching higher organization goals
 - Motivated and less frustrated employees
 - Lower employees' rotation
 - Clear role, responsibilities and duties within organization
6. Did you identify and evaluate the risk before implementing the workplace innovation?

Yes, the risks were evaluated. For example, which employees will be in the risk zone - the most resistant, unmotivated, who can potentially quit organization etc.

7. What results/outputs of workplace innovation's implementations were achieved?

Several internal procedures were optimized and made efficient as well as employees work were evaluated, and tasks were redistributed between employees in a more logical way. Results still need to be evaluated because it takes time for them to be visible and measurable.

8. What was the most influenced factor within implementation? (positive/ negative)

Factors	-2 (Strongly negative)	-1 (Little nega- tive)	0 (Neu- tral)	1 (Little positive)	2 (Strongly positive)
employers' attitude towards this type of workplace in- novation in your country				X	
organizational culture in SMEs in your country				X	
relations between employ- ees and dialog between em- ployees and managers		X			
age structure of the work- force		X			
legal conditions (give the examples)			X		

9. What were most important barriers in WP's implementation? (organizational, financial, cultural etc. or others)

Organizations internal culture and employees who shape it was the biggest barrier.

10. How does an implemented workplace innovation reflect, and respond to, external economic, social or environmental challenges? (in your opinion)

Positively because environment is getting more and more dynamic as well as organization is growing so procedures, culture and employees should also be able to adjust to these external tendencies in order to survive and keep growing.

11. After implementation:

- How do you estimate the whole implementation process? (e.g. in the scale: easy- complicated- very difficult)

Rather easy with some challenges.

- Would be the decision the same about choosing the practice to implement?

Yes

- Do you think, implemented solution will be kept in the future?

Yes, but it probably will be adjusted from time to time because of the organizations specific.

Case 2: Vides Dizains Ltd.

1. Implemented workplace innovation

Corpworking for SMEs and Nonmonetary motivations to ensure employees satisfaction with workplace

2. What was the main motivation for choosing this one?

We had to move to a new office and by using co-working spaces we were able to ensure more flexible rent conditions and rent smaller main office. Also, we didn't need to by new office technology as so-working spaces are well equipped. Taking into account that our new office is located outside the center of city our employees can choose to work from co-working space 4 times per week (we pay for it). One day per week they can work from home or from the main office. Employees are satisfied that they can look for a co-working place near their homes and not to spend so much time travelling to/from work.

We already practiced several types of non-monetary innovation in our company, such as: Freedom to choose tools for work (for example MAC or Windows); Flexible working hours (You can start your work from 11:00 and work longer in the evening instead); Birthday gift from the company; Various informal team building activities (Christmas parties, hockey team, boat trips etc.).

Following examples provided by KAforHR we decided to start some additional activities, such as "Brown bag" breakfasts or lunches, or free office lunches twice per month, which we dedicate for discussing particular subjects related to our work activities, such as the KAforHR project and its implementation or aspects related to developments in areas relevant for our work (innovation in energy efficiency, design of golf

courses, etc.). Sometimes we also try to invite local or foreign experts from outside to share useful information with us. This is quite important that all our employees participate in these reunions.

3. Do employees and managers have the capability and willingness to engage in workplace innovation implementations?

Yes, in both cases these workplace innovations were easy to implement. This could also be related to the fact that we had to move to a new office and restructure our activities. This helped to introduce changes much easier and faster.

4. What effects from implementation did you expect at the time of its introduction?

We expected that this change will help to make our work more efficient and save office costs, which was indeed achieved. Our clients are also satisfied that we are better accessible by cars and provide free parking near our new office. We also wanted to make sure that our employees will stay with us and not decide to look for other jobs closer to their homes.

Team building and communication with each other has become more important taking into account that people are not seeing each other every day (part of employees are in the main office and other part is working from co-working spaces). Therefore, this was important to invent some new non-monetary innovations to make sure that people can communicate and exchange regularly. Both good practices (innovations) appeared to be very useful and very connected.

5. Did you estimate the potential benefits connected with the workplace innovation implementation?

Yes, we have made some calculations related to the rent of our new office and possibilities to use co-working options. Based on this we decided how much money we can spend for co-working spaces. Implementing additional non-monetary motivation measures were very much related to this new situation. These activities also help us to monitor and evaluate work productivity and satisfaction with new working conditions of our employees.

6. Did you identify and evaluate the risk before implementing the workplace innovation?

Yes, of course. The biggest risk in our opinion was that we will not be able to monitor, how employees are spending their working time and if they are as dedicated to their work tasks as if working from the office. We have asked employees to report regularly to our secretary about their daily routines and inform us immediately if there are any changes in their schedules. Also, we have Skype meetings with our employees time by time.

7. What results/outputs of workplace innovation's implementations were achieved?

We achieved more efficient workers and saved office costs, more satisfied clients and employees. Both invented innovations helped to achieve better results as they are very much related.

8. What was the most influenced factor within implementation? (positive/ negative)

Factors	-2 (Strongly negative)	-1 (Little negative)	0 (Neutral)	1 (Little positive)	2 (Strongly positive)
employers attitude towards this type of workplace innovation in your country					X
employees attitude towards this type of workplace innovation in your country					X
organizational culture in SMEs in your country					X

relations between employees and dialog between employees and managers					X
age structure of the workforce			X		
legal conditions (give the examples)			X		
competitiveness environment (give the examples)					X

9. What were most important barriers in WP's implementation? (organizational, financial, cultural etc. or others)

In both cases implementing innovations required some additional organizational and managerial work in the beginning. As we have started working in new conditions only starting from September 2019, we don't know what the long-term impact will be. Probably, there have also been some cultural difficulties as older employees haven't been keen to choose to work in co-working spaces despite even longer travel to work in a new office. They have stayed in the main office, where they feel more comfortable.

10. How does an implemented workplace innovation reflect, and respond to, external economic, social or environmental challenges? (in your opinion)

We can't judge yet as we have started implementing these innovations only around three months ago.

11. After implementation:

- How do you estimate the whole implementation process? (e.g. in the scale: easy- complicated- very difficult)

Easy

- Would be the decision the same about choosing the practice to implement?

Yes

- Do you think, implemented solution will be kept in the future?

Probably yes, but we have to be flexible in order to think about new opportunities and innovations to be implemented and/or to replace the old ones.

Case 3: Pomeranian Chamber of Handicrafts for Small and Medium Enterprises

1. Implemented workplace innovation

Workplace innovations focused on nonmonetary motivations to ensure employees satisfaction with workplace. Pomeranian Chamber of Handicrafts for Small and Medium Enterprises has introduced several innovations in its work environment e.g.:

- flexible working hours providing each employee an opportunity to better manage their time and activities and also maintain work-life balance
- the possibility of coming with child to work in emergency situation
- adaptation of working conditions to the age diversity
- enabling employees to work remotely
- providing employees with additional health tests

2. What was the main motivation for choosing this one?

The biggest motivation to choose those innovations was the relatively short time needed to implement them, the willingness of employees to implement them and the lack of major financial barriers for their implementation.

3. Do employees and managers have the capability and willingness to engage in workplace innovation implementations?

The employees were very positive about the changes PCH introduced, they were also involved in the selection and implementation of innovations.

4. What effects from implementation did you expect at the time of its introduction?

PCH expected that the introduced innovations would result in greater employees' satisfaction with the workplace, greater identification with employer's brand, greater involvement in work and better management of duties.

5. Did you estimate the potential benefits connected with the workplace innovation implementation?

Increased work satisfaction of employees, greater identification of employees with the workplace. The promotional aspect of the Chamber as an organization of SMEs entrepreneurs is that is setting a good example for implementing innovation in the workplace.

6. Did you identify and evaluate the risk before implementing the workplace innovation?

The Chamber carefully analyzed the costs and risks associated with the introduction of innovation, but due to the fact that these innovations had a positive impact on the workplace and also very well received by employees and management, they are disproportionate to the advantages of introducing innovation.

7. What results/outputs of workplace innovation's implementations were achieved?

Increased work satisfaction of employees, greater identification of employees with the workplace. The promotional aspect of the PCH as an organization of SMEs entrepreneurs is that it is setting a good example for implementing innovation in the workplace.

8. What was the most influenced factor within implementation? (positive/ negative)

	-2	-1	0	1	2
Factors	(Strongly negative)	(Little negative)	(Neutral)	(Little positive)	(Strongly positive)

employers attitude towards this type of workplace innovation in your country			X		
organizational culture in SMEs in your country					X
relations between employees and dialog between employees and managers					X
age structure of the workforce					X
legal conditions (give the examples)					X

9. What were most important barriers in WP's implementation? (organizational, financial, cultural etc. or others)

The biggest barrier was the mental barrier associated with the modification of work organization on both the employees' and management's side.

10. How does an implemented workplace innovation reflect, and respond to, external economic, social or environmental challenges? (in your opinion)

The implementation of innovations in the environment by the PCH is consistent with trends on the labor market. It is also an element encouraging SME companies associated in the Chamber to introduce innovation as a good practice. These activities are also strengthened by building a positive image of the Pomeranian labor market as attractive and employee friendly.

11. After implementation:

- How do you estimate the whole implementation process? (e.g. in the scale: easy- complicated- very difficult)

The process was quite easy.

- Would be the decision the same about choosing the practice to implement?

Yes

- Do you think, implemented solution will be kept in the future?

Yes.

Case 4: Baltic Institute of Finland

Implementing new workplace innovations proposed in the project in BIF become very challenging. The reason for this was two-fold:

- firstly, BIF is a small organisation of seven people working with EU funding and development projects, the staff is stable, so there are not employees coming in all the time, so the need for orientation activities is close to zero,
- secondly, all the workplace innovations that fit BIF organisation are already in place. BIF has been (and still are) implementing, for instance, Smartum benefits, plants at the office, orientation for new employees, culture of self-leadership, nonmonetary motivations, and co-working spaces, for years now already.

To summarise, BIF had found no new workplace innovations for implementing as a part of the project KAforHR.

Final remarks

Three of four project partners decided to implement workplace innovations as a part of KAforHR project (PP6, PP9 and PP10), from the list of good practices prepared previously. One partner (PP3) stated, there was no need/possibility for implementation – organization is too small and already has implemented proposed solutions.

The main motivation for partners implementing new workplace innovations were:

- the need of change that ensure organization grow,
- the current situation, that requires the company to quickly find new solutions in functioning,
- the need of employee's reunion,
- the simplicity of innovation implementation

ENTREPRENEURS DECIDE FOR WORKPLACE INNOVATIONS' IMPLEMENTATION IF THEY RESPONSE RECOGNIZED ORGANIZATIONS' NEEDS AND ARE RELATIVELY EASILY TO IMPLEMENT (THE RESULTS CAN BE EXPECTED IN SHORT PERIOD OF TIME).

The process of workplace innovations' implementation was planned, the risks and potential benefits were calculated – see table below.

PART- NER	RISKS DEFINED BEFORE IMPLEMENTATION	EXPECTED BENEFITS
PP6	PP3 has conducted the analysis of implementation risks, but finally did not identify any that could negate the implementation	increased work satisfaction of employees, greater identification of employees with the workplace promotional benefits
PP9	employees in the risk zone - the most resistant, unmotivated, who can potentially quit organization etc.	efficient work and balanced workload reaching higher organization goals motivated and less frustrated employees lower employees' rotation clear role, responsibilities and duties within organization
PP10	no possibility to monitor, how employees are spending their working time and if they are as dedicated to their work tasks as if working from the office the need to establish new ways of communication	new ways of monitoring and evaluating work productivity and satisfaction with new working conditions

ENTREPRENEURS DECIDE TO IMPLEMENT WORKPLACE INNOVATIONS AFTER ANALYSIS OF POTENTIAL BENEFITS AND RISKS. THEY NEED ANALYTICAL TOOLS, HELPING THEM WITH DECISIONS' MAKING WHAT INNOVATION AND WHEN TO IMPLEMENT

Partners identified factors that have influenced the implementation process mostly, as well as the barriers. As the greatest barriers they pointed:

- organizations internal culture and employees who shape it,
- cultural difficulties as older employees haven't been keen to choose to work in co-working spaces despite even longer travel to work in a new office,
- mental barrier associated with the modification of work organization on both the employees' and management's side.

THE SUCCESS OF WORKPLACE INNOVATION IMPLEMENTATION DEPENDS ON PEOPLE AND THEIR ATTITUDE – BOTH: EMPLOYERS AND EMPLOYEES

All project partners agreed, they are satisfied of implementation the chosen practice. Afterwards, they said it was quite easy to implement it, even if some extra work was needed. They declared; it will be continuing/ developing in future.

IT'S IMPORTANT TO START THE CHANGES – WORKPLACE INNOVATIONS IMPLEMENTATION! IT'S NEEDED TO CONVINCE EMPLOYERS TO TAKE RISK AND JUST START.

4.3 | Development of new Methods and Tools for Workplace Innovation²⁸

A new era for new workplace innovation

The report aims to show new trends in the workplaces' organization and to identify new areas of workplace innovations (WPI). Authors present in the report some new tools and methods helpful in the WPI implementation in SMEs

The workplaces in modern SMEs evolve with economic changes, technological progression, automation and globalization. Business leaders must demonstrate and understand those trends to create a positive, flexible, and collaborative environment to encourage modern workers. During last two decades several trends have been observed as crucial. Authors grouped them into five main categories:

I. Skills gap and age management.

In many countries, the fastest-growing demographic in the workplaces are those aged 65 or older. These people have the experience that can be extremely valuable to companies with skills gaps. As a result, the attitudes around employing older workers have changed. Companies keep in touch with retirees to continue to tap into their talents, as part-time workers or for short-term projects. All workplace innovations related with the employment of retirees or with a building up the age diversified teams are very valuable.

II. Soft skills.

The future of work organization is not focused on replacing humans by machines, but on supporting humans by machines at the workplace. The new technologies automate technical skills and drive the demand for soft skills like creativity, communication, and empathy. In the report of McKinsey [9] we can find the conclusions that jobs that

²⁸ Prepared by Dr. Marzena Grzesiak, Dr. Magdalena Olczyk and Dr. Anita Richert-Kaźmierska, Gdansk University of Technology, Gdansk

harnessed a worker's soft skills are the least likely to be automated. For instance, jobs that involve managing and developing people have only a 9% automation potential. So, skills like communication, collaboration, adaptability, and problem-solving – commonly called “soft” skills – are now named as “core skills” and all workplace innovations force on soft skills development are very welcome.

III. Employee activism, social responsibility & sustainability.

We observe a growing trend of employee activism, where employees express loudly their opinions on political and social values. In the US almost 38% of employees support or criticize their employers' actions over a controversial issue that affects society. Hewlett-Packard analysis show company's engagement in environmental practices is key to engaging the future employees and 46% of employees would only work for sustainable companies. Additionally, Harvard found that workplaces that are environmentally friendly increase employees' cognitive performance, decrease sick days, and boost sleep quality. That is why we consider it necessary to introduce programs/ workplace innovations to raise employee's loyalty, a good employee's relationship with the company based on values (climate change, ecology, etc.) important for both sides.

IV. Work balance and well-being at work

Nowadays, the majority of employees expect the freedom and flexibility to balance working time with other interests, along with the opportunity for healthier work lives. Additionally, organizations are still struggling to manage stress and the mental well-being of employees. To keep motivation levels high and offer less stressful workplaces the employer should offer some new workplace innovation also in these areas. They often are related to concierge services (dry cleaning, administrative help, and childcare places in nurseries/external crèches in cases of emergency, commuting support), health services (on-site osteopath sessions, meditation sessions or cholesterol screening), flexible working hours (e.g. possibility to switch on distance work).

V. New technology

In recent years, the rise of new technologies such as artificial intelligence, machine learning and automation has been one of the biggest disruptors across multiple

industries, changing business processes and how professionals work. technology in the workplace has rapidly evolved. It's become an essential part of running a business in any industry. Workplace technology can break down information silos and create a portal for all internal data and communication, increase operational efficiency, keep a company culturally relevant, deliver more precise and accurate data to help leaders make refined, strategic decisions, connect and align an entire organization and finally facilitate collaboration among dispersed teams and increase innovation and productivity. The fundamental question is: if a new technology is useful from the employees' point of view? The answer is yes: some analyses show that according to the workers robots are better than their managers at providing unbiased information, maintaining work schedules, problem solving and budget management, while managers are better at mostly soft skills like understanding feelings, coaching and creating a work culture.

Examples of methods and tools supporting the implementation of workplace innovations

Below some new workplace innovations or methods & tools for its introduction are presented, which help SMEs to adjust to these new trends.

Spider web²⁹

The 6-step process offers business consulting for companies that want to develop their business through non-technological innovation. Once you have registered, you and your company will participate in an individual 6-step consulting process. It is free of charge.

This process is specifically designed for owner-managers of smaller companies.

This tool is described in English, German, Polish, Finnish, Danish and Lithuanian.

Step 1 Introduction. Step 1 is an introductory phase. In this step, the owner-manager familiarises himself with the 6-step process and its advantages for his company. The intermediary receives sufficient knowledge about the owner-manager and the company.

²⁹ Source: <https://www.6stepsforinnovation.com>

Step 2 Visions. Step 2 is to identify the core values of the owner and managing director and his vision for the company. These visions are the sum of the following three areas:

- What the company CAN DO (What are the company's key competencies and opportunities?)
- What the company WANTS (What is the passion of the company?)
- What the company SHOULD DO (What will create value for the company's customers?)

The answers to the above questions will provide initial indications of the company's need for non-technological innovation. The facilitator may choose to combine steps 1 and 2 and go through them at the same meeting.

Step 3 Identifying challenges. Step 3 is dedicated to identifying the challenges and needs of the company in terms of non-technological innovation. The process is carried out in cooperation between the owner-manager, the intermediary and, if the owner-manager agrees, a key employee of the company. During this step different tools are used, such as the Spider Web Tool. The input from the Spider web tool provides an overview of possible areas where performance can be improved, and innovative thinking can be encouraged.

Step 4 Strategy and Action Plan. Step 4 focuses on defining objectives and developing an action plan. Together with the owner-manager, the intermediary defines the key needs of the business and then evaluates what support would be most beneficial to the owner-manager. In this process, broader experience and skills can be used. The intermediary can also assist the owner-manager in applying for financial support through various innovation programmes.

Step 5 Operationalisation. Step 5 deals with operationalisation and implementation. The length of the implementation period is flexible and depends on the circumstances.

Simple project management tools are used, and the facilitator periodically contacts the company to ensure appropriate implementation and to monitor the results and the

emergence of new needs. The intermediary is part of the overall process, and the dialogue focuses on troubleshooting and ensuring an operational process.

Step 6 Measuring and assessing output. Step 6 measures and evaluates the degree and impact of the implementation of new non-technological innovations. An evaluation tool is used to collect feedback on this: The 6-step process and instruments

- The support process and the performance of intermediaries
- Scope and degree of implementation of the recommended specific organisational and marketing innovation measures
- The changes in the performance of the owner-managers due to the measures implemented.

The tool could be used for implementation the workplace innovations in the areas:

- *Changes in workplace organisation (e.g. introduction of job responsibility for employees, forming work teams).*
- *Implementation of new design in product.*
- *Changes in business practices.*

Design thinking³⁰

Design Thinking is a problem-solving methodology generating innovation through collaboration within a group with common interests and goals. Design Thinking is an approach that can be used in the change design process. The goal of Design Thinking is to enable people to deviate from applicable standards and processes, to be innovative and creative. Design Thinking is a people-centered innovation approach that integrates emotion and empathy, digital technology and analytics, and takes into account the situation and capabilities of the organization.

Design Thinking is not about creating the best solution, but one that people want to use and which improves their quality of life. Within this method we can distinguish

³⁰ Book on Design Thinking https://www.researchgate.net/publication/329310644_Handbook_of_Design_Thinking

between two main phases of discovery and synthesis. Its goal is to create a working prototype of, for example, a new process.

The discovery phase in the Design Thinking method. The discovery phase helps the teams to "fall in love" with the problem rather than the solution, which helps to combat people's prejudices. In addition to the qualitative session, this phase also includes the quantitative analysis of the data underlying the process. However, this method requires an approach that is closer to the user and looks at it from the perspective of the user personality, i.e. the basic tool Design Thinking.

The user personality helps to reach and solve real problems and consequently to take appropriate interventions that aim to help and not to burden. The result of this process is a rapid prototyping session to determine how many changes the organization can absorb and how to manage these changes. The biggest challenge in this phase is the analytical staff, who are not able to go beyond typical business thinking patterns. It is not easy to change one's perspective and turn to human emotions, but the consequences of not adapting can be severe.

The synthesis phase in the Design Thinking method. The goal in this phase is to design a solution that is desirable and not only feasible. The trap at this stage is to approach the problem formulated on the basis of our convictions in an uncritical manner. As a rule, when improving processes, we consider how we can reduce the waiting time perceived by customers. To remedy this, organizations often choose expensive solutions that do not produce the desired results. It is much more difficult for us to look at these kinds of problems from a different perspective, for example, to think about what we could do to make the waiting time pleasant for the customer.

After the design phase, the production of prototypes begins, which means that experiments and tests can be carried out relatively quickly. Prototypes are usually stories, usually narratives drawn on flipcharts. Prototyping allows team members to gather useful feedback that can quickly be incorporated into the next iteration of the story.

The final phase of the synthesis - especially important in complex operational changes - involves planning organizational changes necessary for the effectiveness of

prototype solutions. The process is also an important part of the solution under test and is often not given sufficient attention, especially considering the importance it has in complex enterprise environments.

The key to success is to move away from a mechanical view of the process and to engage in a human-centered exploration and a willingness to see problems differently. Using Persona can help you to focus on people who will ultimately perform their tasks differently. The main advantage is that the process of shaping change requires you to shape it together with people who may initially have objections to the change. Design Thinking connects different groups of employees, especially those with operational experience, whose changes are usually negative. Furthermore, the advantage of this method is that it integrates different concepts, including Lean and Agile.

The tool could be used for implementation the workplace innovation in the areas:

- *Offering a healthier work/ life balance.*
- *Creation the culture of trust and openness, simplification of a digital workplace.*

Innovation culture game³¹

The business game has been developed on the basis of the multi-year program "Improvement of safety and working conditions", financed from funds of the Ministry of Science and Higher Education / National Center for research and development in 2014-2016. Program coordinator: Central Institute for Labor Protection - National Research Institute.

Goals of the game:

- to train managers and other stakeholders in rising quality of life in the workplace with social innovations.
- stimulate social innovations in the workplace,

³¹ Source: <https://www.kozminski.edu.pl/kulturaiinnowacji/>

A detailed description with all documents can be found on the project website <https://ka4hr.eu/>

- improve the quality of life in the workplace by involving teams in the joint development of new solutions,
- stimulate discussions in companies and other organizations to enable the exchange of experience in the field of social innovations in the workplace.

The game has been developed as part of the learning organization approach, i.e. individual companies can play it using their own example, save the results, draw conclusions and plan implementation activities based on the results of the game.

The game focuses on the challenges that arise in the workplace and tools that can remedy the situation. The key is the discussion between the participants about individual solutions and the creation of own proposals for solutions. Although the game has been developed on the basis of research conducted in the business world, it can also be successfully applied in public administration and the third sector, as they also represent workplaces with common challenges in the economy.

The tool could be used for implementation the workplace innovation in the areas:

- *Work-life balance.*
- *Communication among employer and employees.*
- *Increasing employee involvement in the process make changes.*

Google Design Sprint³²

Design Sprint is based on the understanding of Design Thinking. This method is a five-day work cycle used for the rapid and relatively inexpensive validation of technological innovations. The process begins with an attempt to understand the design problem and context. The following days are focused on creating and selecting solutions that the team believes are the best. The final part is to validate the solution by testing

³² Sources and useful additional materials:

<https://designsprintkit.withgoogle.com/resources/tools>

<https://medium.com/pm101/design-sprint-q-a-183b66bcd4b6>

<https://medium.com/google-design/design-sprints-in-emerging-markets-5db1dc415a9f>

Knapp J. Zeratsky J., Kowitz B.: Sprint: How to Solve Big Problems and Test New Ideas in Just Five Days, Hardcover – Illustrated, March 8, 2016)

the prototype among the target users and using the feedback received for possible changes to the innovation.

How it starts? It is ideal to have a very diverse group of people. Be sure to include people who work in different roles, for example designers, researchers, engineers, product managers, marketing and businesspeople. It is important to ensure that you have different perspectives, backgrounds, genders, educations and backgrounds that will bring diverse and interesting insights during Design Sprint. Try to form as diverse a group as possible and you will get interesting new ideas and fruitful discussions.

Design Sprint Methodology. The Design Sprint follows six phases: Understand, define, sketch, decide, prototype and validate.

Phase 1: Understanding. In the understanding phase you create a common knowledge base for all participants. Using the method Lightning Talk, knowledge experts from across the organization are invited to articulate the problem space from the perspective of the organization, users, competitors and technology. You can use the following methods in this phase: User Journey Mapping, Experience Mapping, User Interviews, Abstraction Laddering, Round Robin, Job Stories and other methods.

Phase 2: Define. In the definition phase, the team evaluates everything it has learned in the understanding phase to determine the focus. This is done by defining the specific context and desired outcomes of possible solutions. The phase concludes by choosing a specific focus for your sprint, as well as goals, success metrics and signals. During this phase, you can use the following methods: Success metrics and signals, design principles, the golden path, future press release, selection and goal, personality slider, business model canvas, mapping of assumptions, look at everything at once.

Phase 3: Sketch In the sketch phase, the team of Design Sprint generates and shares a wide range of ideas as individuals. They begin by searching for inspiration, e.g. solutions in alternative spaces. Then each Design Sprint participant will individually generate ideas for consideration. From there, the team will narrow down the ideas as a group to a single, well-articulated Solution Sketch per person. In this phase you can use the

following methods: warm-up: similar problem, take notes, crazy 8, crazy 8 share and vote, solution sketch.

Phase 4: Decide In the Decide phase, the team from Design Sprint determines the direction or concept for the prototype. Each participant shares his or her Solution Sketch and the team will use decision exercises to find a consensus on a single idea. The final direction will aim to address the focus Design Sprint. In this phase, you can use the following methods: Presentation of solution sketches, assumptions and sprint questions, point voting, silent review and voting, decision matrix, heatmap voting, note and vote, rumble or all-in-one, action planning.

Phase 5: Prototype. In the prototype phase, the Design Sprint team will work together to create a prototype of your concept. In this phase many decisions are made about what exactly the concept is and contains. Your goal is to create a prototype that is just real enough to be validated, and you will get there really fast! In connection with Design Sprint, we use the word "prototype" in a slightly different way than in standard product development. A Design Sprint prototype is a facade of the experience you imagined during the sketch phase. You build exactly what you need to make the prototype real enough to get an authentic response from a potential user in the validation phase. This means that you define the exact process for the experience and build only the steps you want to test. There is no need to build a fully functional backend or find a solution for every flow in your product.

Phase 6: Validation. You can think of your prototype as an experiment to test a hypothesis. This means that you have to think critically about what you are going to build to get the feedback you need to confirm or invalidate your hypothesis. Anything can be built as a prototype in one day, if it is clearly defined.

The tool could be used for implementation the workplace innovation in the areas:

- *Human Resources processes.*
- *Creating a Culture of Innovation.*
- *Creating an Innovative Spirit in Your Team.*

AQ (Adaptability Quotient)³³

AQ, or Adaptability Quotient, is a holistic measure of adaptability in the workplace. The higher your AQ, the more likely you are to recover from setbacks, find alternative solutions to problems and embrace change. AQ is measured in three important core dimensions:

1. Ability AQ (Who adapts and why?)

Represents learned adaptive skills, such as the ability to pursue a goal over the long term despite obstacles (grit), the ability to make up ideas (Mental Flexibility), self-belief (AQ Mindset), recovering from setbacks (resilience), and the ability to let go of old skills and learn new ones (unlearn).

The ability AQ can change over time as you learn and expand your skills. As a result, it has the greatest impact on your score at AQ.

2. Character AQ (How and to what extent does someone adapt?)

Describes elements of adaptability associated with more innate or stable aspects of the self. It is composed of your Emotional Range, Extraversion Preference, Hope, Motivation Style, and Thinking Style. AQ Character reflects the way we might approach adaptation and provides predictors of adaptation behaviour. This means that we are able to learn which situations we are likely to adapt to and which situations might challenge our adaptability.

3. Environment AQ (When does someone adapt?)

Your environment can either encourage or inhibit your adaptation. Even someone with high adaptability and an adaptable personality can have difficulty adapting if their environment negatively affects their adaptability. Therefore, this third dimension of

³³ Source: <https://memory.ai/timely-blog/ai-applications-for-business>

Useful material:

https://en.wikipedia.org/wiki/Adaptability_quotient

<https://memory.ai/timely-blog/adaptability-quotient>

<https://www.forbes.com/sites/tmobile/2020/08/28/retail-reimagined-browsing--buying-in-the-5g-era/#1b959a7a6d5d>

<https://www.d2l.com/corporate/blog/adaptability-quotient-important/>

AQ is crucial. Your working environment is usually beyond your control to some extent. We measure the environment AQ in five sub-dimensions: Company Support, Emotional Health, Team Support, work environment and work stress.

The AI Predictive Optimization is measured by two sub-dimensions: Change Readiness Index and Reskill Index.

The following AI applications for businesses could be used to adapt the workplace to today's challenges:

- Dewo - for meeting planning and in-depth work (<https://memory.ai/dewo>)
- EVA by Voicea - for documentation of session actions (<https://www.webex.com/ai-assistant.html>)
- Butter.ai - for the exchange of business knowledge (<http://butter.ai/>)
- In time - for the automation of time recording
- Yva.ai - for the support of your workforce (<https://www.yva.ai/>)
- Knowmail - for the rationalization of e-mail (<https://www.knowmail.me/blog/>)
- AppZen - for self-regulation (<https://www.appzen.com/>)
- Legal robots - for the analysis of contracts (<https://legalrobot.com/>)

The method/ tools could be used for implementation the workplace innovation in the areas:

- *Identifying and recruiting employees with high adaptability to support innovation and change management.*
- *Retain the best talent and advance their careers as change accelerates.*
- *Investment in adaptable leadership.*
- *Early identification of employees at risk of skills shortages to provide support for retraining.*
- *Shortening the time to success for transformational M&As and corporate restructuring programs.*

Tools for remote/ distance work management³⁴

Offering the remote work is a standard in firms, which perceive a flexibility as their basic features. As many managers are currently discovering, managing remote workers requires a significantly different approach to managing teams under one office roof. It is necessary to have a robust work policy, to build a remote tech infrastructure, to establish a clear communication structure, to keep remote hours visible, to provide ongoing individual support, to build inclusivity and participation and to create dedicated spaces for bonding. We propose to use a tool i.e. a work management software to achieve some of the above-mentioned purposes

We propose to use of remote work management software:

1. Timely - to facilitate the management of remote teams; helps remote teams to collaborate in a thoughtful and effective way by comparing schedules and learning how long different tasks usually take

2. Officevibe - collects information about your team by sending out surveys, which can also be conducted anonymously. The information collected enables teams to understand each other, build trust, strengthen relationships and ultimately succeed as a unit.

3. Todoist - helps remote workers plan their schedules and make sure nothing slips through the net; it also helps you get a clear view of what everyone is working on so you can keep an eye on projects.

4 Wimi - brings your team, projects and data together in one place. Communication skills are strong, so remote teams can work together easily and efficiently.

5 Trello - Trello's boards, lists, and maps allow teams to instantly see who is working on what and when projects are due, and it works equally well for group projects, side

³⁴ Additional materials:

<https://memory.ai/timely-blog/work-management-software-remote>

<https://memory.ai/timely-blog/how-to-manage-remote-workers>

jobs, or personal commitments - so it's ideal for remote workers whose personal and professional lives are often intertwined.

6. User lane - provides step-by-step on-screen and real-time instructions that allow remote workers to learn new software without prior knowledge or formal training. It is particularly useful for enabling your remote communication structure and ensuring that new employees know how to format, mark and post different messages from the start.

The method/ tools could be used for implementation the workplace innovation in the areas:

- *Worker's communications.*
- *Employees work organisations.*
- *Building a trust among employees.*

The Employee Experience Index³⁵

For decades organizations have been investing in employee engagement with little results. Unfortunately, engagement has been very focused on trying to force employees to work in outdated workplace practices while giving them perks to distract them from their unfortunate situations. Employee experience, on the other hand, is about actually changing the workplace practices around the people who work there. Nowadays everyone wants to work for an organization that invests in the employee experience, Millennials, and Gen Z employees especially.

This survey (see link below) is a very useful tool, which measures how well the organization invests in the experiences of people by looking at the 17 variables employees

The method/ tools could be used for implementation the workplace innovation in the areas:

- *HR processes.*
- *Creation of good environment to be productive.*
- *Diverse-teams management*

³⁵ Useful materials: https://survey.co1.qualtrics.com/jfe/form/SV_6XVFMLQrhq5bq6N

care about most at work across 3 environments which are: culture, technology, and the physical workspace. Each SME can take this survey to see how your organization stacks up.

Diversity-Capability Model

The helps to diagnose and systematize any characteristics that affect how people function in a work group and what they bring to the company's mission.

Detailed characteristics of the structure and instruction how to use the model developed by Air Force staff, and modified slightly by CNA can be find in the publication „Approaches To and Tools for Successful Diversity Management: Results From 360-Degree Diversity Management Case Studies“. It's available at the website: <https://di->

The method/ tools could be used for implementation the workplace innovation in the areas:

- *HR processes.*
- *Diverse-teams management*

[versity.defense.gov/Portals/51/Documents/Resources/Commission/docs/Business%20Case/Approaches%20To%20and%20Tools%20for%20Successful%20Diversity%20Management.pdf](https://www.dodig.defense.gov/Portals/51/Documents/Resources/Commission/docs/Business%20Case/Approaches%20To%20and%20Tools%20for%20Successful%20Diversity%20Management.pdf)

5 | Further vocational Trainings

5.1 | KAIN Method

The successfully tested and implemented methodological framework (training method) KAIN (Knowledge According Individual Needs)

- creates a common knowledge base for participants with different backgrounds in training and consulting processes,
- takes particular account of the individual experience of participants,
- shows possibilities to change/improve the situation of the participants on site for the pursuit of project goals and change measures,
- sharpens the knowledge of possible needs for change, and
- enables those involved participants to design the right measures and implement them correctly.

KAIN describes the tasks of trainers/consultants to accompany (e.g. organizational, structural) workplace innovations and to enable people from companies to carry out change processes as independently as possible under the supervision of external consultants.

The consulting process is composed of three phases:

1. classroom teaching
2. self-study with external support and implementation of development projects in the company
3. report, reflection and deepening contents.

The overall aim of the training is to ensure that all participants have sufficient information and knowledge on how the basic training idea can be implemented and pursued under the individual (quite different) framework conditions on site. Hopefully they will gain confidence in the feasibility of change processes.

Tasks of the trainers/consultants: Knowledge transfer and enabling persons on

- management of participative change processes,
- exploring the need for change,
- assessment of the need (importance) and the possibilities for action (possibility, feasibility, practicability),
- formulation of change targets and conception of change measures.



Part 1: Classroom Teaching (duration approx. 1.5 – 2 days)

Goals and tasks:

- knowledge transfer about the KAIN-method, embedded in the contents of HR-policy and workplace innovation

- creation of a common basis among the project participants by teaching essential knowledge for the management of change processes and employee participation
- exchange of experience about successful projects for work design and exploration of beneficial and hindering influencing factors
- first/preliminary orientation on topics for a change process in the own company.

The core of this training module consists of a 1.5 to 2-days workshop in which the participants get to know (usually science-based) models and instruments from project-related research for structuring and solving problems and learn to apply them (mentally). This is intended to create a common conceptual basis for the further procedure in the training.

The models and instruments presented (as design recommendations for practical use) ideally form a common framework in which, in particular, the existing experiences of the participants are to be integrated in order to pursue the training objectives. The experiences of the participants should serve to supplement or modify the proposals for structuring and solving problems given by the research.

Thus, at an early stage of the training, a necessary (mental) adaptation of the proposed models and instruments to the individual needs and characteristics of the participants on site (usually with different framework conditions) should take place.

Tasks of the trainers/consultants:

This consideration of the individual needs and particularities of the participants on site in a face-to face training requires a high degree of knowledge and experience with the use of interactive and participant-centered didactic methods on the part of the trainers.

A further focus of the first part of the training is to introduce the participants with the planning, implementation and also (critical) evaluation of their own project, which is to be dealt with in the second part of the training. Thus, another central goal of this

part of the training is to give the participants important impulses for the implementation of the presented models and instruments in their own project. The application and implementation of the presented models and instruments by the participants "at home" is, so to speak, the focus of the second part of the training concept.

**Part 2: Self-study in own company/organization with the support of trainers
(duration approx. 12 – 18 weeks)**

Goals and tasks:

- Accompaniment and support of change processes in enterprises, from the formulation of objectives, description of measures, conception of implementation to impact analysis by training and process-oriented, if necessary, also technical consulting
- application and transfer of knowledge into the individual practice of the participants on site

In the second part, the participants have the task of applying the knowledge acquired in the first part and the knowledge of how to shape their own practice in the sense of the training idea in their companies/organizations. For a sustainable (learning) effect it is necessary that they plan, implement, evaluate, critically reflect and document their own project or activities to improve a situation on site under their individual framework conditions in the "here and now".

This phase with the duration of approx. 12 – 18-weeks is accompanied and supported by professional advice and support from the trainers/consultants. In principle, the participants should apply and implement the knowledge they have acquired in Part 1 themselves. As a rule, however, advice and support are often required in order to apply the process of adapting the knowledge acquired in Part 1 of the training appropriately under the real conditions on site and to lead one's own project to success.

Tasks of the trainers/consultants:

The support of the trainers can range from a rather simple general consultation in the sense of passing on relevant information to an intensive accompaniment in the

sense of coaching. In individual cases, it is usually necessary to consider what kind of support is needed to enable the individual participant to pursue his or her individual project goals.

In this phase it is quite possible and not uncommon that when applying the models and instruments presented in phase 1 in practice, the individual project proceeds differently than initially thought and planned by the participant. Even in such situations, the trainers of the project team can provide valuable support in pursuing the "actual" project goals.

This second part of the training enables in particular the very welcome didactic aspect of working on concrete improvements in one's own company / at one's own workplace, which is associated with a high motivation to learn. In this learning process, the company management and other employees are usually intensively involved in what is actually done at the workplace, thus achieving joint learning and strong multiplication effects in the training.

Further advantages are that what has been learnt is directly implemented in everyday business life, that the innovations associated with project work are in the interest of company's management, quickly become visible and motivate managers to promote further training for the workforce and to use it as a strategic instrument of company management. It also responds to the particular needs of small and medium-sized enterprises, which are constantly suffering from a lack of time as the biggest obstacle to training. The KAIN Training Method generally almost completely eliminates absenteeism.

Part 3: Individual project presentation and reflection (duration approx. 1.5 – 2 days)

Goals and tasks:

- reflection (evaluation) about the success in the dimensions of individual, operational and structural changes and change processes
- identify supportive and obstructive conditions of change processes and

- derivation of “lessons learned” for further change processes

In the third part of the training, the experiences gained, and the insights gained will be presented and exchanged at a joint event, with the participants presenting and discussing their individual projects. Both the participants and the trainers have the particular task of reviewing the projects and reflecting on whether or respectively what contribution they make to the sustainable pursuit of the overarching training idea to strengthen the capacity and ability for HR-policy and workplace innovation. The exchange between the participants can provide them with very valuable impulses on how to make their own project even more successful. In this context, an important goal can also be to show which major obstacles are responsible for "not-yet-success" in order to work on this in the future.

Tasks of the trainers/consultants:

- enable constructive exchange between the participants,
- focus on the common basis for the pursuit of (general) training objectives, and
- moderate an instructional discussion on the identification of supportive and obstructive conditions of change processes and present contributions for a possible reduction of resistance in the tracking of individual projects.

Instructions for trainers/consultants on planning and using KAIN

The selection of companies/persons for the training and consultations depends on the interests of the companies. In an active approach, a pre-selection can be made on the basis of individual criteria, e.g., sector, company size, state of technology use, quality of personnel policy, innovation orientation, ..., i.e.,/with other words the maturity level of the organization.

The size of the group should not exceed more than eight and not be less than three or four companies. Enterprises may be allowed to send more than one person (project group). The total group should not exceed more than twelve persons.

The persons from the companies should have the right to make decisions or have a say in their organizations in order to be able to decisively advance the pursuit of their individual projects.

The participants should decide at the end of part 1 to carry on with parts 2 and 3. Otherwise resources will be wasted. If there is a fear that problems will arise in part 2, it will be better to do a small project for testing rather than too many or too large projects. And: Even from failed projects something can be learned.

The companies can exchange their ideas and experiences during the development phase, e.g., develop measures together.

Requirements for trainers/consultants

At various points in the brief description of the training method it became clear that the trainers have a special role to play in the use of this method, which is underlined here again.

In general, the trainers/consultants should have experience in presenting content and using interactive methods to design training.

Against the background of an overview knowledge covering all relevant subject areas the trainers are not only representatives for a variety of project topics and contents, but also –from a didactic-methodical point of view – moderators, learning (process) facilitators, coaches, sometimes co-managers, consultants, and even learners.

In individual cases, they must also decide in what form the involvement of experts and specialists on a (detailed) topic is necessary for highly specialized topics. This requires a good network.

A special challenge for the trainers is when they are in the role of a coach, who may also have to provide individual support for the learning processes of individual participants in the pursuit of a project on site.

5.2 | Training “Employees on the way to Co-Entrepreneur”³⁶

5.2.1 | Curriculum innovative Workplace – satisfying Place to Work

Aim of training and target group

This training is dedicated to employees and middle-level managers.

The aim of the training to improve personal productivity, enhance a professional reputation and enable employees to apply innovative work practices. It will be achieved by:

- to increase creativity among employees (workers will be more likely to think critically about tasks, stay engaged with their work, and share their ideas with the rest of the company)
- to prepare companies, how to manage and profit from age diversity in the workplace
- to inspire employee about design thinking methodologies, to inject workers with a customer-centric mindset to make sure products and services meet your customers’ needs and to adopt a structured approach to uncovering the needs of clients.

This course will feature:

- creating an agenda to take full responsibility for your life and your success
- creating value to the organization through increased personal productivity
- fostering a collaborative culture
- building a personalized blueprint

³⁶ Dr. Marzena Grzesiak, Dr. Magdalena Olczyk and dr. Anita Richert-Kaźmierska, Gdansk University of technology, Gdansk

The complete curriculum with all teaching materials can be found on the project website
<https://ka4hr.eu/>

- being proactive to lead and initiative action

By the end of this course, employees will be able to:

- recognize individual personality traits & apply strategies that will enhance personal & collaborative success
- apply interpersonal strategies that will generate productive outcomes
- appraise current team performance & diagnose action to generate improvement
- appreciate the value that initiative has in the leadership role
- synthesize ideas to construct an agenda for company development.

Content of the training

Parts of the training	Substantive scope	Forms	Duration
2-days for knowledge sharing (I phase)	Organization culture	Introduction – presentation	~1h
		Workshop	3h
	Employees’ role in enterprises	Introduction – presentation	1h
		Workshop	3h
	Design thinking	Introduction – presentation	1h
		Workshop	5h
12-18 weeks for projects realization (II phase)	Project planning	Activities in the companies	12-18 weeks
	Project implementation		
	Project evaluation	Possibility of getting the coach’s support	

1-day workshop for summarizing the projects (III phase)	Projects' presentation	Interactive presentations	6h
	Final summary (what went perfect/wrong and why?)	Discussion	2h

I Phase - training

Organizational culture		~4h
Aim of the course	The main aim of the course is to show participants (employees and co-entrepreneurs) how important in modern enterprises are the employees: their knowledge, skills, experience, and commitment to the company.	
Acquired knowledge and skills	Knowledge about the employees' roles in modern enterprises. Skills of working creatively, independently, and taking over the leadership. Skills of own career management.	
Main themes	We are different but we are the team (between individualism and collectivism) - 1h Different generations at the workplace (opportunities and threats) - 2h The modern employee: between muscle strength and power of the mind - 1 h	
Special requirements	A small group of course participants (max 10 persons) Case studies A room that allows working in small groups Multimedia equipment Stationery	

Employees' role in enterprises		~4h (4x45min)
Aim of the course	The main aim of the course is to show participants how important enterprises are “modern employees” holding social, integrative, and hybrid skills, as well as age-diverse teams and team working.	
Acquired knowledge and skills	<ol style="list-style-type: none"> 1. Knowledge about the employees' roles in modern enterprises. 2. Knowledge about the potential of age-diverse teams. 3. Skills of working creatively, independently, and taking over the leadership. 4. Skills of team building and team working. 	
Main themes	<ol style="list-style-type: none"> 1. We are different but we are the team (between individualism and collectivism) – 60-90 minutes 2. Different generations at the workplace (opportunities and threats) – 90-120 minutes 3. The modern employee: between muscle strength and power of the mind – 30-45 minutes 	
Special requirements	A small group of course participants (max 20 persons) Movie presentation A room that allows working in small groups Multimedia equipment Stationery	

Design thinking		6h (6x45min)
Aim of the course	The main aim of the course is to show participants benefits and challenges regarding the design thinking usage in the company.	
Acquired knowledge and skills	<ol style="list-style-type: none"> 1. Knowledge about the application design thinking method into the enterprise. 2. Methods of problem identification and solving. 3. Practical skills in defining the problem and find the solution. 	

Main themes	<ol style="list-style-type: none"> 1. Design Thinking concept: creators of the DT approach, the essence of the concept, stages, added value, practical use of DT. 2. Defining the task (practical everyday problem) that should be solved by creating a new solution or improving the current one. Brainstorming method within the whole group. 3. Defining the person - potential users of the final prototype and empathy map, allowing them to diagnose their emotions and the state that will accompany them during the "challenge". Work in groups of 2-3 people. 4. Identifying problems within the specific 'challenge'. Trying to answer the question: What is the problem for the person? Work in groups of 2-3 people.
Special requirements	<p>A room that allows working in small groups</p> <p>Multimedia equipment</p> <p>Stationery</p>

Summary session

At the end of the training summary session should be planned. This is an opportunity to discuss/exchange ideas for innovative solutions to improve comfort in the workplace.

The coach should discuss with all company's representatives discuss further activities including:

- 12-18 weeks - projects realization in the enterprises (II phase)
- Summary workshop (III phase).

This project should be concerning the innovative solutions for the organization:

- It could be something small – NOT REVOLUTION
- At least 1 project.

Therefore, it must be noted for the second part that the topic etc. of the project work must be discussed and agreed with the lecturers within the first 14 days of that phase.

Summary workshop

This workshop should be planned for approx. 6 hours and include as follow:

- Projects presentation
- Discussion – What succeeded? What were the problems? What elements of the training were useful?

Every company is obliged to prepare the implementation report (suggested template - in the attachment).

The methodology of the project's management

Usually – for the better projects management – the following question should be determined:

- The aim and scope of the project.
- How to build up the project's team?
- Project's documentation.
- Work schedule and project's plan for the use of resources.
- Risks of the project's implementation.
- Monitoring and control of project implementation.
- Assessment of project achievements and preparation of a report/presentation summarizing the project.

Appendix 1

Template of the implementation report

Project implementation report and evaluation

Part I (before realization)

Project description ...

Place of implementation ...

The main aim of the project ...

Schedule ...

Team/ Leader ...

Necessary resources ...

Risk analysis ...

Monitoring/ control (tools, time, procedures, etc.) ...

Consultation (with a coach if needed) ...

Part II (after realization)

Please assess

Questions	(0)	(1)	(2)	(3)	(4)	(5)
Does the project' aim was defined precisely? (According to SMART methodology)						
Does the project' team was formally stated?						
Does the project schedule was kept?						
Did the resources were properly calculated and assigned?						

Did the monitoring and control tools were prepared?						
Did the project aim was achieved?						

Describe the biggest success ...

Describe the biggest failure ...

How do you asses the consultation process? (consultant competency, communicativeness, etc.) ...

What you suggest adding the initial training? (for better project realization) ...

Other suggestions (tips for future) ...

5.2.2 | Experiences with the Implementation

Introduction

The activities undertaken as part of the test of solutions for companies from the SME sector are based on previous research reports on the activities and tools that companies can implement in their activities in order to be more innovative both in terms of human resource management and the creation of an innovative organizational culture in their companies. As part of the tests, companies took part in workshops, after which they had the opportunity, with additional support, to develop ideas in their companies, enabling the development of companies, as well as people working there.

The proposed training program was based on of three parts:

Part1: Classroom teaching

Part 2: Teacher-assisted self-study within the trainees` company or organisation

Part 3: Classroom teaching: individual project presentation and reflection

This report consists of results of those activities.

Admission and organisation of the training

Selection of participants, possible admission conditions

The Pomeranian Chamber of Handicrafts for Small and Medium Enterprises associates over 1800 companies from the SME sector, these are largely micro and small enterprises. The recruitment took place by sending information to the member companies of the Chamber and placing it on the website.

12 companies applied to participate in the training, of which 8 companies were selected. The activities were carried out from February to July 2021.

The training included two days of online workshops and an online meeting for the presentation. Between February and June, an employee of the Pomeranian Chamber of Handicrafts for SME was in regular contact with the companies and was supporting the process of creating the ideas.

Four of the companies participating in the training managed to prepare projects and prepare for implementation. Due to the conditions of the pandemic, four of the companies have postponed the possibility of implementing the ideas until a later period.

The aim of the training was to improve the individual efficiency of employees, raise and strengthen professional competences and enable employees / managers / entrepreneurs to find and develop innovative work practices.

The lecturers who conducted the workshops are employees of the Faculty of Management and Economics of the Gdansk University of Technology, the project partner. They are experienced academic lecturers specializing, among others, in the field of company management, human capital management and entrepreneurship.

The participants of the workshops had the opportunity to test various tools that enable the creation and development of ideas and the involvement of employees in their creation and implementation. The participants shared their doubts as to, for example, how to learn and increase the involvement of young employees. They were

offered ways and tools to enable easier contact between generations and the positions of employees in the company structure. The need for communication support between employees in companies emerged from the workshops.

Implementation of phase 2

During the activities, an employee of the Pomeranian Chamber of Handicrafts for SME, during several telephone meetings (due to the pandemic situation, it was not possible to meet in person) with representatives of companies participating in the workshops, offered support in the further creation of ideas that may translate into further positive development of projects.

1. Diagnosis of the challenges faced by the team / company that can be solved by the methods of work or tools proposed during the workshops

2. The issue of the company's current activities in the development of organizational culture or human resources.

3. The issue of the degree of employee involvement in certain processes, sensibility of involving employees from various departments in solving problems in departments in which they do not work on a daily basis.

4. Discussion of the issue of how to select innovative activities in the company through employee participation in the creation of the idea and, for example, customer involvement.

5. Identifying specific ideas to be implemented.

Participants Profile

The companies that participated in the training belonged to various industries. They represented companies related to craft. Training participants had vocational or higher education, both men and women aged 30 to 47.

The industries included e.g., automotive, carpentry, photovoltaics, metal, food.

Execution of the Training

Due to the pandemic, the classes were held online. The training covered the following topics:

The impact of organizational culture on the innovative possibilities of SMEs:

- What organizational culture supports innovation?
- How to create an organizational culture that supports innovation?
- Steps to an innovation culture (conducive to both creation and implementation innovation).

Age management:

- Age groups: choice or necessity the potential of the age-varied team
- Age management tools
- Ageism - direct and indirect age discrimination

Creative thinking in the workplace:

- The importance of creativity in the workplace
- What managers / owners can do
- Examples of creativity at work:
- Creativity in leadership.
- Creativity in marketing.
- Creative problem solving.
- Creativity in sales. Project management and creativity. Creativity in dealing with interpersonal problems. How to find / acquire / keep a creative employee.

Innovation in the workplace.

- Non-technological innovations - types, roles

- Proposed tools to support the implementation of non-technological innovations and methods of their use. Acquaintance with the Spider-Web tool
- A business advisor in the process of implementing non-technological innovations
- Effective Teaching and Training Techniques: Principles of effective teaching Gaining knowledge according to individual needs
- What Makes a Training Program Effective? Presentation skills Work in in groups and brainstorming
- Mentoring and coaching
- Good practices and worst-case scenarios in creating and sharing knowledge

Creativity and innovation

Training summary / Discussion with participants about project ideas

As part of the training sessions, no exams were carried out and no certificates were issued.

According to the participants, the strengths of the training was primarily knowledge and inspiring examples, as well as their practical aspect of the training. The conduct of the classes and the subject matter suited the participants.

As weaknesses of the training the participants mentioned that it was not always possible to apply the solutions presented. Some of the knowledge imparted during the training should be even more detailed.

Main findings and conclusions

Summary of the implementation assessment: Due to the pandemic and the freezing of the economy, the situation of many companies deteriorated drastically, and they had to focus on their survival. That is why some companies did not manage to create and implement their ideas. However, four companies managed to come up with design ideas and test them.

Strengths and advantages of training: The training showed companies that even seemingly small changes can positively affect employee participation and contribute to the creation of an organizational culture that is innovative on the company's scale.

Ideas for the future, suggestions for possible improvements or further developments: The training applied can be divided into parts in the future, thanks to which it would be easier for companies to select an area for improvement. It is also possible to adapt individual training elements to the needs of individual industries, which may contribute to an even better implementation of innovative activities in companies.

The Pomeranian Chamber of Handicrafts for SME plans to implement training elements in its advisory activity for its members. On the basis of the prepared materials, it will be possible to create further training sessions for companies and support them in the implementation of projects related to non-technological innovations in the work environment.

Result report on SME development project

Company A: carpentry industry, 160 employees

The project consisted in checking whether employees of departments unrelated to a given project would want to engage in solving problems / challenges that arise in individual departments of the company and what the results would be.

The project was tested in one of the technical departments where a technical problem arose. In solving this type of problem, employees of a given department, i.e., the technical department, were involved, this time, using the internal communication tool in the company, people from other departments were invited to work together on solving the problem. The marketing department turned out to be the most active of the non-technical departments.

As a result of the test, it turned out that a different view of the people from the department, not related to the technical problem that needed to be solved, made it possible to look at the problem from a different perspective, which resulted in its solution in a more comprehensive way.

Employees and managers of the technical department were involved in the project, where the problem occurred, as well as employees of the marketing department. Enabling employees from departments not previously related to a given problem to participate in solving the company's problems resulted in the possibility of a more comprehensive approach to solving emerging problems / challenges and looking at emerging challenges from a wider perspective. The project shows that the voluntary involvement of employees in solving emerging problems causes greater employee identification with the company and greater involvement in the company's activities. In addition, employee participation resulted in greater integration of employees within the company and increased sense of achieving common goals. The company plans to continue such a mechanism in the event of new tasks / problems to be solved.

Company B, automotive branch, 20 employees

Due to the pandemic situation and the changing needs of customers at that time, the company decided to implement an innovative idea, the aim of which is to quickly and conveniently deliver the work performed by the company to the customer, in this case it is about personalizing the appearance of the car. After the changes ordered by the customer, he will be able to pick up his car at various locations. This solution means that the receipt of the order does not depend on the company's working hours, which in turn has a positive effect on the working hours of employees. Some employees who want to work at times other than the opening hours of the automotive plant may come to work at times that are more convenient for them. It is important to complete the order and the employee may perform this work without being bound by the need to collect the order by the car owner during the company's working hours. The employees responsible for delivering the order will also not have to put their health at risk, as the automatic key collection machines that enable the collection of the car will be operated by the codes provided to the customers. Employees will not have direct contact with customers when delivering the order.

In addition, the owner involved his employees in the preparation of this innovation and their opinions were a very important element creating the whole idea. Moreover,

the project was based on collecting information directly from customers, collecting surveys and empathetic resolution of their problems with receiving orders.

The project is in the stage of detailed planning. However, it is very important to involve employees in the decision-making processes in the company.

The project is currently being prepared in terms of logistics and finances. The people involved are the owner of the company, company employees and customers.

Company C: meat industry, 50 employees

The company wanted to find a suitable solution to improve communication and organizational issues in the company due to the need to work remotely. In the project, they wanted to use a tool that would facilitate the organization of work between employees, division of duties and communication.

The company decided to try the Asana tool, which is to be used for better organization of work and greater satisfaction of employees who can follow the progress of their activities. This tool is designed to prevent unequal division of duties and make employees feel more responsible for the processes they carry out. The tool is currently being tested in one of the departments of the company.

5.3 | Training "Digitization and Human Capital"

5.3.1 | Curriculum "Digitalization and Human Capital"³⁷

Introduction

During the era of computers, digitalization has changed the world piece by piece. Doing business is nowadays mostly communication with and via digital systems. The world of HR-management is changing too. Digitalized payment systems and registers of employers are not enough. As the world around us is changing rapidly due to globalization, budding trade wars, waves of immigrants and refugees and other

³⁷ Dr. Kari Lilja and Dr. Sirpa Sandelin, Satakunta University of Applied Sciences, Pori

contemporary phenomena, the old means to foresee, plan, manage and control the business are not valid, or at least they are not enough anymore. New tools are required. New tools have been and will be developed.

Terms like Big Data, Artificial Intelligence, machine learning and data analytics have already become known in many sectors of business management, like marketing, engineering and designing or optimizing e.g. transport routes. HR-departments have been more conservative when adopting the new technology, but within the past decade the situation has changed. Artificial Intelligence is used to select personnel in recruiting process, Big Data is utilized to forecast the requirements to be set for the personnel recruited within the next decade and the training needs of existing personnel are evaluated with data analytics, some examples to be given. However, the complete benefits of new possibilities can be gained only if the entrepreneurs and managers of companies have an overall view of technology, methods and opportunities they offer.

The aim of this course is to enable target groups to have such an overall view that they understand both benefits and risks of digitalization in HR, including the ethical aspects.

Course

This course has been designed to fulfill the needs described above. The training, which contains both theoretical lectures, group works, and practical training will be set to EQF- levels 4 or 5.

Target groups

The target groups of this training are

- founders,
- owners,
- managers and
- employees

of SME companies. From the group of personnel, in particular those who deal with questions of personnel management are an important target group.

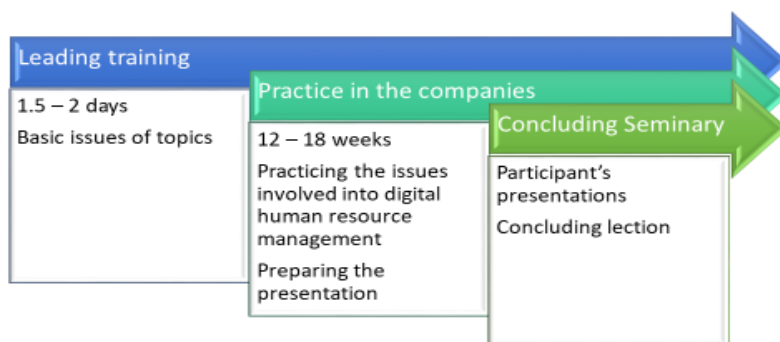
Objectives

The learning objectives of this course are set to serve SMEs in digitalization as well as possible. The concrete learning goal is that after attending the course the trainee has at least a sense of what digitalization can bring to his / her own business.

The learning objectives are

- Trainee understands the importance of digitalization
- Trainee knows the contemporary basic concepts of digitalization – the relevance of topics in this area should be ensured before each training session / course.
- Trainee knows at least three tools that a SME can utilize when digitalizing its HR-functions.
- Trainee has applied at least one of these tools during his / her practice period.

Schedule of the course



Schedule

This course is divided into three parts. The training begins with a 1.5 – 2 days theoretical part, during which the basic issues of each topic will be clarified by presentations and group work. This part will be followed by 12 – 18 weeks practice period in the company, during which the participant gets acquainted with the topics of the course in point of view of this company. During the practice period the participant will also prepare a presentation concerning the findings and ideas he or she gained during that period in the company. After the practice period is completed, a seminar of 1.5 – 2 days will be hold. In this seminar the participants will present their findings, discuss their experiences and ideas, and finally, everything will be concluded with a lecture concerning the relationship between business management and HR-management.

Part I: First Workshop

Goals and tasks of the first workshop are to

- enable knowledge transfer about the KAIN-method, embedded in the contents of HR-policy and workplace innovation,
- create a common basis of knowledge among the training participants concerning the management of change processes and employee participation,
- encourage the exchange of experience about successful projects for work design and exploration of beneficial and hindering influencing factors and to
- form a preliminary orientation on topics for a change process in the own company.

During this 1.5 to 2-days workshop the participants get to know (usually science-based) models and instruments from project-related research for structuring and solving problems and learn to apply them (mentally). This is intended to create a common conceptual basis for the further procedure in the training.

The models and instruments presented as examples and design recommendations for practical use, ideally form a common framework in which, in particular, the existing experiences of the participants are to be integrated in order to pursue the training

objectives. The experience of the participants should serve to supplement or modify the proposals for structuring and solving problems given by the research.

Thus, at an early stage of the training, a necessary adaptation of the proposed models and instruments to the individual needs and characteristics of the participants on site, usually with different frameworks and conditions, should take place.

Before the first workshop, a trainer / consultant designing the course should select and modify the models, instruments and other material applicable to just this country, area, branch and companies in question. The material presented in this curriculum consists of common examples and works as models and stimulus for trainers.

It is a task of the trainers / consultants to take into account the individual needs and particularities of the participants on site in a face-to-face training. This requires a high degree of knowledge and experience with the use of interactive and participant-centered didactic methods on the part of the trainers. A further focus of the first part of the training is to introduce the participants with the planning, implementation and critical evaluation of their own project work they are involved in the second part of the training. Thus, another central goal of this part of the training is to give the participants important impulses for the implementation of the presented models and instruments in their own project. The application and implementation of the presented models and instruments by the participants "at home" is, so to speak, the focus of the second part of the training concept.

First day³⁸




Note: Two shorter pauses (with coffee) and one longer pause (lunch) will be held during the day.













Note 2: The material presented below is examples and stimulus, which should be applied and modified according to the country, area, background, level and needs of

³⁸ Note: The PDF icons are interactive and clicking on them will take you to the additional information and materials they contain. To do so, please go to the project website www.ka4hr.eu to find the article there.

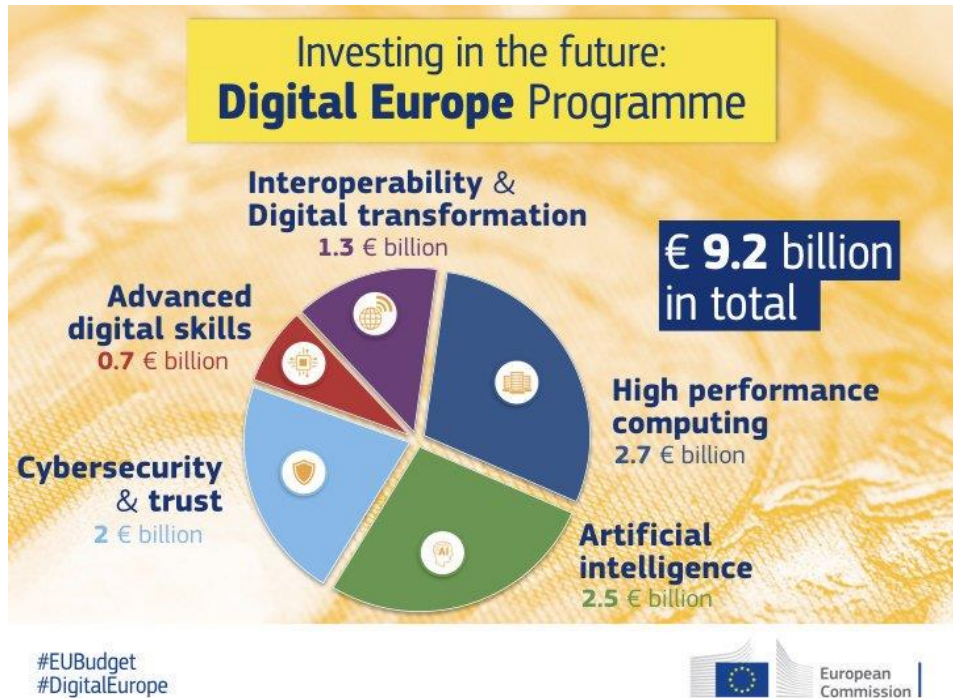
trainees, and also according to knowledge areas of trainer. The times are suggestions and may vary depending to the weighting of topics (see above).

- 1) Welcome, registration and material 0,5h
- 2) Motivation - why these topics are important 2 h

Introduction to topics: Video from An Introduction to DigitaliseSME	
SMEs need to see the digitalization as an opportunity (video inside the article)	
The strategy of the European Union: Digital economy and society	
The Policy of European Union: Digital transformation	
Subareas of the policy	
Organisation: European digital SME-alliance	
Changing environment The business environment is changing rapidly, and the speed is just increasing	 DIGITALEUROPE---O ur-Call-to-Action-for-/
Changing workforce People are changing the workplace. Lifetime in the same work does not attract any more. The skills required are changing too – and fast.	 DI_New-division-of-la bor.pdf  changing-nature-of-w ork-in-the-digital-era.

<p>Changing work – changing world</p> <p>The content of work is changing rapidly, and the speed is just increasing due to technical development. More digitalization capabilities are needed. The work is changing more and more digitized and digitalized. Mobile applications enable the work done to be booked and invoiced immediately: Adminet, Sympa HR, Tamigo,</p>	<div>  ClimateKICWhitepape  Ricerca_Digital </div> <div>  rFinalDigital_compress economy and workpla </div> <div>  The_digital_workplace.pdf </div> <div>   gerten_e26680.pdf </div>
<p>SMEs need assistance</p>	<div>  smeunited-digital-br </div> <div>  ochure.pdf </div>
<p>Changing business models: The impact of digitalization on business models</p>	<div>  sustainability-11-0220 </div> <div>  Into_the_Clouds_web_ </div> <div>  4.pdf </div> <div>  1011.pdf </div>

Big money in question



Source: https://ec.europa.eu/isa2/news/european-commission-has-announced-investment-%E2%82%AC92-billion-align-next-long-term-eubudget-2021_en

Case stories

Ireland Austria Greek Building and Construction









- 3) Workshops (2 hours work, 2 hours reporting and discussion): What data is critical to run your organization / business efficiently; is the data consistent and reliable; is it easily found and used; is the data usable; how is it handled at the moment; How could a digitization / digitalization help you.

End of first day (length 6-7 hours + pauses)







Second day³⁹

Note: Two shorter pauses (with coffee) and one longer pause (lunch) will be held during the day.

4) Basic concepts that a student should know before practice (2 hours)

<p>Digitalization VS Digitization</p> <p>There are many definitions trying to explain the difference between these two concepts, for example: "Digitalization is the integration of digital technologies into everyday life by the digitization of everything that can be digitized" (Mohamed EL-Shimy)</p>	<div>   </div> <p>- Quora.pdf Digitization, Digitalization, And Dig</p> <div>  </div> <p>Digitization, digitalization and digi</p>
<p>Big Data</p> <p>Big Data refers to a collection of both structured and unstructured data, created and used in business on daily basis. It is not the amount of data that makes it big, but what organizations do – or could do – with the data e.g., in HR purposes. (European big data value association)</p>	<div>   </div> <p>SMEs-Brochure-2017. pdf Are SMEs ready for big data_.pdf</p> <div>  </div> <p>08346368.pdf</p>
<p>(Data) Analytics</p> <p>Data analytics refers to methods to analyze raw data to be able to make conclusions about that information. Automated analyzing processes and</p>	<div>   </div> <p>1de6c6a7-en.pdf 1-s2.0-S1877042816315452-main.pdf</p>

³⁹ Note: The PDF icons are interactive and clicking on them will take you to the additional information and materials they contain. To do so, please go to the project website www.ka4hr.com to find the article there.

algorithms that process the raw data usable for decision making are important part of big data technology.	
<p>AI (Artificial Intelligence)</p> <p>Artificial intelligence aims to solve cognitive problems commonly associated with human intelligence. AI enables machines to learn like humans and perform tasks such as learning, problem-solving, reasoning, and language processing. In HR AI is used to automatize recruiting, competence assessment, risk evaluation etc.</p> <p>But Artificial Intelligence causes also ethical questions.</p>	<div>   </div> <div> <p>AI- The Preferred Direction of Modern</p> <p>AI for SMEs – MIT Technology Review In</p> </div> <div>   </div> <div> <p>Council Post_Four Ways Artificial Intelligence</p> <p>Is Artificial Intelligence for Small</p> </div> <div>   </div> <div> <p>Infographic---Ethics-in-AI.pdf</p> <p>AI-in-Ethics_Web.pdf</p> </div>

5) Why it is important (1 hour)

We need better tools to be able to manage the workforce with means like planning (predictive), optimization (ongoing) or to be able to see the impacts of future development on e.g., finance, efficiency and profitability. We also need to have better processes to manage the competence and skills of our employees. We should be able to have access to all the knowledge in our company, including the contemporary tacit knowledge. Furthermore, we should be able to forecast our future needs, not only in the number of employees but also and before all, in skills and knowledge the personnel should have in the future. However, there are both enablers and barriers impacting digitalizing HR-management services. We should be able to recognize both enablers (to be able to utilize them) and barriers (to be able to override them). Tools should be based on the business strategy and support it.

6) Tools available (2 hour)

There are several tools available, from Word and Excel templates to HR-applications and ERP-packets. Many of these are either totally free or free for SMEs if the number of employees is not exceeding certain limits. The examples of these tools are presented below.

Templates – free:

[HR-Forms](#) for Word

[Templates](#) for Excel; More [templates](#)

HRM – Software – Freeware [25 evaluated solutions](#) [More evaluations](#)

Examples of free applications:

[SimpleHRM](#)

[OrangeHRM](#)

[WayPointHR](#)

[IceHRM](#)

[Waypoint HRM](#)

[Sentrifugo](#)

[Free knowledge management systems](#)

[Free office-suite](#) Includes word processing, spreadsheet, graphic, database.

[Free project management](#), Compatible with office suite above.

Note risks with free applications: Localization might be missing or poor, installing packages may contain spyware, viruses or other type of malware, and particularly with web / cloud-based applications the GDPR-compatibility may be poor or missing.

It is also worth remembering that no software does anything that you cannot do without it.

- 7) Group work (1-hour workshop, ½ hour reporting and discussing): What kind of common barriers and enablers in an organization might be found and identified?

- 8) Assignment and project setting:

Setting and explaining the assignment, 0,5 hour: During the practice period, observe e.g. what kind of barriers and enablers do you find in your company, what kind of / which tools and applications would benefit the HR-functions of the company best, how would you transfer the tools and technology into the organization, what kind of benefits could they provide, or what kind of risks might they include. Write a brief report and prepare a presentation to be given in the concluding seminar [Note to teachers: max length of a presentation depending on to total number of presentations all should be presented within the time reserved for them. The time for project work presentations and discussion should not be forgotten].

Setting and agreeing the project work and how to report it in trilateral composition (trainee, trainer/lecturer, representative of an enterprise, if trainee is not the entrepreneur him/herself) either during the first seminar or in the beginning of the learning at the project work. In this phase, the needs of the enterprise, competencies of trainee and goals of the training should be taken into account. This is the only way to guarantee the commitment and motivation of all three parties in each project. It must also be borne in mind, that the project work and / or its results are not necessary public, but may contain confidential business information. Thus, the form and content of publication, e.g. as a part of presentation in concluding seminar, must be agreed and defined individually.

End of day 2. Length of the day 6-7 hours + pauses.

Part II: Learning at the Workplace and Project Work

12 - 18 weeks self-study and practice in company

During the company specific practice students compile the assessments given during the training phase (#8) in the point of view of each company (general overview of HR, answering to the questions presented above describing the contemporary situation,

what should be done, how, are there barriers and / or enablers, how to evaluate and how to develop the human resource management). The results will be briefly presented in the concluding seminar, separate or together with the project work presentation.

Goals and tasks of the self-study-phase are

1. Accompaniment and support of change processes in enterprises, from the formulation of objectives, description of measures, conception of implementation to impact analysis by training and process-oriented, if necessary, also technical consulting,
2. Application and transfer of knowledge into the individual practice of the participants on site

In this part, the participants have the task of applying the knowledge acquired in the first part and the knowledge of how to shape their own practice in the sense of the training idea in their companies / organizations. For sustainable learning, it is necessary that they plan, implement, evaluate, critically reflect and document their own project or activities to improve a situation on site under their individual framework conditions in the "here and now".

This phase with the duration of approx. 12 – 18-weeks is accompanied and supported by professional advice and support given by the trainers / consultants. In principle, the participants should apply and implement the knowledge they have acquired in Part 1 themselves. As a rule, however, advice and support are often required in order to apply the process of adapting the knowledge acquired in Part 1 of the training appropriately under the real conditions on site and to lead one's own project to success.

The role of the trainers/consultants

The support given by the trainers can vary from a rather simple general consultation in the sense of passing on relevant information to an intensive accompaniment in the sense of coaching. In individual cases, it is usually necessary to find out, what kind of support it is needed to enable the individual participant to pursue his or her individual project goals.

In this phase, it is quite possible and even usual, that, when applying the models and instruments presented in the first phase in practice, the individual project proceeds differently than initially thought and planned by the participant. Even in such situations, the trainers of the project team can provide valuable support in pursuing the "actual" project goals.

This second part of the training enables in particular the very welcome didactic aspect of working on concrete improvements in one's own company / at one's own workplace, which is associated with a high motivation to learn. In this learning process, the company management and other employees are usually intensively involved in what is done at the workplace, thus achieving joint learning and strong multiplication effects in the training.

Further advantages, i.e., what has been learnt, is directly implemented in everyday business life, or the innovations associated with project work are in the interest of company's management, quickly become visible and motivate managers to promote further training for the workforce and to use it as a strategic instrument of company management. The advantages also respond to the particular needs of small and medium-sized enterprises, which are constantly suffering from a lack of time as the biggest obstacle to training. In common, the KAIN Training Method eliminates absenteeism nearly totally.

Part III: Conclusion Workshop

1,5 – 2 days seminar

Goals and tasks of the conclusion workshop are to

- Reflect (evaluate) on the successes in the dimensions of individual, operational and structural changes and change processes,
- Identify supportive and obstructive conditions of change processes and
- derive "lessons learned" for further change processes

In the third part of the training, the participants will present and discuss the experiences and the insights gained (from assignment #8), as well as their individual projects.

Both the participants and the trainers have as their particular task to review the projects and to reflect on whether, or respectively what, contribution they make to the sustainable pursuit of the overarching training idea to strengthen the capacity and ability for HR-policy and workplace innovation. The exchange between the participants can provide them with very valuable impulses on how to make their own project even more successful. In this context, an important goal can also be to show which major obstacles are responsible for "not-yet-successes" in order to work on this in the future.

The role of the trainers/consultants is to

- Enable constructive exchange between the participants,
- Focus on the common basis for the pursuit of (general) training objectives, and
- Moderate an instructional discussion on the identification of supportive and obstructive conditions of change processes and present contributions for a possible reduction of resistance in the tracking of individual projects.

Schedule of the workshop

Note: Two shorter pauses (with coffee) and one longer pause (lunch) will be held during each day

First day

- 1) Welcome, registration and material, 0,5 hour
- 2) Presentations of students, discussion and the feedback of the trainers – continues, if needed, in the second day

Second day

- 3) Management and HR – Concluding lecture including
 - Concept of Human capital
 - How the digitalization can help daily work
 - How the digitalization can help HR management

- How the digitalization can help management
- How the digitalization can help strategy planning
- How the trainees can / should continue with their own project / company / business
- Length 2-4 hours, depending to the time allocated for student's presentations.

End of the course, diplomas, etc.

Material (Examples)⁴⁰

<https://www.slideshare.net/MatthiasVallaey/big-data-in-human-resources>

<https://www2.deloitte.com/content/dam/Deloitte/global/Documents/About-Deloitte/central-europe/ce-global-human-capital-trends.pdf>

https://ec.europa.eu/growth/smes_en



10.THE FUTURE OF
EMPLOYMENT - CHAI



Accenture-Digital-HR
-technology-comes-o



ProQuest Ebook
Central - Detail page.ç



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big data
978-3-631-71905-3.p



Ketolainen_Niina.pdf

<https://www.tuni.fi/en/study-with-us/computational-big-data-analytics>

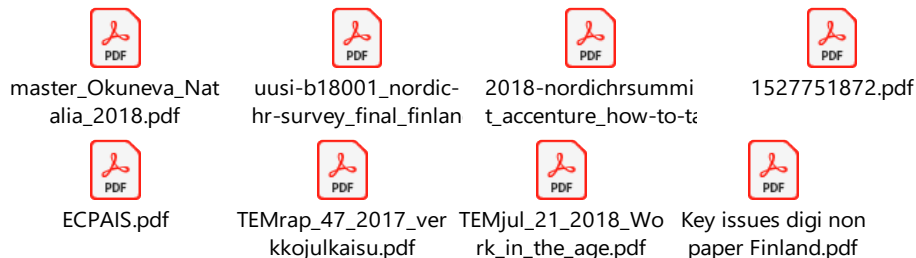
<https://www.hrtechnologist.com/articles/digital-transformation/the-beginners-guide-to-ai-in-hr/>

<https://www.forbes.com/sites/jeannemeister/2019/01/08/ten-hr-trends-in-the-age-of-artificial-intelligence/#42c1e7123219>

⁴⁰ Note: The PDF icons and links are interactive and clicking on them will take you to the additional information and materials they contain. To do so, please go to the project website www.ka4hr.com to find the article there.

<https://www.slideshare.net/TomHaak/artificial-intelligence-threat-or-opportunity-for-hr>

<https://www.aaltopro.fi/en/aalto-leaders-insight/2018/excellent-discussions-on-digitalization-and-the-ethics-of-ai>



5.3.2 | Experiences with the Implementation⁴¹

The training aims to offer SMEs a chance to get basic knowledge and understanding on digitalization and its effects on the company. Based on the overall view obtained, the participants of the training can comprehend both the benefits and risks of digitalization especially in human resources including ethical implications. Mentoring from the trainers and sparring for peers gives the participants of the training the opportunity to carry out even a demanding development task in their company.

The was planned to be piloted with an opening and closing session organised face-to-face. However, due to the Covid-19 pandemic, all physical meetings were impossible. Therefore, the training had to be carried out in a pure online format.

Admission and organisation of the training

The course was advertised first and foremost online via various channels, e.g. the website of BIF, the training calendar of SAMK, emails to organisation and associations working with SMEs, and social media. There was no admittance fee. It is very difficult to attract SME representatives to any trainings in Finland, so with the pandemic

⁴¹ Johanna Vannes, The Baltic Institute of Finland, Helsinki

hanging over our heads, we were happy to get eight people to sign up for the course. The lecturers were mainly from SAMK, but one topic was covered by the chief information officer of the city of Tampere Jarkko Oksala.

The piloting started 3 December 2020 with a half-a-day kick-off session in Microsoft Teams, where the concept of the training was explained, KAIN method was introduced, the learning platform Moodle was presented, and a keynote lecture on why digitalisation matters SMEs was given by professor Heikki Haaparanta from SAMK. The participants also received instructions for the personal development task they should carry out in their company during the training.

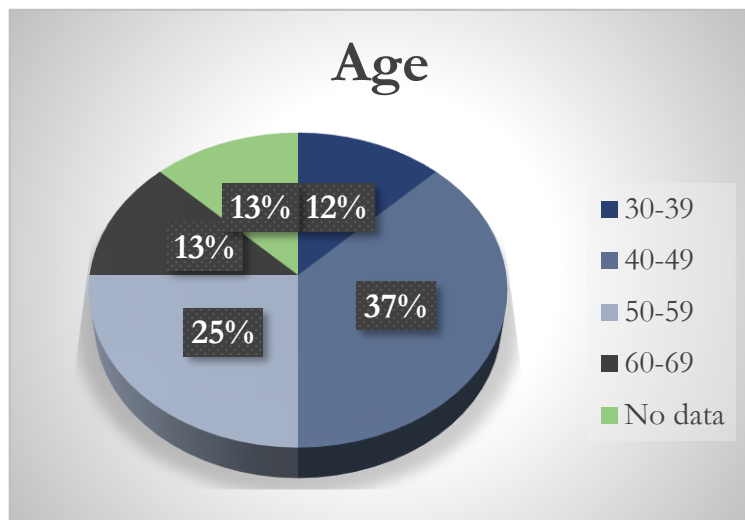
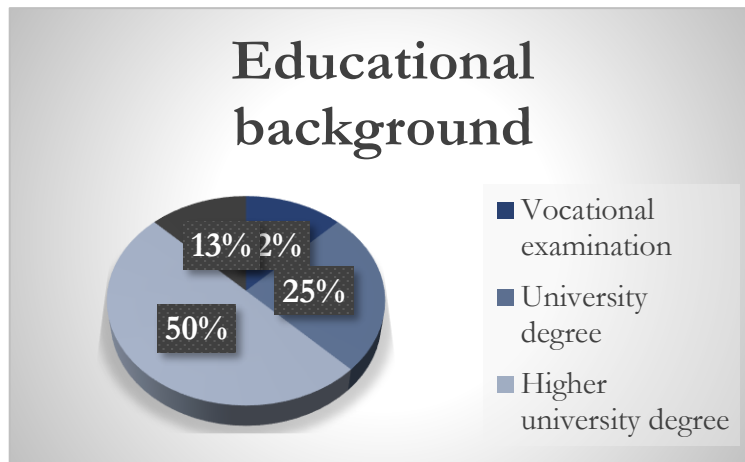
Following the KAIN method, the introductory day was followed by a period of individual learning on Moodle, where all the teaching material was available for the participants. There was the possibility to get personal feedback and support from the expert trainers, and the participants were also strongly encouraged to engage in discussions with each other on the learning platform. The facilitated discussion forum on the online learning platform was supposed to be the place for networking and peer support, but with only one active participant at the end, the discussion forum was, of course, far from what it was intended to be. Having one student on one side and so many trainers and organisers on the other side made the setting pedagogically very artificial and challenging. The one participant did, however, receive plenty of individual feedback and encouragement.

The pilot ended 31 May 2021, with the pilot duration slightly longer than originally planned. The closing session where all participants would have presented their development tasks to others was cancelled, and the only participant who finalised the course was given individual feedback.

Participants Profile

Eight people from eight different companies/organisations registered for the training. Five of the registries were women and three were men. All participants were Finnish speaking Finns, so there was no-one with another mother tongue in the training. Half of the participants had completed a higher university degree, and the majority was

middle-aged. As for the sectors represented, there were companies or organisations from business development, HR services, auditing, construction, manufacturing, and machinery.



Execution of the Training

The aim of the training was to promote digitalization in SMEs. The Training set out to challenge the participants to rethink internal processes and operations, and perhaps

to develop HR management with the help of digitalization. The topics of the training curriculum were the following:

- Basics of digitalization
- Digitalization in society
- Digitalization and SMEs
- Digitalization and HR

Due to the pandemic, the training had to be transformed into a pure online pilot, which was definitely not an ideal solution, which we were aware of from the very beginning. However, the circumstances forced us to go for an online pilot, which was probably one of the reasons we lost seven out of eight registries along the way. The reasons for dropping out of the training were mostly linked with Covid-19, which either made them too busy at work for any training activities or made them unemployed. In the latter case, some participants might have been afraid of the effect that attending a training could have on their unemployment benefit. Even though we contacted the participants many times, gave them flexible options and prolonged the duration of the pilot, we were only able to have one participant go through the whole study material on Moodle and perform the required development task in his company. It is quite obvious that the biggest weakness for the training pilot was the lack of participants – both from the perspective of the organisers, the trainers and the participant(s). This again is a consequence of the bizarre times we have been living in since early 2020.

The pilot did not include an exam, nor does it entitle the participants to any degree. However, a certificate was awarded to the successful participant, who can use the certificate to show that he has taken part in an in-service training focusing on digitalisation and HR.

Main Findings and Conclusions

Digitalisation is a topical issue that SMEs are clearly interested in, so there is definitely need for this sort of training. It also seems that many SMEs are a bit lost when it comes to digitalization, so the basics of it all are very important for the companies.

Even though we had to skip the original plan and force this training pilot into an online format, the quality of the learning material is great. The video lectures created, and other material collected for the online learning platform give an excellent overview on digitalization and its implication to society and SMEs.

In order to engage the participants of a training properly, a face-to-face meeting at least in the beginning of the training is vital. If you have never met the participants, it is very difficult to get to know them well and to make them commit to the training, especially when the training is free. People tend to get excited when seeing an advertisement of an interesting training and sign up, but if (working) life becomes hectic it is so easy to just fade away from on online training, where nobody has ever even seen you and you have not invested any money in it.

Activating participants on the online platform is challenging, particularly if you have not met in real life even once. Getting the discussion lively was, in this case, impossible; one participant and a large group of organizers simply does not work. However, participants with genuine motivation and their own project idea get through the training even in challenging circumstances.

5.4 | Training "Innovation Processes"

5.4.1 | Curriculum⁴²

Course Description for further training - Innovation Processes

Course code	CETS_005
Faculty	Centre for European and Transition Studies, University of Latvia

⁴² Dr. Romans Putans and Denize Ponomarjova, University of Latvia, and Janis Tilibs and Liga Siceva, Latvian Chamber of Commerce and Industry, Riga

Field of Science	Economics and Entrepreneurship			
Target Audience	The course is designed as the training and targeted towards entrepreneurs and managers from SMEs – mostly for the middle and upper management representatives and HR managers and experts.			
Credit points	Compared to 2 Latvian credits (3 ECTS)			
Number of classes (ac. hours)	Total Contact	Lectures, Seminars	Guided practical experience	Individual studies
	24	8	16	48
Course annotation	<p>The study course is developed within the framework of the Erasmus+ Project “Innovative Entrepreneurs and Innovation Support for SMEs: Knowledge Alliance “Human Resources and Organizational Development”” (https://www.lu.lv/cets/research/euproject/kaforhr/).</p> <p>The course is designed as the training and targeted towards entrepreneurs and managers from SMEs – mostly for the middle and upper management representatives and HR managers and experts.</p> <p>Implementing principle: The course is conducted according to the KAIN concept - Knowledge Acquisition according to Individual Needs.</p>			

Course objective	The training course aims to provide its participants with the set of theoretical and practical knowledge of current trends and skills in Innovation Process conduction with the focus on HR management (Talent management) for sustainable performance and succession of SME`s management.
Prerequisites	Basics of human resources management
Requirements for obtaining passing the course	<p>Participation in lectures - 75%</p> <p>Participation in seminars - 75%</p> <p>Midterm knowledge check - written unassisted work (at least 60% result)</p> <p>Assessment Criteria</p> <ol style="list-style-type: none"> 1. Activity in seminars + Home assignments – 30% 2. Case study analysis and Presentation – 30% 3. Exam – 40%
Final examination:	Written <i>closed-book</i> exam (online)
Participants` independent work and tasks	Home assignments, case studies.

Required Reading:	<ol style="list-style-type: none"> 1. Drucker P., Innovation and Entrepreneurship, Routledge, 2015, pp.3-10. 2. Shlomo Maital, Seshadri D.V.R. Innovation management: strategies, concepts and tools for growth and profit, Response Books, 2007, pp.402-510. 3. Bean R., Radford R. Business of Innovation: Managing the Corporate Imagination for Maximum Results, AMACOM Div American Mgmt Assn, 2001, pp.109-141.
Additional suggested reading	<ol style="list-style-type: none"> 4. Elias S., Origins of Human Innovation and Creativity, 2012 5. Juma C., Innovation and Its Enemies: Why People Resist New Technologies, Oxford University Press, 2016 6. Fitzgerald E., Wankerl A., Schramm C. J. Inside Real Innovation: How the Right Approach Can Move Ideas from R&D to Market and Get the Economy Moving, 2010 7. Muller C., Apple's Approach Towards Innovation and Creativity, 2011 8. Альтшуллер Г. Найти идею. Введение в ТРИЗ - теорию решения изобретательских задач, 2017
Other Information Sources	See in the detailed training description below and lecturers` materials.

Outline

Topics outline of the study course:

No.	Topic	Type of implementation	Contact ac.h.	Venue	Individual studies ac.h.
Workshop 1 – 8h (<i>planned in September/ October 2020</i>)					
1	1. Organizational behaviour: traditional and innovative company <ul style="list-style-type: none"> Skills in labour market – the gap analyses (planned lecturer – Dr.sc.admin. Romans Putans) Innovation and creativity – determinants of today's business success. Traditional and innovative company. (planned lecturer – Mr. Vladimirs Rojenko, Ph.D.cand.) 	Lecture Seminar Practical experience	1 1 2	Class Class Company	8
2	Leadership Company visit	Lecture Seminar Practical experience	1 1 2	Class Class Company	8
Workshop 2 – 8h (<i>preliminary November 2020</i>)					
3	Talents` place in HR management process <ul style="list-style-type: none"> Skills in labour market – the gap analyses. HR learning and development. Future competences. Learning abilities. (planned lecturers – (planned lecturer – Dr.sc.admin. Romans 	Lecture Seminar Practical experience	1 1 2	Class Class Company	8

	Putans and Dr.sc.admin. Olga Leontjeva). • People management for fostering innovation. (planned lecturer – Mr. Vladimirs Rojenko, Ph.D. cand.).				
4	Current trends in personal and professional self- and personnel development - Company visit – EuroPersonsals (TBC) or finance (TBC)	Lecture Seminar Practical experience	1 1 2	Class Class Company	8
In between 2 nd and 3 rd workshop participants will work on their own individual company projects identified during 1 st and 2 nd workshops and gained shared experience in companies` visits. The results of the individual company projects will be presented by participants in the 3 rd workshop.					
Workshop 3 – 8h (<i>planned in April 2020</i>)					
5	Innovation and Invention. Rewarding and Recognition. planned lecturer – Mr. Vladimirs Rojenko, Ph.D.cand.	Lecture Seminar Practical experience	1 1 2	Class Class Company	8
6	Nonmonetary motivations to ensure employees satisfaction with workplace	Lecture Seminar Practical experience	1 1 2	Class Class Company	8

	Company visit – Draugiem Group (TBC)				
7	Exam	Theoretical knowledge Practical knowledge	1,5 1,5	Online	
TOTAL:			27		48

Detailed contents, topics, materials, cases, companies:

Workshop 1 – 8h

1. Organizational behaviour: traditional and innovative company

1.1 Skills in labour market – the gap analyses

1.2 Innovation and creativity – determinants of today's business success. Traditional and innovative company.

First classes of the training intend to introduce the participants to the essence, connections and importance of innovation and creativity in today's business environment. During the lecture it is also intended to explore the differences between traditional and innovative entrepreneurship, the characteristics of an innovative company, the role of creativity in an innovative company, the role of creativity in promoting competitiveness, innovative entrepreneurship risks. Participants will be offered to complete a test to assess the organisational behaviour of the company.

Main topics:

1. What is innovation and creativity?
2. What links exist between these concepts?
3. Why is creativity and innovation important in today's business environment?
4. What is innovative and traditional entrepreneurship? How are they different?

5. What are the features of an innovative company?
6. What is the role of creativity in an innovative company?
7. The role of creativity in promoting company's competitiveness.
8. What are the risks of innovative entrepreneurship?
9. How to distinguish an innovative company (test)?

Additional literature:

1. European Central Bank. 2017. How does innovation lead to growth? European Central Bank homepage.
2. Nefiodow, L., Nefiodow, S. 2014. The Sixth Kondratieff. The Growth Engine of the 21st Century. In: Grinin, L.E., Devezas, T.C., Korotayev, A.V., ed. Kondratieff Waves. Juglar – Kuznets – Kondratieff. Yearbook. Volgograd: 'Uchitel'. 326-354.
3. Nunes, P., Breene, T., 19.07.2019. Jumping the S-Curve: Beat the Growth Cycle, Get on Top and Stay There [video]. From: Harvard Business Review International Business homepage.
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8. Hargadon, A. 2015. Sustainable Innovation: Build Your Company's Capacity to Change the World, Stanford University Press, 1-55.

9. Bodell, L. 2016. Kill the Company: End the Status Quo, Start an Innovation Revolution, New York: Routledge, 10-19. [see materials in e-studies!]

10. Kim, C.W., Mauborgne, R. 2005. Blue ocean strategy: how to create uncontested market space and make the competition irrelevant. Boston, USA: Harvard Business School.

11. Karsten, L. 2016. The Science of Innovation: A Comprehensive Approach for Innovation Management. Walter de Gruyter GmbH. 119-137.

Leadership

Case-study of KAforHR BestPractice - TYKY – maintaining the work ability and concept of work ability management

- <https://www.ilmarinen.fi/en/my-pension/rehabilitation/>
- <https://www.ilmarinen.fi/en/my-pension/rehabilitation/rehabilitation-pays-off-even-for-the-employer/>
- <https://www.keva.fi/en/pensions/diminished-work-ability/>
- <https://www.elo.fi/employer/work-ability-management-services>

Company visit

Workshop 2 – 8h

Talents` place in HR management process

- Skills in labour market – the gap analyses. HR learning and development. Future competences. Learning abilities.
- People management for fostering innovation.

During the second part of the first workshop, it is planned to examine the essence, significance and characteristics of people management for fostering innovation in

organisations. The role of innovation leader, motivation, team spirit, smart recruitment, creativity and talent management in innovation development is explored.

Main topics:

1. What is people management for fostering innovations?
2. How should people be led to promote innovative development in organisations?
3. How are people's leadership principles transformed today?
4. What are the principles of people management for fostering innovations?

Additional literature:

1. Lapiņa, I., Maurāne, G., & Stariņeca, O. (2014). Human Resource Management Models: Aspects of Knowledge Management and Corporate Social Responsibility. *Procedia - Social and Behavioral Sciences*, 110 (The 2nd International Scientific conference)

2. Castro, C. L., Kuvaas, B., Hayton, J. (Eds.). 2011. Global human resource management casebook. ProQuest Ebook Central. 3-44.

3. Peacock, M. J. 2017. The human resource professional's guide to change management: Practical tools and techniques to enact meaningful and lasting organizational change. ProQuest Ebook Central. 1-81.

4. Owens, D. A. 2011. Creative people must be stopped: 6 ways we kill innovation (without even trying). John Wiley & Sons, Incorporated. 25-95.

5. Current trends in personal and professional self- and personnel development - Company visit – EiroPersonals (IBC)

In between 2nd and 3rd workshop participants will work on their own individual company projects identified during 1st and 2nd workshops and gained shared experience in companies' visits. The results of the individual company projects will be presented by participants in the 3rd workshop.

Workshop 3 – 8h

Innovation and Invention. Rewarding and Recognition.

The third workshop of the training provides an overview of the principles, advantages and disadvantages of the most common innovation and invention support structures (business incubators, innovation centers, technology centers, etc.). Practical examples of the use of innovation and invention support structures for real innovative business development will be considered.

Main topics:

1. What are innovation and invention support structures?
2. What kind of innovation and invention support structures exist?
3. What are the operating principles of innovation and innovation support structures?
4. How are innovation and invention support structures used in practice?

Additional literature:

1. Feld, B. 2012. Startup communities: building an entrepreneurial ecosystem in your city. John Wiley & Sons, Inc. [see materials in e-studies]
2. Feld, B., Cohen, D. 2010. Do faster: Techstars lessons to accelerate your startup. John Wiley & Sons, Inc. 203-269.
3. Golomb V.M. 2017. Accelerated Startup: Everything You Need to Know to Make Your Startup Dreams Come True from Idea to Product to Company, Time Traveller Books. [see materials in e-studies]
4. Latvijas Investīciju un attīstības aģentūra (LIAA). 2011. Inovācijas atbalsta struktūras Latvijā. From: <http://www.liaa.gov.lv> [29.07.2019]

Nonmonetary motivations to ensure employees satisfaction with workplace

- “Freedoms” at work
- Paid extra to work (trainings, gym)
- Workations

- Inspiring complements (visits, guest-lectures)
- Case-study of KAforHR BestPractice – Draugiem.lv group. <https://draugiemgroup.com/work>

Company visits

5.4.2 | Experiences with the Implementation⁴³

Introduction

For small and medium-sized enterprises to remain competitive in the long term, their innovation capacity needs to be strengthened. Human capital is the most important resource for improving innovation and productivity.

The project researched national best practices on innovation in the workplace and developed training curriculum using the “Knowledge Acquisition according to Individual Needs” method. The KAIN method aims to create a common knowledge base for participants with different experiences, taking into account their individual experiences, and to help develop and implement innovations in the company. After obtaining theoretical information and exchanging experience, participants had two months to implement the innovation in their company, if necessary, in consultation with the course teachers.

Training participant Mr. Ainārs Kazušs, Chairman of the Board of MRV LUX says: “During the training I learned a lot of new and useful information about innovations and personnel management, as well as gained inspiration for the implementation of practical things in my company”.

Elīna Valdmāne, Head of the Competitiveness Department of the Latvian Chamber of Commerce and Industry, notes: “The exchange of experience between participants

⁴³ Done by Janis Tilibs, Latvian Chamber of Commerce and Industry, Riga

during the course is very valuable, which promotes the emergence of new ideas and helps companies create and implement innovations in their workplace”.

Right from the start participants started working on the implementation of individual innovations in the company. Participants gained knowledge about changes in today's labour market and business environment, features of an innovative company and entrepreneur, innovations and creativity in business, non-monetary motivation for employee satisfaction and other topics, as well as on-site and virtual visits to TET, Bite Latvia and Accenture Latvia.

Ingrida Rone, Director of Human and Environmental Services at TET, admits that one of the main reasons why employees choose TET is a flexible work environment, but at a time when work is a remote, maintaining a sense of team is one of the innovations necessary to facilitate.

Asked what promotes innovation in the workplace, Bite climate control architect Laura Pļavniece answers: "We ask employees and they themselves give us new ideas", while Zanda Arnava, head of the talent studio Accenture Latvia, adds that one of the most important things that promotes innovation environment in the company is constructive and growth-oriented feedback.

Admission and organisation of the training

Latvian Chamber of Commerce and Industry promoted trainings using social media, homepage, and individual e-mails to member companies. Therefore, participation was open to every Latvian company who wanted to join.

12 companies participated in the trainings. Trainings were separated in 5 separate full day sessions (07.09.2020—09.09.2020, 09.11.2020 and 13.09.2020). Trainings happened in Latvian Chamber of Commerce and Industry premises, but due to COVID-19 restrictions last two of them were held online.

Trainings were led by two Experts:

- Dr. Sc. Admin. Romans Putans – University of Latvia, social-economic changes researcher in business environment. Riga Stradini University programme Manager. International Business and sustainable economy docent.
- Mr. Vladimirs Rojenko – Entrepreneur, Innovation and creativity lecturer, doctoral student in business management

In addition, several visits (on spot and online) to companies were held during trainings. Visiting companies were chosen based on their experience with workplace innovations and relevance to training topics.

Visited companies:

- Tet Ltd. – biggest Internet and television services provider in Latvia
- Bite Latvia – One of the biggest mobile phone operators in Latvia
- Accenture Latvia – Global IT services and consultations company
- Fontes Group – Executive headhunters and HR consultants
- 4Finance - Global leader in digital consumer finance

Participants' profile

Training participants range from 25-40 years of age and were various genders. Mostly with university education. In the companies they mainly represent managerial positions or positions that are fully or partially responsible for human resource processes in the organization. All the participants and companies are from Latvia. Represented company sectors – energy, real estate, wood, IT, finance, design sectors.

Execution of the training

Trainings were carried out using the KAIN method “Knowledge Acquisition according to Individual Needs”. Trainings consisted of theoretical lectures, group tasks and several company visits.

1. Session
 - Introduction and defining the development project within the company

- Changes in the economic self-organization of society
 - Innovation and creativity – business success factors
 - Company visit TET, Ltd. (organizations culture, flexible job, remote job organization)
2. Session
- Changes in business models and social business norms
 - Group work
 - Human resource management for innovation development
 - Company visit Bite Latvia (Employees non-monetary motivation)
3. Session
- Gap between skills supply and demand in the labour market
 - Group work
 - Innovations and inventions. Rewarding and recognition
 - Company visit Accenture Latvia (Talent management)
4. Session
- Guest lecture by Fontes Group (Establishment of a remuneration system)
 - Individual consultations based on company needs
5. Session
- Nonmonetary motivations to ensure employees satisfaction with workplace
 - Group work
 - Company visit 4Finance (Internal training programmes)
6. Session
- Presentation of specific development projects within the companies

Main Findings and Conclusions

- More lecturers from the professional field and less from the academic. Personal experience is more valuable than theory.
- Additional themes could be included for example – How to involve employees and management in innovation process. How to plan and implement innovation processes successfully. Successfully manage remote workers.
- Trainings overall has proven to be successful and useful for companies and they will be implemented again in the future by Latvian Chamber of Commerce and Industry. Curriculum must be adjusted over time as the COVID-19 situation will highlight new problems, challenges and needs for the company's human resource processes.

Specific development projects within the company

Not all of the training participants managed to create or was willing to develop projects within their companies. Total 5 companies were active and managed to complete the projects.

Project No. 1

Name and address of the company: MVR LUX SIA

Branch/focus of activity of the company: Forest management - production of forest taxation, evaluation of growing wood, reforestation, logging, preparation and arrangement of all types of documents.

Number of employees of the company: 17

Brief description of the development project: Challenge - Since the spring, company has been working mostly remotely due to COVID-19 and have only been together in the office for a few months in year 2020. In addition, supervisors work in the regions and are not directly attached to the central office.

Desired result - Increased engagement of employees. At the start, the company wanted to understand how to control employees who work remotely. How to assess

whether employees are doing all the work and not doing private things most of the day and doing only what is necessary.

Short description of the results: During the trainings company understood that problem lies in employee motivation and not control mechanisms. Motivation was increased.

HR project implementation tasks:

- Employee surveys/interviews
- Gathering feedback from employees
- Organize tender for insurance companies and provide employees with health insurance to increase motivation
- Implement regular joint online meetings

Short progress report of the project partner: Project was rather easy and company owner was directly interested in the success of the project as he wanted to increase employee's motivation and engagement rate.

Project No. 2

Name and address of the company: Latvian Environment, Geology and Meteorology Center

Branch/focus of activity of the company: Ensure the collection, storage and provision of environmental information to the public and state and local government institutions, environmental monitoring, identification and assessment of subterranean resources, management of the state-owned hazardous waste landfill, safe management of radioactive waste and nuclear facilities, as well as participation in geology, meteorology, climatology, hydrology, water and air quality, the effects of transboundary air pollution and radioactive and hazardous waste management, as well as the maintenance of the national geological fund, fringes and reference samples, the environmental data archive and the library of scientific and technical literature.

Number of employees of the company: 290

Brief description of the development project: Employee learning process management - Currently, training for employees is planned within the structural units, within the annual budget, mainly emphasizing only expenses. Aspects of implementation, change and feedback are not traceable.

Short description of the results: Transparent learning process in the company as a whole, which can identify starting with what employees need (what to learn) or goals, motivation, and ending with not only the results that have been learned, but also an overview: costs, application in practice, assessment of training providers and internal transfer of knowledge to other employees.

HR project implementation tasks:

- Development of the project specifics
- Introduce other department managers with the project
- Introduce members of the board with the plans and include training plan in the next years budget
- IT platform development
- Inform employees
- Monitor process

Short progress report of the project partner: Project was quite challenging as the company is governmental and with huge number of employees and therefore needs. This demands serious preparation from Human resource department as all these initiatives needs to be approved by members of the board and that requires clear argumentation.

Project No. 3

Name and address of the company: Sanne group

Branch/focus of activity of the company: Leading specialist alternative asset fund administrator, with jurisdictional and asset class expertise like no other.

Number of employees of the company: 100

Brief description of the development project: Analyses local and external evidence, understand the relationship between how brand image affects talent acquisition and retention, and suggest ways to improve the situation.

Short description of the results:

- Increase in average employment time
- Increase new and talented employees in the company
- Increased employee satisfaction with the company and working conditions
- Increased word of mouth effect

HR project implementation tasks:

- Understand what causes people's dissatisfaction in the company (Promised vs. real company environment and job responsibilities that affect attitudes towards the company and, together with word of mouth, reduce the company's brand image)
- Understand the link between brand image and talent acquisition and retention
- Develop recommendations to promote the acquisition and retention of talents
- Practical activities to acquire and retain talent

Short progress report of the project partner:

So far, the problem has been identified, the evidence analysed and ways to improve the current situation suggested. It takes long time to actually implement and test the impact of such changes in the company

Project No. 4

Name and address of the company: Primum Ltd.

Branch/focus of activity of the company: Finance management company, whose main specialty is accounting outsourcing.

Number of employees of the company: 16

Brief description of the development project: Talent management and talent attraction. The profession is undergoing change, technology is becoming more and more involved, so the accounting service is transforming from a data processor to more and more business consulting. Therefore, highly qualified staff is needed.

Short description of the results: Most of the team consists of high-class professionals who are also able to consult.

HR project implementation tasks:

- Employee audit
- Employee interviews
- Individual competence building plans for existing employees
- Employee competence standard development
- Recruitment of new specialists

Short progress report of the project partner:

- A non-monetary motivation program has been established - flexible working hours (remote is not the same as flexible), 2 additional holidays - name days and birthdays, health insurance, training program, including certification program
- There is a remuneration program - basic salary and various bonuses
- Has a comfortable and modern workplace, technical means (including programs, 3 monitors, etc.)
- There are cohesive and recreational activities
- Work has been started to improve the public image, because in the conditions of insufficient labour market, the public image is of great importance, incl. creating a new website with not only customer feedback, but also employee feedback - why it's good to work here

- Internal growth program developed
- More active work has been started with educational institutions in attracting trainees and potential employees
- There is a plan to buy a small office - it is quite a risky, but there is an option to get potential talent

Project No. 5

Name and address of the company: Augstsprieguma tikls, AS

Branch/focus of activity of the company: Independent transmission system operator in the Republic of Latvia, engaged in providing electric power transmission network services and ensuring the balancing and stability within the transmission network.

Number of employees of the company: 200

Brief description of the development project: Employee involvement and implementation of LEAN management system

Short description of the results: Involved, responsive employees. LEAN has been introduced to improve all processes and improve the company's efficiency by working with fewer resources.

HR project implementation tasks:

- Research on employee involvement, analysis of its results in cooperation with "RAIT GROUP" to find out employee satisfaction with various aspects of work (work environment, processes, communication in the team and with the manager, motivational factors, etc.)
- LEAN methods and tools - training organization for the management team
- Exchange of experience with companies that have already implemented LEAN
- Organization of LEAN training for 2nd level managers - Productive service management

- LEAN training for employees (Riga and regions), in cooperation with SIA "Leilands un Putnis"
- LEAN training and work sessions for the change management team - in cooperation with SIA "Leilands un Putnis"
- Start of LEAN implementation

Short progress report of the project partner: Implementation takes long time but at this point company has organized Trainings for senior management and level 2 managers. A large group of employees has been recruited for introductory training on the LEAN method. A group of 15 managers and employees has been created to study and start implementing LEAN.

5.5 | Examination Regulations and international Recognition

5.5.1 | Examination Regulations

The examinations to complete the developed and conducted trainings can be done in different ways:

- Based on an official examination regulation leading to a state-recognised degree. The following examination regulations fulfil this purpose.
- As an internal examination, which is also conducted on the basis of the following examination regulations but does not lead to a recognized qualification. In this case, participants receive a certificate of the overall grade of the examination.

Official Examination Regulation

§ 1 Purpose of the examination and designation of the degree

1) The examination for specialist of workplace innovations in small and medium enterprises is intended to determine whether the candidate possesses the necessary

knowledge, skills and experience required for the development of workplace innovations in small and medium-sized enterprises.

2) A successful pass in this examination leads to a recognized degree in specialist of workplace innovations in small and medium enterprises.

§ 2 Requirements

The examination is to admit those who have:

1) Successfully completed vocational training and have at least five years' professional experience

2) Further to Paragraph 1, admission to the examination may also be granted on presentation of certificates or otherwise, as proof that the requisite knowledge, skills and experience have been acquired in previous activities and can justify admission to the examination.

§ 3 Structure, content and duration of the test

1) Theoretical fundamentals

In the first part of the examination, basic knowledge in the following fields of activity must be demonstrated:

a) Analysis of operational conditions with regard to their current and future potential for workplace innovation

b) Submission of economically justified proposals for the anchoring of workplace innovation measures

c) Activities for the implementation of workplace innovation measures in the company

d) Examination of the company suitability of workplace innovation measures

e) Development of optimisation proposals to improve workplace innovation measures

2) Planning, implementation and evaluation of workplace innovation measures

In the second part of the examination, the candidate should prove that he/she is capable of planning, implementing and evaluating a company-related workplace innovation project. This includes:

- a) the identification of workplace innovation fields of action in SMEs
- b) the planning of workplace innovation activities in the company
- c) the presentation of advantages and disadvantages in the implementation of workplace innovation activities in the company
- d) the anchoring of workplace innovation activities in the company as a project
- e) Measures to check the suitability of workplace innovation activities in the company

3) Project work

The third part of the examination is in the form of a project work, which is to be prepared as a written, extra-occupational term paper. The scope start and processing time of the project work is determined by the examination board.

4) The first part of the examination is oral and should not take longer than 30 minutes in total.

5) The second part of the examination is conducted in writing and should not exceed 60 minutes.

6) On the basis of the examination performances in the project work, a technical discussion is to be held in which the candidate is to show that he/she can demonstrate the technical connections underlying the project work, justify the course of the project work and present technical problems associated with the project work and their solutions. The technical discussion should not last longer than 15 minutes.

§ 4 Consideration of previous examinations

1) The examinee can apply for exemption from the examination in individual areas of action, if he/she has passed a previous examination before a competent authority, a

public or state accredited educational institution or before a state examination board whose content requirements correspond to the respective fields of activity.

- 2) A complete exemption is not allowed.

§ 5 Passing the written and oral examinations

- 1) The examination results in the parts stipulated in § 3 must be assessed separately.
- 2) The number of points obtained in the three papers for the oral and written examinations should be summarized into a total score. The final grade is therefore:

15% from the first part of the examination,

25% from the written examination in the second part of the test,

40% of the project work in the third part of the test and

20% of the technical discussion in the third examination.

- 3) The written examination of the second part of the examination must be supplemented by an oral examination if this can be decisive for passing the examination. The oral examination should not last longer than 15 minutes per examination.

- 4) The examination is passed if at least sufficient performance has been achieved in each examination part.

- 5) A certificate is to be issued on passing the examination, which must show the overall examination grade.

§ 6 Retests

- (1) An examination which was not passed can be repeated twice.
- (2) If the candidate has passed individual sections of the examination but has not performed at least adequately in sections in accordance with §3, the parts successfully passed must not be repeated on further application, provided that the candidate has filed for reassessment within two years from the date of the declared result of the failed examination. The assessment of the examination will be made with regard to this factor

§ 7 Application of other provisions

For all craft and non-craft occupations, the respective training examination regulations apply in their currently valid version.

5.5.2 | Evaluation in the Qualification Framework and international recognition

Qualification Framework “Baltic Sea Region”

As part of the project "Baltic Education" within the Leonardo da Vinci Programme of the European Union, a qualification framework for the Baltic Sea Region (hereinafter: BSR-QF) was developed. By means of the European Credit Transfer System for Vocational Education and Training (ECVET), this BSR-QF formed the basis for the assessment of two craft professions - carpenter and painter. ECVET is a system that allows knowledge, skills, and competences to be characterized by transferable and accumulative learning units and credit points to be assigned to learning outcomes. The BSR-QF and the applied ECVET procedure for the two professions formed the basis for the evaluation of the three continuing education programs developed within the framework of "Workplace Innovation".

EQF and BSR-QF – an introduction

The Maastricht Declaration of 2004, the Lisbon Strategy of 2000 as well as several other European Union initiatives, and in this context specifically dedicated funding to raise the geographical and labour market mobility and to promote lifelong learning, will yield increased employment and economic growth across EU countries. Rapid social, technological, and economic changes along with an aging society make lifelong learning a necessity. For that reason, education is a major component to meet and to achieve the ambitious Lisbon goals. Hence, the European Commission has induced to develop a European Qualifications Framework and to establish National Qualifications Frameworks (hereinafter: NQF) by 2010. The modelling of National Qualifications

Frameworks lies in the competence of national authorities, whereas the EU-Commission has recommended that the EU Member States implement NQFs. The European Qualifications Framework represents a meta-framework and is considered by the European Commission as crucial in meeting European objectives, set out in the Lisbon Strategy.

The main purpose of a qualifications framework is to improve transparency, quality and comparability of professional and academic qualification levels across differing education systems and European countries. The EQF itself does not constitute a formal recognition of occupational qualifications. A special feature of Europe is the enormous diversity of educational systems. A prerequisite to make this specificity an asset is to foster transparency.

Transparency can be considered as a fundamental prerequisite for the recognition of qualifications, and it improves comparability. Better comparability between countries is a decisive element to increase labour mobility and to ensure permeability of qualifications, whereby permeability constitutes a prerequisite for lifelong learning.

Soon, qualifications frameworks must meet these criteria with concrete and well-designed concepts. A qualifications framework is an appropriate tool for the development and for classifying qualifications. The European Qualifications Framework was adopted in November 2007.

Within the Baltic Education project, constructive and fruitful discussions at European and national level should be promoted through the Baltic Sea Region Qualifications Framework. This BSR-QF should be seen as a complement and contribution to the ongoing debate and not as a substitute for the design of national qualifications frameworks. The Baltic Education project has made a significant contribution to this strategy.

The Baltic Sea Region (BSR) is an area with a considerable number of different countries. These countries share common problems as they endeavour to cope with the same economic and demographic challenges and concerns. It is essential for this region to further develop vocational training, to improve quality and to establish

transparency and recognition models. To solve these complex issues, the BSR-QF provides an orientation, allowing for classifications across the whole qualification range and serving as a common ground for constructive discussions, conceptual considerations and individual progress.

The Baltic Sea Region Qualifications Framework

The BSR-QF comprises eight qualification levels that consider acquired skills from the European Higher Education Area (EHEA) plus vocational qualifications and competences.

This concept is consistent with the recommendations of the European Commission. Table 1 shows the elaborated proposal for the BSR-QF. The following presents a brief overview of the respective competence levels of the BSR-QF. The following section provides more detailed information on the methodology and descriptors that have been developed and used for the BSR-QF.

Competence level 1 – Basic education

Skills profiles to be reached at this stage are general basic training skills and they will not be counted to vocational training or academic education. Basic training is a prerequisite to gain access to higher qualification levels. The development of learning skills still requires resolute continued guided support. It is not possible to assign this skills level to a specific domain. Therefore, qualifications in this level are domain independent.

Competence level 2 – No vocational training

Level 2 comprises the first level of vocational training (VET area). Qualifications at this stage are not specifically pronounced since knowledge and skills are at an early stage of evolving. Methods and social skills are not yet domain specific. 1 to 2-year qualification programmes, training phases and vocational training preparation phases are covered by this stage.

Tab.1: Baltic Sea Region-Qualifications Framework

Level	Education Degree	Framework for Qualification of the VET* area and EHEA**
1	<i>Basic Education</i>	-
2	<i>No Vocational Graduation</i> graduation/training after/for 1-2 years, and work and apprenticeship preparation phase (at the age of 15/16)	First cycle VET area
3	<i>Lower Vocational Graduation</i> certificate of apprenticeship (in 2-4 years), and no/limited professional or experience (certificate of apprenticeship + <5 years of profession experience)	Second cycle VET area
4	<i>Middle Vocational Graduation</i> long profession experience as skilled worker (certificate of apprenticeship + ≥ 5 years of profession experience); comprehensive further education; “young master craftsman” with no/limited professional experiences (<3 years of profession experience)	Third cycle VET area
5	<i>Upper Vocational Graduation</i> master craftsman with long profession experiences as master (≥ 3 years); “master craftsman plus”; long profession experiences and further education (certificate of apprenticeship + ≥ 8 years of profession experience); introductory study period	Fourth cycle VET area and short cycle academic area
6	Bachelor (academic bachelor’s degree) and other similar qualifications and competences	Fifth cycle VET area and first cycle academic area
7	Master (academic master’s degree) and other high qualifications and competences	Sixth cycle VET area and second cycle academic area

Level	Education Degree	Framework for Qualification of the VET* area and EHEA**
8	PhD and other very high qualifications and competences	Seventh cycle VET area and third cycle academic area

Competence level 3 – Lower vocational training

Level 3 covers complete vocational training from a training period of 2 to 4 years. Access to the competence level of a lower vocational training is possible after completion of a secondary school or after reaching the competence level 2. This involves professional skills, equivalent with an expertise level of an initial vocational training. The graduate has no or limited work experience. Qualifications at this level include a broad general education and an initial job specific expertise. Therefore, only specific parts of a domain will be covered in this qualification level. Completion of the skill level 3 is a precondition for achieving the competence levels 4 and 5.

Competence level 4 – Intermediate vocational education

Compared to Level 3, this level specifies a higher degree of professional and technical expertise. Vocational training qualifications, extensive advanced training, “Young master craftsman”, and long work experience are covered by this stage. The level in this field is relatively high and all parts of a professional domain are covered. Level 4 qualifications indicate great job specific knowledge and skills. In this level, a person can be regarded as a specialist who has the knowledge and skills to solve problems relatively independently. Finally, achieving level 4 along with extensive advanced training, allows a limited number of candidates with ambitious and superb qualifications to access an academic bachelor level, without having previously obtained a general qualification for university entrance.

Competence level 5 – Higher vocational education

At this stage, candidates already have a formal vocational qualification as a master craftsman, including follow-up trainings; they have long professional experience and thus a high degree of technical expertise. Each part of a domain is covered at a high level, but without scientific expertise. Knowledge acquired by candidates at this competence level comprise autonomous learning, broad theoretical and practical knowledge. At this relatively high level of competence basic academic studies are touched upon. Completing of the competence level 5 with comprehensive, previous vocational education and further training (e.g., as “Master Craftsman Plus”) gives access to competence level 6, without having a general qualification for university entrance. It is possible to obtain credits for university entrance, based upon previously acquired knowledge (maximum 120 credit points). Nevertheless, persons who seek access to the bachelor level, have to pass an individual interview. Competence level 5 covers the short academic cycle with regard to the European Higher Education Area (EHEA). University students with circa 120 credit points are within competence level 5⁴⁴.

Competence level 6 – Bachelor and other comparable education and skills

Candidates within this qualification range have already completed the first cycle of the EHR and the 5th level of vocational training. The academic bachelor’s degree is obtained by students who usually scored 180-240 credit points⁴⁵. Level 6 qualifications feature advanced theoretical knowledge and skills. This also applies to individuals with completed vocational training and notably domain-oriented knowledge. Precondition for access to the competence level 6 is the general qualification for university entrance or similar sophisticated competences and skills within a domain-specific education. Completing the qualification levels 4 and 5 also opens up access to the competence level 6.

⁴⁴ cf. MINISTRY FOR SCIENCE, TECHNOLOGY, AND INNOVATION (Eds.) (2005): A Framework for Qualifications in the European Higher Education Area. Bologna Working Group on Qualifications Frameworks. Copenhagen.

⁴⁵ MINISTRY FOR SCIENCE, TECHNOLOGY, AND INNOVATION (Eds.) (2005): A Framework for Qualifications in the European Higher Education Area. Bologna Working Group on Qualifications Frameworks. Copenhagen.

Competence level 7 – Master and other higher qualification and skills

Having an outstanding domain-specific knowledge, candidates are at a significantly high level within this stage. They are highly qualified professionals, with advanced training and skills in a most deeply specific domain. Qualifications at this level include self-determined and theoretical learning. The master's degree is one of the conditions for reaching the third level of the academic cycle. Competence Level 7 is the second highest qualification of the EHR and the second highest level of the vocational training cycle.

Competence level 8 – PhD and other first-rate qualifications and skills

A PhD title is one of the highest academic degrees and it is the highest level within the EHR system. An academic person at this proficiency level is a professional and expert. Competence level 8 is the highest vocational training cycle to be reached by individuals. These persons have outstanding expertise and intellectual abilities in a most highly specific domain field. Persons at qualification level 8 have leadership skills and experience as well as potential for critical, methodical analyses, assessments, and presentations.

Methodology and Descriptors

The proficiency levels measure professional, personal skills, abilities, and competences within a specific domain. It is a method to classify and assess qualifications in levels. It is not the acquired diplomas but skills that are subject to assessment in levels. Qualifications are understood as a set of skills. A competence is defined as the ability to meet tough requirements in a specific context. Competent execution or effective actions involve the mobilization of expertise, cognitive and practical skills as well as social and behavioural components such as attitudes, emotions, values and motivations⁴⁶. Skills are more than school and work-related knowledge. It is therefore a consistent argument that (professional) skills comprehensively include social and personal competence. Skills, as they are set out in the BSR-QF, are not occupation-specific, but

⁴⁶ D. S. RYCHEN/L. H. SALGANIK (2003): Key Competencies for a Successful Life and a Well-Functioning Society. DeSeCo Project report Summary, OECD, Paris, p. 2

they are in fact aggregates⁴⁷. Hence, educational degrees were used in the project to describe, illustrate, and classify skills. This increases the legitimacy among stakeholders, builds on familiar ways of thinking and classification patterns and enables easy, transparent and unbureaucratic description and understanding.

Table 2 shows the descriptors for each skills level of the BSR-QF. The descriptors “expertise” and “competence” are equivalent to the descriptors in the EQF.

The Baltic Sea Region Qualification Framework contributes to the discussion and advisory debate on the development of the National Qualifications Framework. The design is consistent with the structures and methods of the European Commission⁴⁸. This BSR-QF contributes to the fostering of education and the economy of the Baltic States as it presents an instrument to reduce cross-border barriers, which limit the work-related mobility and productivity dependent thereon. Accordingly, the BSR-QF has been accepted by the members of the Hanse Parliament in the General Assembly on 8 November 2007 in Vilnius as a substantial support and development tool. In the further work of the present project, the BSR-QF ensures orientation for grading, structuring and evaluation of individual professions.

Tab. 2: Descriptors for competence levels 1-8 (Source: Own research)

Level	Expertise*	(Methodological) Competence*	(Formal) education degree	Framework for Qualification of the
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⁴⁷ cf. BUNDESINSTITUT FÜR BERUFSBILDUNG (BIBB) (Eds.) (2005): Fachlicher Prüfbericht zu den Grundbegriffen und Deskriptoren des Entwurfs für einen Europäischen Qualifikationsrahmen. Bonn; and Hanf, Georg und Volker Rein (2005): Towards a National Qualification Framework for Germany. Federal Institute for Vocational Education and Training (BIBB), Bonn.

⁴⁸ cf. EUROPÄISCHE KOMMISSION (EC) (2005): Towards a European Qualifications Framework for Lifelong Learning. Commission Staff Working Document, SEC (2005) 957, Brussels; EUROPEAN COMMISSION (EC) (2006): Implementing the Community Lisbon Programme. Proposal for a recommendation of the European Parliament and of the Council on the establishment of the European Qualifications Framework for lifelong learning. COM (2006) 479 final, 2006/0163 (COD), Brussels; and Ministry of Science, Technology and Innovation (Eds.) (2005): A Framework for Qualifications in the European Higher Education Area. Bologna Working Group on Qualifications Frameworks, Copenhagen.

				VET area and EHEA
	<i>In the BSR-QF, expertise is described as knowledge and skills (equivalent with EQF)</i>	<i>In the BSR-QF, competence describes the degree of responsibility and autonomy</i>	<i>The (Formal) education degree describes the degree which can be reached by an individual</i>	<i>The framework VET area and EHEA is a modified and extended EHEA framework</i>
1	Basic general Education: basic skills required to carry out simple tasks	Work under direct supervision in a structured context	—	—
2	Basic factual knowledge of a field of work or study; basic cognitive and practical skills required to use relevant information to carry out tasks and to solve routine problems using simple rules and tools	Work under direct supervision in a structured context with some autonomy	graduation/training after/for 1-2 years, and work and apprenticeship preparation phase (at the age of 15/16)	First cycle VET area
3	Knowledge of facts, principles, processes, and general concepts, in a domain; a range of cognitive and practical skills required to accomplish tasks	Take responsibility for completion of tasks in work; adapt own behaviour to circumstances in solving problems	Certificate of apprenticeship (in 2 - 4 years), and no/limited professional or experience (certificate of apprenticeship + < 5 years of profession experience)	Second cycle VET area

	and solve problems by selecting and applying basic methods, tools, materials and information			
4	Factual and theoretical knowledge in broad contexts within a domain; a range of cognitive and practical skills required to generate solution to specific problems in a domain	Exercise self-management within the guidelines of work contexts that are usually predictable, but are subject to change supervise the routine work of others, taking some responsibility for the evaluation and improvement of work activities	Long profession experience as skilled worker (certificate of apprenticeship + ≥ 5 years of profession experience); comprehensive further education; “young master craftsman” with no/limited professional experiences (< 3 years of profession experience)	Third cycle VET area
5	Comprehensive, specialised, factual and theoretical knowledge within a domain and an awareness of the boundaries of that knowledge; a comprehensive range of cognitive and practical skills required to develop creative	Exercise management and supervision in contexts of work or study activities with unpredictable change; review and develop performance of self and others	Master craftsman with long profession experiences as master (≥ 3 years); “master craftsman plus”; long profession experiences and further education (certificate of apprenticeship + ≥ 8 years of profession experience); introductory study period	Fourth cycle VET area and short cycle academic area

	solutions to abstract problems			
6	Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles; advanced skills, demonstrating mastery and innovation required to solve complex and unpredictable problems in a specialised domain	manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts take responsibility for managing professional development of individuals and groups	Bachelor (academic bachelor's degree) and other similar qualifications and competences	Fifth cycle VET area and first cycle academic area
7	Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking; critical awareness of knowledge issues in a field and at the interface between different fields; specialised problem-	manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams	Master (academic master's degree) and other high qualifications and competences	Sixth cycle VET area and second cycle academic area

	solving skills required in research and or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields			
8	Knowledge at the most advanced frontier of a field of work or study and at the interface between domains; the most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and or innovation and to extend and redefine existing knowledge or professional practice	demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research.	PhD and other very high qualifications and competences	Seventh cycle VET area and third cycle academic area

* European Commission (EC) (2006): Implementing the Community Lisbon Programme. Proposal for a recommendation of the European Parliament and of the

Council on the establishment of the European Qualifications Framework for lifelong learning. COM (2006) 479 final, 2006/0163 (COD), Brussels.

Structuring and evaluation

Introduction

The objective of the project “Baltic Education” was to develop, introduce and implement a system for mutual recognition of professional qualifications. This will be achieved by using the European Credit Transfer System of Vocational Education and Training (ECVET)⁴⁹. ECVET is a system that enables describing qualifications by transferable and accumulable learning units (in the form of knowledge, skills, and competence) and corresponding allocated credit units⁵⁰.

ECVET also perfectly complements the European Qualifications Framework.⁵¹ In its guidelines, the European Commission outlined the overall concept as follows:

- a) focus on learning outcomes expressed in terms of knowledge, skills, and competence.
- b) based on a process of qualification.
- c) adapted to the demands of lifelong learning and all learning contexts, on an equal footing.
- d) geared towards the mobility of people⁵².

⁴⁹ EUROPEAN COMMISSION (EC) (2006): European Credit System for Vocational Education and Training (ECVET). A system for the transfer, accumulation and recognition of learning outcomes in Europe. SEC (2006) 1431, Brussels, p. 3

⁵⁰ EUROPEAN COMMISSION (EC) (2006): European Credit System for Vocational Education and Training (ECVET). A system for the transfer, accumulation and recognition of learning outcomes in Europe. SEC (2006) 1431, Brussels, p. 3

⁵¹ cf. EUROPEAN COMMISSION (EC) (2006): Implementing the Community Lisbon Programme. Proposal for a recommendation of the European Parliament and of the Council on the establishment of the European Qualifications Framework for lifelong learning. COM (2006) 479 final, 2006/0163 (COD), Brussels.

⁵² EUROPEAN COMMISSION (EC) (2006): European Credit System for Vocational Education and Training (ECVET). A system for the transfer, accumulation and recognition of learning outcomes in Europe. SEC (2006) 1431, Brussels, p. 5

Further ECVET consultation guidelines and regulations specify:

- a) mobility of people undertaking training.
- b) validation of the outcomes of lifelong learning.
- c) transparency of qualifications.
- d) mutual trust and cooperation between vocational training and education providers in Europe⁵³.

The experience and methods of ECVET in the project “Baltic Education”, form the basis for the evaluation of the three advanced training programmes developed “Workplace Innovation”.

Structuring and evaluation of the advanced training courses

In the project “Innovative Entrepreneurs and Innovation Support for SMEs: Knowledge Alliance Human Resources and Organizational Development” three trainings for SMEs will be developed and implemented.

- Employees on the way to Co-entrepreneurs: Innovative Workplace – Satisfying Place to work
- Digitalization and Human Capital
- Innovation Process

The courses were structured in three main modules:

Module A: Workshop Knowledge sharing, basic issues of topics”

Module B: “Learning at the Workplace, self-study with individual Coaching and Project Work”

Module C: Workshop “Summarizing the projects, Analysing Project Work, Exchange of Experiences, Conclusion and Next Steps”

⁵³ EUROPEAN COMMISSION (EC) (2006): European Credit System for Vocational Education and Training (ECVET). A system for the transfer, accumulation and recognition of learning outcomes in Europe. SEC (2006) 1431, Brussels, p. 35

All three modules are classified as mandatory modules, in which knowledge and skills have to be acquired.

With regard to the assignment of the course in the BSR-QF, following classification was made:

- Minimum competence level 4 “Intermediate Vocational Education” and
- competence level 5 “Higher vocational education”, if participants have already acquired appropriate skills by other qualifications and professional activities and if they contribute them to the course.

In the evaluation of the entire course, according to the principle of “25 training hours = 1 credit point”, maximum 10 credit points are possible. By contrast, in the project, the assessment of individual course modules follows not the number of respective training sessions but by way of assessment of the significance and content of each course part by project partners and experts. In a second step, based on the individual assessments, a group assessment was performed, which has led to the following conclusions:

Table 3: Evaluation by credit points system

Course parts	Credit Points
Training module A: “Knowledge”	2,5
Training module B: „Self-study”	5,0
Training module C: „Reinforcement”	2,5
	10,0

International mutual recognition

Within the framework of the "Baltic Education“ project⁵⁴, a procedure for mutual international recognition of vocational education and further training qualifications was developed and agreed with all Baltic Sea countries. According to this agreement the

⁵⁴ Hanse Parlament: Baltic education

following procedure results for the recognition of the degrees of the trainings "Work-place Innovation".

- Lecturers/examiner rates the courses by assigning credit points.
- Mutual recognition of completion in these countries follows upon fulfilment of the following conditions:
 - a) The final exam was passed.
 - b) The evaluation of the course has yielded at least 8 credit points out of total 10 possible credit points (20% tolerance margin).
 - c) Skills were acquired in all three mandatory modules
- Where they do not yet exist, each of the future participants will receive an EU education passport in which the results are documented.

5.6 | Evaluation of the three Trainings⁵⁵

5.6.1 | Evaluation Concept

Introduction

Evaluating the training, teaching and learning has been an emerging issue in the 1980's when it was actively researched within several disciplines like education, pedagogics, psychology and organizational sciences. During the 1990's the enthusiasm flagged, but the interest woke up again in parallel with the waves of refugees and immigrants arriving to the Europe. The needs to include newcomers to the hosting society, to teach local culture, habits and language, and to train professional skills to comply with the local requirements have highlighted the importance of developing new teaching and training methods. These new methods and tools in teaching and training should

⁵⁵ Dr. Kari Lilja and Dr. Sirpa Sandelin, Satakunta University of Applied Sciences, Pori

be compatible with the requirements set by cultural diversity of both the refugees and immigrants, and the societies more or less voluntary receiving the incomers. This has during the past years been one of the trends that has powerfully conducted the development of both education and evaluation methods and processes.

Furthermore, during the past two decades the western countries have met - in addition to enormous flood of settlers - another phenomenon that challenges the education system: The post-war baby boom generation reaches age of retirement. This has two consequences, both requiring the answers from school systems. Firstly, the western countries should have a capability and capacity to educate and train more and more nursing personnel to cover both the vacuum left by those retiring, and to answer to the needs of ageing population. Secondly, these countries should be capable to renew their education systems to be able to satisfy the needs of business, to be able to train skilled labor and to be able to educate more persons that are both capable and willing to create their career as entrepreneurs and to continue the work of retiring entrepreneurs. If this fails, the consequences for European economy might be fatal or even disastrous.

This challenges not only schools and universities or teachers and trainees, but also those developing the courses and teaching and training methods used in the courses. Evaluating the learning of trainees, used methods and the impact of these methods on the learning would help teachers, designers and analysts to improve the methods.

The aims and targets of the evaluation are context dependent issues. Thus, in ideal world, the courses, the methods used in the courses and the means to evaluate the outcome of the course, the learning of trainees and the efficacy and success of the methods should be designed together so that the whole course is seen as main process inside which the training and evaluation are parallel subprocesses. This would be the best way to ensure that exactly those goals set to this unique program are measured during the evaluation. In this case, the education programs have been planned partially parallel with the planning of the evaluation.

Education Program

The three further vocational training courses (WP4) on the topics of

- Recruiting and binding personnel,
- Digitization and
- Customers and business partners as innovation drivers

for the target groups "Entrepreneurs, managers and specialists in SMEs" to impart skills and abilities in Workplace Innovations. The following should be achieved:

- a) Qualification of employees of SMEs to increase their capacities for Workplace Innovations.
- b) Development and implementation of Workplace Innovation projects in SMEs.
- c) More efficient use of the available human capital in SMEs have been developed to respond the challenges met by those aiming to strengthen the awareness and competences for target-oriented environmental policy and workplace innovations in SMEs via training and consulting the entrepreneurs and personnel of SMEs.

The planned duration of courses varies depending to the educational level and purposes. Each lesson lasts 45 minutes. Methods used in lessons will be lectures, teaching talks, working in small groups, case studies and examples from real world. Material used during the teaching consists of e.g. information material (basics & backgrounds, thematic introductions etc.), presentations, questionnaires, question guides, checklists, analysis results, good practice examples and so on.

Evaluation of courses including gained results and found problems is essential to be able to develop further the existing training and education programs as well as to consider the experiences gathered from these programs when building new curricula. The evaluation process of each course has been designed hand in hand with the course itself. This concept presents an overview of evaluation process and questionnaire.

When evaluating courses, the goals and real results should be compared. This is not always possible or fair and just. The evaluation should be targeted only to such measurable issues on which the designer, teacher, facilitator or student himself has an impact. Evaluating the impacts of training programs against the presented main goals would require large societal research including the recording of the initial situation

before starting the programs and the long-term follow-up research in which the conducted interventions and actions (In this case new forms of training and education) and their impacts on change of variables is followed. The final conclusions can be drawn just after some years or after decades. In this project this is not possible and the whole evaluation process must be rethought and simplified.

The most important variables, on point of view of achieving the goals set, are the motivation of student, the support he gets, the relevance of issues in curricula, the quality material and training and the ability of facilities to support training and learning. Although most of the variables presented above are so called soft variables, which can't be measured directly by targeting the measurement tool to some point or phase in the process, they can be assessed indirectly by assessing the feelings and comments of participants and other stakeholders.

The assessment of feelings and comments can be done with many alternative tools, e.g. surveys, interviews and follow-up studies in which a researcher follows lessons and training in practice and observes the students and teachers collecting comments and registering e.g. the atmosphere in the classrooms and during the training in the work-places.

In this case the experiences and comments of participants will be surveyed by simple questionnaire with questions approaching the common impressions, the applicability of facilities, the relevancy and importance of each issue and the experienced quality of each lesson and material used.

Evaluation concept

The objective of the evaluation is to determine whether the goals of the program will be achieved in the implementations evaluated, and how the program has impact on student's career and opportunities.

The type of the evaluation follows standard course evaluation methods, i.e. formative, process and outcome evaluation, the latter only partial:

- The formative evaluation will provide feedback to the curriculum designers, developers and implementers to ensure that designed and implemented

courses really meets the needs of the intended audience, i.e. assure or improve the quality of program. Formative evaluation and analyses will answer to the following questions:

- Were the goals and objectives suitable for the audience?
- Were the training methods and course materials appropriate for the audience?
- Should the program or some part of it be developed further and if, how?
- Furthermore, formative evaluation also provides information that benefits the development of the program, facilities and timing.
- The process evaluation will provide information concerning the training and lectures, like asked questions and verbal feedbacks.
- Process evaluation answers the question “What did you do?”
- It focuses on procedures and actions used to produce results.
- Process evaluation takes place during the training delivery and at the end of the training.
- The co-organizer (Responsible for the course)
 - monitors the training,
 - describes the training process as a whole and
 - records the findings into the written report.
- The outcome evaluation tries to find out how the knowledge, attitudes, and behaviors of the audience developed. It takes a long time to find out the outcomes of the education and training, so in this stage only the main topics participants are able to do at the end of training, will be assessed.

The evaluation process will be as follows:

1. Semi-structured questionnaires will be created for the participants (Appendix A): If needed, the topics (topic 1, topic 2...) are renamed to match to the parts of the course. It is also recommended that co-organizer (Responsible for the

course) writes the name of the evaluated course in the beginning of the questionnaire before printing it to make sure that the name is correct.

2. Time for the survey (approx. 15 minutes) will be allocated in the end of the course
3. In the beginning of the course the co-organizer (Responsible for the course) will inform participants about the evaluation and its importance for further development actions
4. The co-organizer (Responsible for the course) distributes the questionnaires to the participants to be filled in before leaving the course. The purposes of the questionnaire and how the data will be used should be explained clearly to the participants. This will help to improve the response rate and encourage them to make comments that can be useful to improve future programs.
5. The participants complete the questionnaires and return them to the co-organizer.
6. The co-organizer collects the questionnaires and deliver them to the evaluator.
7. The evaluator compiles all feedbacks and summarizes written analysis on the evaluations.

The evaluation approach will be based on a combination of qualitative and quantitative methods. The Microsoft Excel package will be used to transcribe the feedbacks and interviews. Open questions will be categorized, and qualitative analysis of the groups will be done.

The final evaluation report will discuss the following issues:

- Did the curriculum reach the targets?
- How well was the knowledge creation and sharing realized?
- Did the participants assimilate knowledge and tools?
- Was the venue and equipment appropriate for the training course?

- What kind of further development will be needed, if any?

Schedule of the evaluations

The schedule of the evaluation should be matched to the phases of the curriculum. There is no sense to evaluate the course before the students have a true and fair view of the course, its phases and contents. Thus, the survey will be conducted in the end of the course. A closer schedule of each evaluation will be agreed later.

The appendices that contain the questionnaires can be found on the project website www.ka4hr.eu.

5.6.2 | Evaluation Report⁵⁶

Training “Employees on the way to Co-entrepreneurs”

Results of the evaluation

Twelve companies applied to participate in the training, of which 8 companies were selected. The training included online workshop (two days), work-learning period of three months, and an online meeting for the presentation of the results of project learning in June 2021. Four of the companies participating the training managed to prepare projects for implementation. Due to the Covid19 pandemic, four of the companies postponed the possibility of implementing the ideas.

The aim of the training was to improve the individual efficiency of employees, raise and strengthen professional competences and to enable participants to find and develop innovative work practices.

The lecturers who conducted the workshops were experienced academic lecturers of the Faculty of Management and Economics of the Gdansk University of

⁵⁶ Dr. Kari Lilja and Dr. Sirpa Sandelin, Satakunta University of Applied Sciences, Pori

Technology, specializing, among others, in the field of company management, human capital management and entrepreneurship.

The participants of the training had the opportunity to test various tools that enable the creation and development of ideas and the involvement of employees into brainstorming and implementation of found ideas. The participants shared their doubts concerning, for example, how to learn and increase the involvement of young employees. They were offered various ways to support communication and interactions between generations as well as between different levels of the company structure. The need for communication support between employees in companies emerged during the workshops.

During the work-learning period, an employee of the Pomeranian Chamber of Handicrafts for SME was in regular contact with the companies and was supporting the process of creating the ideas. During several telephone meetings with representatives of companies participating in the workshops, the support person offered support in the further creation of ideas. The help was needed particularly in issues like

1. Identifying the challenges faced by the participants, that can be solved by the methods of work or tools proposed during the workshops
2. Recognizing the state of the company's current activities in the development of organizational culture or human resources.
3. Improving the degree of employee involvement in certain processes, and particularly in involving employees from various departments in solving problems in departments in which they do not work daily.
4. Discussing how to support innovative activities in the company by encouraging employee participation and customer involvement in the creation of the ideas.
5. Identifying specific ideas to be implemented.

The companies participated in the training belonged to various industries. They represented companies related to craft. Training participants had vocational or higher

education, both men and women aged 30 to 47. The industries included e.g., automotive, carpentry, photovoltaics, metal, and food industries.

According to the participants, the strengths of the training were the topicality and relevancy of the knowledge and inspiring examples, and particularly the practical approach. The facilitations of the classes and the topics of lectures were experienced being suitable for the participants.

As weaknesses of the training the participants had mentioned that it was not always possible to apply the presented solutions, and that some of the companies did not find the practical possibilities to implement the presented solutions in their own companies. Furthermore, certain parts of the given knowledge should be even more detailed.

In the concluding online meeting, there were only two companies that had the opportunity to present the results and to discuss about their projects and their implementation processes.

Conclusions and recommendations

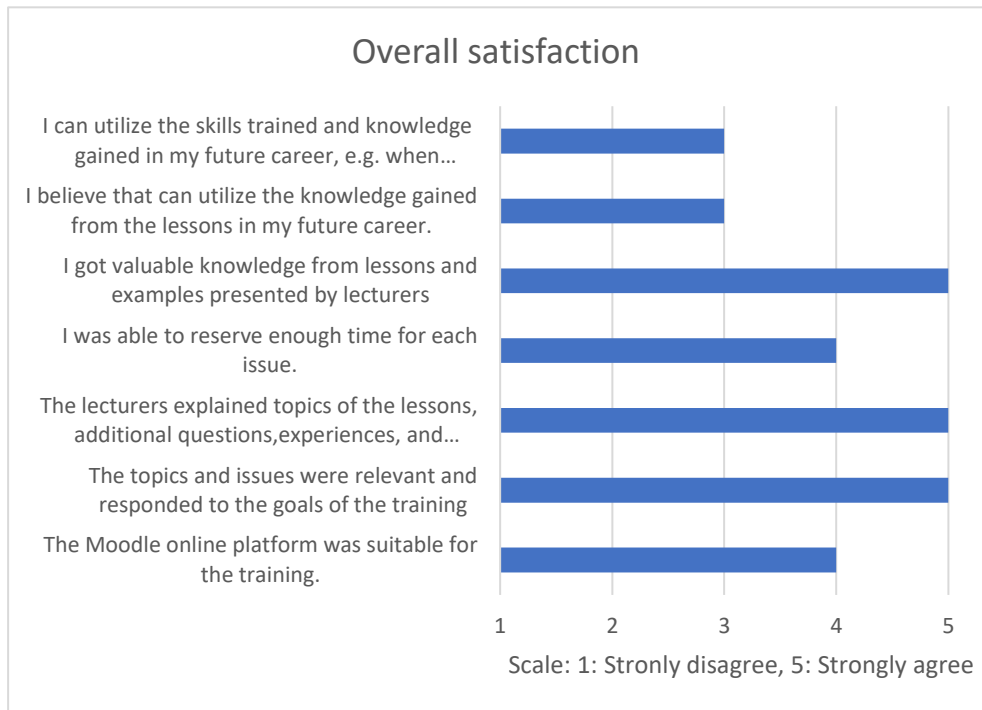
As a whole, the course seems to be well organized, and participants were satisfied with the facilitations. However, the weaknesses emerged during the course were in line with the experiences gained from the other courses with the same type of implementation (the modified KAIN-model). It is almost impossible for the designer of the curriculum or the facilitator of the course to foresee, what kind of solutions and tools will suit for each participant, if they do not know the companies and participants beforehand. Although it is recommended that a trainer should have wide variety of tools and methods to be presented and applied in the companies, the time available and real business life will set their own limits. It is not possible nor reasonable to use all the time to present many kinds of different tools. Thus, the more recommendable solution to this is to pay more attention to the individual needs of each participant. This would mean, that during the workshop, the common principles of e.g., innovation, problem solving, and brain storming would be dealt. In the beginning of the project learning phase, the individual needs, limits, and possibilities of each participant would be

evaluated, and suitable tools presented. This, however, would require more professional lecturers during the work-based learning phase.

Training Digitalization and Human Capital

Results of the evaluation

The participant experienced, that topics of the course were relevant and in line with the goals of the training, the lecturers explained the issues well and information given was valuable for him. However, he was quite satisfied with the Moodle platform and his own capability to reserve time enough. However, he was slightly sceptic concerning the benefits the course could provide for his career.



The participant seems to be very satisfied with the topics, and only Introduction got slightly worse scores.

In the free speech comments, the active teachers were appreciated, but the lack of the active participants was mentioned as a negative issue:

1. What was good? Teachers were active and brought up various point of views in each topic

2. What could have been done better? There should have been more participants

3. Would you recommend the course to someone you know? If not, why? Yes, if there were more participants.

4. Was anything missing that you might need in your future profession / occupation / job? No Comment.

5. Was the proportion of topics and issues inside each topic suitable or should some-thing be increased /decreased? No Comment.

6. Other comments? Special thanks to Dr Kari Lilja for good tips concerning the building of ICT -Strategy of company.

Teachers' feedback

Teachers expected that there would be eight active students, thus, discussing with only one person without getting any reflection from the others was not the best pedagogic situation, although this active participant was very competent and active, and had challenging questions.

Conclusions

The Covid19 epidemic forced the partner responsible for the course to redesign the course into online-format. This gave an opportunity to test, how on-line teaching and KAIN- model would work together. It was found out, that even if there is no reason why online-methods would not work with KAIN, the positive impact of team spirit to the learning was not gained. However, this was a very strange situation caused by COVID-19 epidemic and employment situation disturbed by country-wide restrictions. Thus, it is recommended to redesign the online course considering the experiences gained during this course and retest the "Online KAIN-Model". Particularly the

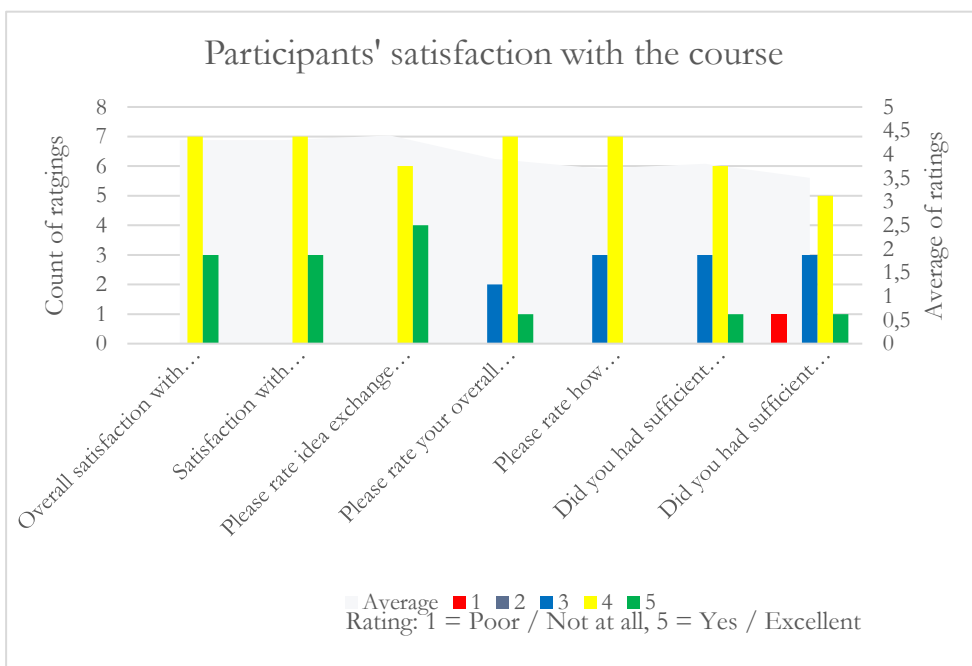
support during the practicing period should be partially personal, face to face and on the floor i.e. so called hybrid model should be applied.

Concerning the Moodle learning platform and other technical environments, it would be a could idea to allocate more time for those who have not used system before to get familiar with the system.

Training Workplace Innovation

Results of the evaluation

According to the implementation report, 12 companies participated to the training. According to the graphs provided by Google Forms, each question was answered by 10 respondents. The respond rate was 83 %.



The satisfaction with the information given and the idea exchange during the course was rated between very good and excellence. Average of the ratings in the three

questions approaching these issues was close to the 4,5 (Figure 1). The next three questions concerning the average satisfaction with the course, the workplace innovation project and support given by the management of the company to the innovation project gained slightly lower ratings: The average of the ratings was close to the 4. The satisfaction with the support given to implementing of the innovation was lowest out of these 5 issues: The average was 3,5.

Conclusions and recommendations

As a whole, the course seems to be well organized, and participants were satisfied with the facilitations. However, although the differences were minor, there is one issue, that is worth noticing: Three of four questions having lower ratings, concerned to support in a way or another. Particularly the question 7, “Did you had sufficient support and co-workers support implementing workplace innovation,” is remarkable. Unfortunately, this question seems to combine the support given by co-workers to the support given by others (By whom? By managers? By trainers?), thus, although it is evident, that trainees felt that more support would have welcome, it is impossible to have further and closer conclusions concerning this issue.

It is recommended, that in future training programs the need for support should be considered. The importance of innovations should be highlighted in the discussions with management as well as with coworkers, and more resources to support trainees should be allocated to trainers.

6 | Higher education and R&D

6.1 | Module handbook „Human Resources and Business Administration"⁵⁸

Introduction

To remain competitive in the long term, SMEs in the Baltic Sea Region have to strength their innovation capacity and the gap between qualification requirements and demands needs to be reduced. Hence, the project KAforHR – Innovative Business Transfer Models for Small and Medium-Sized Enterprises in the Baltic Sea Region focuses on the comprehensive promotion of Workplace Innovations through development and testing the SMEs specific tools (best practices' learning) and education activities. Human capital is the most important resource for enhancing innovation and productivity. Most companies succeed because of “the right people with the right competences at the right workplace” – which makes human resources management a critical function in all organisations regardless of size, type or sector. In addition, the tendency of population ageing and increasing life expectancy in the project region must be considered to create age-appropriate working conditions and to promote the work ability of employees. A human resources executive is typically required to have at least a bachelor's degree. The Society for Human Resource Management (SHRM) recommends a liberal arts undergraduate degree or a degree that includes business, math, economics and behavioural and social sciences. However, relevant work experience is the most important qualification.

Thereof, the aim of handbook is to provide a concept of bachelor level dual study programme having focus on the work-based learning and its curriculum on the fundamental and topical issues related to the management of business processes and human

⁵⁸ Denize Ponomarjova and Dr. Romans Putans, University of Latvia, Riga

resources with a focus on workplace innovation, leadership skills development and practical experience acquiring.

The concept of the dual bachelor's degree programme "Human Resources and Business Administration" is elaborated following the experience of well-developed German dual studies system⁵⁹, integrating work-based and university-learning to prepare students for a successful transition to a full-time employment. It foresees that the dual studies go way beyond the academic or practical importance and involve the contracting relationships in-between certain companies and the students they employ through a study contract over a period of time.

As there is no specific legal regulation on dual studies in Latvia, nor available examples of the dual study programmes at the institutions of higher education, the proposed concept and curriculum of the "Human Resources and Business Administration" is developed within the existing legal framework – i.e. under the regulation of professional bachelor study programmes in order to achieve the combination of equal proportion of work-based and university-based learning, maximum approximate to German practice.

For implementation of the dual study concept "Human Resources and Business Administration" in other European universities, including project region (Germany, Poland and Finland), the programme's concept should be adjusted and adapted to their national regulation and specific requirements of higher education institutions.

The practical learning - in the form of educational practice (e.g., business plan development, pitching of business idea, etc. that is taking place at the institution of higher education) or work-based learning in the company – is foreseen at the end of 1st, 2nd, 3rd and 4th years of studies in order to ensure parallel a theoretical studying at the institution of higher education and working at the enterprise.

⁵⁹ <https://www.studying-in-germany.org/dual-studies-germany/>

The working and studying form can also be organised based on the model that is common in Germany – 3 or 4 working days students are working in the company and 1 or 2 days studying at the university.

General provisions

Format of the study programme

- Professional study programme
- Full-time studies – 4 years (8 semesters)
- 240 ECTS (30 ECTS per semester)
- Degree upon completion: Professional bachelor's degree in business administration
- The entire course of study comprises 7457 teaching hours at the university and additional training periods in the company, project work and self-study.
- The entire study programme period ideally covers 50% in the university and 50% in the company, however, is currently limited to (lack of) legal regulation and recognition of company-based work-study time.

The study results and student's working time is measured by credit points (ECTS). The 1-week full-time study workload is equal to 40 academic hours and corresponds to 1,5 ECTS. Whereas one work-based learning week covers 40 astronomical hours equal to 53,3 academic hours and corresponds to 1 ECTS.

The volume of the bachelor's programme is at least 240 ECTS, with at least such ECTS distribution:

- 30 ECTS – general courses
- 54 ECTS – industry theory courses
- 90 ECTS – specialization courses
- 9 ECTS – optional courses
- 30 ECTS – practice

- 18 ECTS – bachelor thesis and defence

Total: 231 ECTS. The rest (9 ECTS) to be added by program`s consideration.

Aim of the study program

To prepare professionally qualified, creative and competitive specialists (senior specialists, executives) in the field of business administration with the focus on human resource management in accordance with the labour market demand and challenges as well as SMEs specific needs.

Tasks of the study program

1. To provide students with knowledge and ensure the development of practical and theoretical skills and competences in the understanding, analysis, application, management, and leadership-competences of human resources and business administration.

2. To balance the knowledge of theories and modern development tendencies with the analysis and solution of situations based on practical business problems in work-based study process.

3. Purposefully ensure a high-quality, high-value and innovative study process, using best practices in higher education in an international context, including the study process infrastructure (e-environment, library, multimedia equipment, etc.) and process organization (strong cooperation with the labour market, other enterprises and business organisations like Employer Associations and Trade Unions, Social Security Institutions etc., practical projects, simulations etc.).

4. Consciously implement modern and non-traditional methods of knowledge transfer and co-creation, as well as skills development, promoting students' interest in the topics of the study programme and motivation to use them in practice.

5. To maintain and develop the extra-class activities and cooperation of the study programme in the business, public administration, and academic context.

6. To ensure continuous quality monitoring and updating of the study programme in cooperation with entrepreneurs and representatives of professional organizations in the business sector.

Planned study results

Knowledge

1. Ability to demonstrate specialized knowledge business administration with the focus in human resources management.
2. Ability to demonstrate the critical understanding and awareness of concepts and causes & effects in the fields of business administration and human resources.
3. Proficiency to demonstrate in-depth theoretical and practical knowledge of theory, analysis methods and tools in business administration and human resources management.
4. Awareness of the necessity of development of knowledge and skills, and the need for self-growth in the practical application of the knowledge of business administration and human resources.
5. Knowledge about strategies and measures to create human centred workplace innovations.
6. Knowledge about changes in the motivations for work in different phases of life and the possibilities for shaping career paths appropriate to the individual life-course.
7. Knowledge of the variables influencing work capacity / work ability and the relationship between work, ageing, health and well-being.

Skills

1. Professional capacity to identify trends and find creative solutions using a scientific approach to the changing problematics of business administration and human resources management.
2. Professional capacity to identify trends and find creative solutions using scientific approaches and assured ergonomic findings to the changing problematics of business administration and human resource management.

3. Can independently and analytically gather information from various sources, critically evaluate it and present it correctly to both, professionals and non-professional on the respective study fields.

4. Ability to formulate information in a structured analytical and concise way verbally and in writing, to express opinion and arguments precisely and to discuss the general and specialized aspects of business administration and human resource management.

5. Aptitude to use appropriate practical and theoretical knowledge and skills in professional business administration and human resources management and research (scientific) work, being aware of the impact of planned and applied activities on the environment, economics, employees and society.

Competences

- Proficiency to plan business processes and resources, including time, work, staff, talent, finance, infrastructure etc.
- Capability to participate in the development of business administration and human resources management in a global business environment, offering innovative solutions to sectoral problems.
- Aptitude to demonstrate an understanding and application of professional ethics and culture, including intercultural awareness and respect.
- Aptitude to demonstrate an understanding and application of professional ethics and culture, including intercultural, intergenerational, inter-gender (= inclusive diversity) awareness and respect.

The complete study programme and module manual "Human Resources and Business Administration" with structure of the programme, timetable of the study programme, description of the study courses and all study modules can be found on the project website <https://ka4hr.eu/>.

National Legal framework in the KAforHR region

Latvia

Currently there are 27 higher educational institutions in Latvia (universities, higher education schools, academies) which are running academic and professional bachelor's or master's study programmes. In professional higher education studies, not only a degree but also a professional qualification is obtained. Doctoral studies in Latvia are only academic, and they are considered to be both the highest level of education and the beginning of scientific work.

Whereas the college-level studies are classified as first-level professional higher education programmes and are usually acquired in colleges, but higher education institutions can also implement college-level programmes. Graduates of the first-level programmes can continue their studies in related second-level professional programmes or professional bachelor programmes.⁶⁰

Despite the fact that the approach of work-based learning is considered of a high importance in Latvian education system, there are no yet implemented dual study programmes at the level of higher education, nor specific (separate) regulation for this kind of programmes is available. Also, the term “work-based learning” is more common than the “dual study programme” or “dual education” in Latvia.

So far, most of the attention for work-based learning has been given within the vocational education (VET) – some pilot projects were used to introduce the work-based learning approach, financed from the EU funds (Erasmus+ projects, European Social Fund) or national programmes⁶¹. And, only few activities of work-based learning have been observed within the higher education – development of the concept for dual study programme “HR and Business Administration” and courses’ testing as well as the implementation of training project in the wood sector by using the work-based learning approach (Latvian Agriculture University).⁶²

⁶⁰ <https://www.latvijaskvalifikacijas.lv/en/educational-system/>

⁶¹ For example, in 2017, the employers' confederation of Latvia launched a seven-year national ESF project to improve working-based learning provision (to finance the scholarship of students working in the enterprise).

⁶² <https://www.izm.gov.lv/lv/darba-vide-balstibas-macibas>

Two important corner stones in the introduction of work-based learning approach in the vocational education:

In 2013, a Declaration of Intent on Latvian and German Cooperation in Vocational Training signed between the Minister of Education and Science of Latvia and the German Ambassador in Latvia were signed, after which a number of education projects and measures have been implemented with the support of the German-Baltic Chamber of Commerce to test the new approach and develop it further.

In 2016, Cabinet of Ministers adopted a Regulation No. 484 “Procedures by which Work-based Learning is Organised and Implemented”⁶³ as a part of professional education, where procedures and tasks of the involved parties (educational institution, enterprise, sectoral expert council) are defined.

Considering a lack of the separate regulation for dual education in Latvia, the proposed concept and curriculum of the “Human Resources and Business Administration” is developed within the existing legal framework – i.e., under the regulation of professional bachelor study programmes to achieve the combination of equal proportion of work-based and university-based learning, maximum approximate to German practice.

Academic and professional study programmes at the higher educational level are prepared and implemented in accordance with the standard of Latvian educational system which is regulated by the several legal acts:

1. Law on Higher Education Institutions, issued by the Cabinet of Ministers of the Republic of Latvia in 1995 (2 November 1995).

2. Regulations No. 512 “Regulations on the second level professional higher education state standard” issued by the Cabinet of Ministers of the Republic of Latvia (26 August 2014, protocol No. 45 § 31, (in accordance with Section 14, Paragraph 19 of the Education Law).
3. Cabinet of Ministers Regulations No 240 "Regulations on the state academic education standard" (13 May 2014).

⁶³ <https://likumi.lv/ta/id/283680-kartiba-kada-organize-un-isteno-darba-vide-balstitas-macibas>

Latvia is using a national credit point system in higher education. One Latvian national credit point is accounting unit of studies which corresponds to a student's workload of 40 academic hours (one week of studies). The average full-time workload of an academic year in most higher education programmes corresponds to 40 credit points. The Latvian credit point system is compatible with ECTS (according to the Law on HEI):

- 1 credit point = 1,5 ECTS = 1-week full-time study workload
- 1 academic year = 60 ECTS = 40 Latvian credit points
- academic hour - a unit of work time for studies lasting 45 minutes
- full-time studies - a type of study which corresponds to 40 credit points (60 ECTS) per academic year and not less than 40 academic hours per week

Section 57 (1), (2) of the HEI Law is also determining the length of studies. The duration of a full-time bachelor's degree study programme shall be three to four years, whereas a higher vocational (professional) education bachelor's degree shall be awarded if the duration of a programme of full-time studies is at least four years. More detailed information is given below.

The main requirements for the aim and content of the bachelor programme, that are determined by the Regulations No. 512 of the Cabinet of Ministers of the Republic of Latvia (26 Augusts 2014), are given below⁶⁴ (the MAIN POINTS):

The second level professional higher education and the fifth level professional qualification shall be acquired by acquiring the following second level professional study programs (hereinafter - the program):

- Professional bachelor study programs (hereinafter - bachelor program).
- The strategic goal of the programs is to provide professional studies corresponding to economic, cultural, national defence and security, as well as social

⁶⁴ <https://likumi.lv/ta/id/268761-noteikumi-par-otra-limena-profesionalas-augstakas-izglitiba-valsts-standartu>

needs, based on the theoretical foundations of industry, professional standards (if approved by the Vocational Education and Employment Tripartite Cooperation Sub-Council) and applicable in practice.

- The main tasks of the programs are:
 - to educate students, ensuring the acquisition of the 5th level professional qualification, as well as to promote their competitiveness in the changing socio-economic conditions and in the international labour market;
 - to ensure the achievement of study results (knowledge, skills and competence) in accordance with the knowledge, skills and competence of the 6th or 7th level of the European Qualifications Framework (hereinafter - the Framework) specified in the Latvian education classification.
- The specific goals and tasks of the programme shall be determined in accordance with the strategic goal and main tasks in cooperation with specialists and employers of the relevant field. III. Compulsory content of the bachelor's program
- The content of the bachelor's programme provides a set of knowledge, skills and competence in accordance with the knowledge, skills and competence of the 6th level of the framework specified in the Latvian education classification.
- The volume of the bachelor's programme is at least 160 credit points (240 ECTS). At least such ECTS distribution:
 - 30 ECTS – general courses (point 11.1.)
 - 54 ECTS – industry theory courses (point 11.2.)
 - 90 ECTS – specialization courses (point 11.3.)
 - 9 ECTS – optional courses (point 11.4)
 - 30 ECTS – practice (point 11.5)
 - 18 ECTS – bachelor thesis and defence (point 11.6)

- Total: 231 ECTS. The rest (9 ECTS) to be added by program`s consideration.
- Not less than 40 % of the volume of the bachelor's programme (except for the volume intended for practice and development of a bachelor's thesis or diploma thesis (diploma project)) in full-time studies.
- The compulsory structure of the Bachelor's programme consists of:
 - study courses;
 - practice;
 - a state examination, a part of which is the elaboration and defence of a bachelor's thesis or diploma thesis (diploma project).
- The compulsory content of the Bachelor's programme consists of:
 - general education study courses in the amount of at least 20 credit points (30 ECTS) - study courses in humanities and social sciences, including study courses that develop basic social, communication and organizational skills. The study courses include a module for the development of business professional competence (innovation, organization and establishment of companies, management methods, basics of business economics, project development and management, record keeping and financial accounting system, knowledge of labour law regulation, including social dialogue in society, also knowledge of other innovations in business or institution management. The module is implemented using mainly competence training, business games and similar practical methods). The module in the amount of at least six credit points is included in all bachelor's programs, if it is not included in the theoretical basic courses of the bachelor's programme field (field of professional activity). The student acquires the module, if it has not been acquired in the previous professional study program;
 - industry (professional field) theoretical basic courses and information technology courses in the amount of at least 36 credit points (54 ECTS).

- industry (areas of professional activity) professional specialization courses in the amount of at least 60 credit points (90 ECTS).
 - optional part courses in the amount of at least six credit points (9 ECTS).
 - practice in the amount of at least 20 credit points (30 ECTS).
 - a state examination, a part of which is the development and defence of a bachelor's thesis or diploma thesis (diploma project), in the amount of at least 12 credit points (18 ECTS).
- In addition to the conditions referred to in Paragraph 11 of these Regulations, the bachelor's programme shall also include the content requirements for study courses specified in the Environmental Protection Law and the Civil Protection Law.
 - The choice of study courses of the bachelor's program, the amount and content of study courses, as well as the content of practice in accordance with the acquired professional degree and professional qualification shall be determined in accordance with the professional standard (if approved by the Vocational Education and Employment Tripartite Cooperation Sub-Council).
 - During the acquisition of the bachelor's program, the student develops and defends at least three study papers.
 - The practice shall be implemented in accordance with the practice agreement regarding the provision of the practice place or in accordance with the decision of the higher education institution regarding the provision of the practice place in the higher education institution itself. The university concludes the practice agreement with the employer. The practice agreement or the decision of the higher education institution on the provision of practice places shall include the practice goals, tasks, practice course planning, practice achievement evaluation procedure, as well as the duties and responsibilities of the parties. The student achieves the goal of the practice based on the acquired knowledge, skills, competence and previous work experience. When determining the goals and tasks of the practice, the content of the practice also includes the student's

acquaintance with the management structure and operating principles of the relevant practice organization. Representatives of the organizations with which an agreement on the implementation of the practice has been concluded participate in the determination of the goals and tasks of the practice, as well as in the evaluation of the practice. The higher education institution can also implement a certain part of the practice at the initial stage of studies to form and strengthen the students' idea of the profession to be acquired.

- If students with previously obtained first level professional higher education are imatriculated in the bachelor's program, then the content and scope of the bachelor's program, as well as the content and scope of the study courses shall be mutually coordinated. The corresponding credit points obtained in the first level professional higher education programs are included in the amount of the bachelor's program.
- After the acquisition of a bachelor's program, a professional bachelor's degree in the field (in the field of professional activity) and a fifth level professional qualification shall be granted.
- A professional bachelor's degree gives the right, continuing the admission requirements in the relevant master's program, to continue education in the academic master's study programme or master's program.

Germany

Dual study programmes are very popular in Germany due to their practical orientation. Most providers of the dual study courses are universities of applied sciences: 64% of the education providers fall into this category, 23% are academies, 7% universities and dual universities of applied sciences make up a comparatively small proportion of dual study providers (6%).

Since 2004, the number of dual study programs has more than tripled from about 500 to 1,662 entries (2019) and the number of students undergoing initial training have increased from 40 982 in 2004 to 108 202 in 2019, according to the AusbildungPlus

database. In 2019, the universities indicated that they would cooperate with ~51 000 practice partners (enterprises).

Analysing the distribution of the dual study programmes by the various faculties and courses of study it appears that the greatest choice is in the economics and engineering – 48% of the dual study programs offered by universities and academies and 59% of those offered by companies are in the Business Administration, Finance & Management Faculty. The figure for the Engineering & Technology Faculty is lower, it is offered by 39% of the education providers and 38% of the companies. The other faculties account for only a comparatively small portion of the study programs on offer.

The main identified trends of the overall development of dual courses of study in the initial training are the following:

- In the period from 2011 to 2019, the overall growth is observed. Thus, the dual study program is establishing itself as a study profile.
- The dual study programmes are consolidating as an independent educational path; especially in the context of the new State Treaty on Accreditation of Studies, where clarifying definitional statements on dual study programs were made.
- The focus of the dual study programmes is further shifting towards the practice-integrating study programmes. The share of this format is 50,5% compared to 34,9% of the training-integrating format.
- The offered dual study programmes continue to differentiate their format, i.e. the combination of practical work experience and higher education, as well as the time and organizational study models. The number of mixed forms of study, i.e., study programs that cannot be clearly assigned to the categories of training or practice-oriented, is now 14,6% (2016: 13,9%).
- Starting from the vocational education and training, new offers are being developed to coordinate vocational and university education, such as the approach of study-integrated training, which is being implemented at the Hamburg University of Cooperative Education and in North Rhine-Westphalia.

Dual formats are also being used in study and career orientation, as the example of "Interlocking orientation offerings for vocational and academic training" (VerOnika) shows.

In the German Qualification Framework (DQR), the qualifications are divided into: Specialist skills; Knowledge; Abilities; Personal skills; Social skills and Autonomy. The DQR Level 6 that applies for the bachelor's degree and the master's certificate describes the skills required for planning, implementation, and evaluation of comprehensive specialist tasks and for the independent control of process in subsection of an academic field or in a vocational field. The complex structure of the requirements is subject to frequent changes.

The legal requirements for admission to a bachelor's degree course in Lower Saxony is defined as follows in the state higher education act (Article 18 NHG) [12]

- The general higher education entrance qualification,
- The higher education entrance qualification for a special field, and
- The entrance qualification for a university of applied science.
- A Master's certificate or Technician's certificate, or
- The completion of at least a three-year vocational training course in a relevant field with at least three years occupational experience (see the Admission and Matriculation Regulations (ZIO)).

Further requirement is – the conclusion of a contract with a practical partner recognised by the university by the start of the first practical phase.

Dual study programs are offered in Germany by

a) Berufsakademien: They offer practice-oriented courses of study, but only bachelor's courses of study, Master's courses of study are not possible.

b) Universities of applied sciences. They offer Bachelor and Master programs.

c) Universities: They offer bachelor's and master's programs as well as doctoral programs.

Dual study programs combine learning at the university with learning in the company. About half of the time is spent at the university and half at the company.

A minimum of 180 credit points is required for the bachelor's examination, of which 30 CP can be earned while learning in a company. The bachelor's degree is equivalent to the "normal" bachelor's degree without any restrictions; it also entitles the holder to study for a master's degree.

There are various forms of dual study programs, including combinations with vocational training and / or further education, for example:

- Learning in the university and in the company, but no combination with vocational training and / or further education, only bachelor's degree.
- Learning in the university and in the company, simultaneous completion of a vocational training in the first two years, qualification as journeyman / skilled worker and bachelor's degree.
- Learning in the university and in the company, simultaneous completion of a vocational master craftsman or technician training, bachelor's degree, and vocational master craftsman / technician.

In case of a combination with vocational training and/or further education, the study is usually 1/2 to 1 year longer. Dual courses of studies can be carried out like "normal" courses of studies in semester form. So that the 50% time of learning in the enterprise does not lead to an extension of the entire study, the study enterprise runs the entire year (also with private universities) and there are only 4 weeks' vacation in the year.

The change between studying at the university and in the company can be done alternatively:

- a) in a block system (e.g., alternating 3 - 4-month long blocks in the university and in the company).
- b) weekly change, e.g., every week from Monday to Wednesday or Thursday in the company and Thursday to Saturday in the university.

In the case of dual courses of study, student concludes a work or training contract with the company and a training contract with the university. The student has the status of a permanent employee or trainee in the company, receives remuneration from the company and is fully insured like any other employee.

In addition, dual courses of study are fully subject to the legal national rules and regulations of the Bologna process, as are all other courses of study.

Key points are:

- a) Prerequisites: A-levels or permission to study at a college/university
- b) Total duration: 3 – maximal 4 years
- c) Structure:
 - 1st- and 2nd-year vocational training in the company and in the vocational school as well as studies at the university or college.
 - After the 2nd year of final examination vocational training (journeyman or skilled worker).
 - 3rd- and 4th-year university or college studies and learning or work in a company.
 - After the 3rd or maximal 4 years Bachelor exam.
- d) Learning venues of the Competence Center: College or University, vocational school, and companies
- e) Distribution of training time: 50% in the company and 50% college or university

Finland

In Finland it is common to take a baccalaureate and vocational examination at the same time. Some students, who already have vocational qualification continue their studies at higher education institutions, but they have to complete the whole studies

required for example for bachelor's degree.⁶⁵ Some bachelor's degrees require training in practice in their curricula. For example, some construction engineering programmes, and nursing programmes contain practicing periods up to 50%.

The Finnish higher education system consists of universities and universities of applied sciences. Higher education institutions are autonomous actors that are responsible for the content of their education and research as well as the development of their own activities (Ministry of Education and Culture, 2020a).

The Ministry of Education and Culture as part of the Government steers and finances the activities of higher education institutions. Targets for development are based on the Government Programme and the Government Action Plan as well as other strategic objectives set by the Parliament and Government for higher education institutions (Ministry of Education and Culture, 2020a).

The objective of Finland's higher education policy is to develop higher education institutions as an internationally competitive entity where each institution also flexibly responds to regional needs (Ministry of Education and Culture, 2020a).

The activities of universities and universities of applied sciences promote Finnish competitiveness, well-being, education and learning as well as sustainable development.

The objective is to establish a higher education system that is of a higher standard and more international as well as more influential and effective than at present.

The higher education system consists of universities and universities of applied sciences of high standards, each profiled in their core areas. Profiled higher education institutions create clearer and deeper cooperation and division of responsibilities among themselves and with research institutes in the areas of education, research, support services, structures, and infrastructures.

The higher education institutions exercise foresight and help regenerate society, culture and working life and make sure the required highly educate workforce is available.

⁶⁵ <https://minedu.fi/documents/1410845/15514014/Education+system+in+Finland/7c5a920b-47a5-c3ce-cbca-818ff3a5f848/Education+system+in+Finland.pdf>

Being international and attractive learning and research environments, the higher education institutions work to develop their activities.

The higher education institutions aim to improve the quality of education by re-vamping education content, teaching methods, learning environments and the competence of teachers, as well as to increase cooperation. The institutions make full use of the possibilities offered by digitalisation. They develop their student admissions, procedures for the recognition of prior learning and degree programmes in order to step up national and international mobility. Another aim for the higher education institutions is to wind down the use of bridge programmes so that mobility between degrees can be made easier (Ministry of Education and Culture, 2020a).

Other objectives include ensuring that higher education institutions make wider use of secondary education qualifications in their student admissions and no longer organise entrance examinations that require sustained preparation. To accelerate transition to higher education studies, cooperation with secondary education providers will be improved. To enhance admission procedures, cooperation between different scientific fields will be carried out. The percentage of students studying towards their first higher education degree among new student admissions will be raised by reserving more places for first-time applicants and updating the admissions procedures for transfer students. (Ministry of Education and Culture, 2020a)

The higher education institutions must support equal opportunities and encourage students to graduate within the normative period at all degree levels. The institutions will provide more flexibility in studies and improve the recognition of prior learning. Student guidance will become more versatile and cooperation with working life will be closer. Effective career and recruitment services make it easier to graduate quickly and find a job. The institutions will also introduce national career monitoring (Ministry of Education and Culture, 2020a).

To meet the new challenges facing society, the institutions assume responsibility for identifying the competence and educational needs of immigrants and improving their potential for accessing the labour market. (Ministry of Education and Culture, 2020a).

The Finnish higher education system consists of universities and universities of applied sciences. A total of 13 universities and 22 universities of applied sciences operates in the Ministry of Education and Culture's administrative branch (Ministry of Education and Culture, 2020b).

The mission of universities is to conduct scientific research and provide education based on it. Universities of applied sciences (UAS) provide more practical education that aims to respond to the needs of the labour market (Ministry of Education and Culture, 2020c).

Universities, offering higher scientific and artistic education, award bachelor's and master's degrees as well as postgraduate degrees, i.e., licentiate and doctoral degrees. Universities of applied sciences award UAS Bachelor's degrees and UAS Master's degrees (Ministry of Education and Culture, 2020c).

The target completion time for a bachelor's degree at a university is three years and for a master's degree two years on top of that. The completion of a UAS degree takes usually between 3.5 and 4.5 years. The requirement for master's studies at a university of applied sciences is a UAS Bachelors' degree or another suitable degree and at least two years of work experience after the completion of the previous degree (Ministry of Education and Culture, 2020c).

In Finland the higher education is regulated by numerous acts and decrees. Some examples and the links to the database is given here:

- Universities Act 558/2009 (Ministry of Education and Culture, 2009)
- Universities of Applied Sciences Act 932/2014 (Ministry of Education and Culture, 2014)
- Valtioneuvoston asetus ammattikorkeakouluista 1129/2014 (in Finnish, unofficial translation Government Decree on Universities of Applied Sciences) (Valtioneuvosto, 2014).

The Government Decree on Universities of Applied Sciences (UAS) defines the following boundary conditions for bachelor's education:

2§ Structure of the studies: Studies leading to a polytechnic degree include:

- 1) basic and vocational studies;
- 2) optional studies;
- 3) training that promotes professional skills;
- 4) thesis.

3§ Dimensioning and scope of studies: The basis for dimensioning studies is the credit point. Courses are scored according to their workload. The average required workload of 1,600 hours to complete one academic year of studies corresponds to 60 credits. The scope of studies leading to a degree in Bachelor of Business Administration is 210 credits. The share of internships that promote professional skills included in studies leading to an UAS degree is at least 30 credits.

4§ Objectives of studies leading to an UAS degree: The aim of studies leading to an UAS degree is that the graduate has:

- 1) broad-based practical basic knowledge and skills as well as theoretical foundations to work in working life in expert positions in one's own field.
- 2) ability to monitor and promote the development of one's own profession.
- 3) conditions for the development of one's own professional skills and lifelong learning.
- 4) adequate communication and language skills for tasks in their field and for international activities and cooperation.

§7 Language skills: The student must prove that he or she has achieved in the studies included in the UAS degree or in another way:

- 1) proficiency in Finnish and Swedish which, according to the Act on the Language Skills Required for Public Administration Personnel (424/2003), is required for a position requiring a university degree in a bilingual official area and which is necessary for the pursuit of the profession and professional development.

2) written and oral proficiency in one or two foreign languages which is necessary for the pursuit of the profession and professional development. What is provided in subsection 1 does not apply to a student who has received his or her school education in a language other than Finnish or Swedish, nor to a student who has received his or her school education abroad. The language skills required of such a student are decided by the university of applied sciences. The University of Applied Sciences may, for a special reason, exempt a student from the language proficiency requirements provided for in subsection 1 in part or in full. The language proficiency demonstrated by the student is stated in the diploma. When marking language skills, the provisions of Article 19 of the Government Decree on the Demonstration of Finnish and Swedish Language Skills in State Administration (481/2003) must be taken into account.

In Finnish higher education system one full-time academic year is equivalent to 60 higher education credits and 1 ECTS credit point equals to 26,7 hours of the student's work.

The scope of the UAS degree (Bachelor of Business Administration) is 210 credits. It will take about 3.5 years to complete. The structure of the studies in Business Administration, a degree with 210 credits, can consist of basic studies (60 cr), professional studies (90 cr), optional studies (15 cr), thesis work (15 cr) and internships (training) (30 cr). At SAMK practical training is defined as follows (see <https://www.samk.fi/en/study/to-working-life/practical-training/>):

- Practical training has a learning goal: The aim of the practical training is to familiarize the student, under supervision, with the most essential practical work assignments and with application of knowledge and skills in the working life.
- Degree programmes have different practical training extents: The goals, contents, implementation and evaluation of practical training are defined by the degree programmes. The extent of the practical training varies between 30 – 85 credits.

- Compensation also possible: The student can compensate a practical training included in the degree with a pre-study practical training or work experience with similar contents, or with work experience during the studies.

Projects are a part of all studying at SAMK. As much as possible students will do their projects in cooperation with local companies, which gives the students an opportunity to start networking and getting familiar with working life (see <https://www.samk.fi/en/study/studying-at-a-university-of-applied-sciences/>).

One of SAMK's strategic goal is: Working life-based degree education and learning environments that support digital visions ensure the availability of education. Studification of work is one part in the smooth progress of studies. SAMK graduates are employed the best of all universities of applied sciences outside the metropolitan area (see <https://www.samk.fi/en/about-samk-2/strategy/>).

According to the Finnish education system Bachelor's degrees ranks to the level 6 in the EFQ (European Framework for Qualifications) classification system.

Education in Finland is free in the universities of applied science and in the universities.

In the funding of universities of applied sciences, the Government allocates resources in the form of core funding, which is based on unit costs per student, project funding and performance-based funding. For example, completed degrees are part of performance-based funding. Universities of applied sciences have also external sources of funding. In the funding of universities of applied sciences, the education providers are encouraged to improve their results through performance-based funding. (Finnish National Agency for Education, 2017)

Finnish universities are independent corporations under public law or foundations under private law. Each university and the Ministry of Education and Culture set operational and qualitative targets for the university and determine the resources required every three years. The agreement also defines how these targets are monitored and evaluated. Universities receive funding from the state, but they are also expected to raise external funding. (Finnish National Agency for Education, 2017)

Poland

Dual studies are still a model of education that is still too rarely used in Poland. In order to change this, the changes were introduced in the act. 1 October 2018 entry into force of the act "Law on higher education and science (Constitution 2.0)". This document introduces the concept of dual studies for the first time and provides a legal basis for their development. In Article 62 of the new act we find:

"The university may conduct dual studies that are practical profile studies conducted with the employer's participation. The organization of studies is specified in a written agreement."

The model of dual studies in Poland differs depending on the university. A frequently practiced system is 3 days of apprenticeship with the employer and 2 days of didactic classes and lectures at the university. The internship is paid, students can also count on a scholarship awarded by the university. After graduation, the graduate receives a diploma and a specific entry in the CV. Often, while still studying, he finds employment in the company where he did his internship

In 2019, The National Center for Research and Development - an executive agency of the Minister of Science and Higher Education offered over 123 million of PLN to Polish universities as part of the 1st edition of the "Dual Studies" competition. As part of the resolved NCBR "Dual Studies" competition, 84 applications were submitted, and 69 projects received funding. Grants under the project could be applied for by public or private universities educating at least 200 full-time students. The project implementation period should be between 24 and 48 months. The effect of the entire competition should increase the competencies of at least 1,750 students.

The project of Kozminski University, which will educate students in the field of health economic and big data analytics, was rated the best by experts. The ideas of a pioneer in the field of practical education in Poland - the Silesian University of Technology were also appreciated. The project for dual studies of the second degree in the field of mechanics and machine construction at the Faculty of Mechanical Engineering of the Silesian University of Technology was ex aequo in the first place in the ranking

list of the competition. The university from Silesia will receive the largest total funding - over PLN 7.7 million will allow for the implementation of as many as five projects selected by experts. Support from the NCBR will be allocated, inter alia, to conduct dual studies in the field of rail transport, logistics and material technologies. The second place on the ranking list was taken by the Lodz University of Technology project, where it will be possible to gain knowledge and professional experience as part of second-cycle studies in the field of practical design. The third place was taken by the Poznań University of Life Sciences. There, thanks to the support of the National Center for Research and Development, a new direction with a practical dimension will be created - animal nutrition and fodder production

There are on yet data on the dual studies in Poland in the Polish statistical office. One source of information is the portal <https://www.studiadualne.eu>.

This website informs that there are currently 41 dual study programs in Poland. 40 programs are in Polish, one in English. 29 support programs are provided at public universities, 12 at private universities. 36 first-cycle programs (including 25 licentiate-engineer programs), and only 5 are second-cycle programs. Among all programs, 11 are in the field of economics, 1 in computer science, 24 are engineering and technical programs, 1 in language learning, 1 in physiotherapy, 1 in health and safety, 1 in agriculture, and 1 in tourism.

Conclusions, Main challenges & Suggestions for solutions

1. There is a growing demand across all fields of studies for practical, professional, work-based higher education in Europe overall, including the partner countries, thus such a dual study program format has a good potential in order to meet the shortage of labour force and to meet the demand of labour market skills. The aim of dual examination is to enable a student not only to gather the practical skills needed in his / her profession or business but also to reach theoretical knowledge needed to advance in career or business. This kind of examination offers many alternatives.

2. Although the competition among bachelor level study programs in human resources and business administration is certainly high, the offer of the innovative format (dual) will surely serve as an element of attraction, a substantial 'selling point'.

3. Attraction of companies as co-producers of such a dual study program, particularly in the field of social sciences, shall be a challenge as 1) the bachelor level programmes are mainly considered by young people (~18~23 of age), 2) this group generally have less working experience, 3) companies mostly need working experience, 4) time devoted to work at the company during the studies is fragmented. The solution for this is to involve at least few companies in the very preparation of the program and create few success stories to ensure further continuation.

4. One of the major challenges relates to the (currently lack of) legal recognition and regulation of such a dual program including its terminology, particularly on the level of higher education (EQF level 6) and in the recognition of work-based time in the company aimed at 50% of the total time. Under current legal regulation (Latvia, and partially Poland) the maximum possible time for a student to spend at the company is 30%, the rest is regulated to be spent at the university and at individual study time (preparations, home-works) related to university.

5. At the same time, it is to be stressed that given the growing demand for innovative practical higher education and also pressure by higher education institutions, potential solutions are under way mostly via strengthening the cooperation between education institutions and state education authorities (e.g., 3LoE project, <https://3-loe.eu/>).

6. Another challenge is complex and voluminous administrative application for higher education study program followed by lengthy licencing and accreditation process. Given from the experience, the time needed from the shaping the design idea of a study program to the accreditation is 3-4 years – 1-2 years for the development of the whole application, ~ 4 months for licencing and ~6 months for accreditation. This challenge is also being debated for solutions and the administrative process is most likely to become more flexible and shorter (in favour of the higher education institutions) in few upcoming years.

6.2 | Testing of study program „Human Resources & Business Administration”⁶⁶

During the three-years of the KA4HR project, the complete study programme and module manual "Human Resources and Business Administration" were developed in Latvia, consulted and coordinated in the project consortium as well as with the competent bodies in Latvia, and accreditation was initiated. Since it is not legally possible to start the study programme without official accreditation, only individual modules of the new study programme could be tested in practice after completion of the module manual during the limited project period. The following modules of the developed study programme "Human Resources and Business Administration" were implemented and evaluated within the framework of existing bachelor's study programmes in dual form.

Autumn Semester 2020	
HR Management in [International] Business	Basic knowledge of HRM concepts, processes, functions (HR planning, recruitment and selection, performance assessment, motivation, engagement, learning and development, rewarding and recognition, health safety and so on).
Theory and Management of Organizations	Topics focus on business management theory those related to HR (e.g., motivation models of employees)
Political and Legal Environment of Global Business	Focus on the specifics and regularities of the global business environment in the context of entrepreneurship.

⁶⁶ Prepared by Denize Ponomarjova, Dr. Romans Putans, Prof. Dr. Tatjana Muravska, Vladmirs Rojenko, Centre for European and Transition Studies of the University of Latvia, Riga

Public Support Models in International Business	Focus on a variety of public support and protection models, instruments, and mechanisms for [international] business.
Change Management	Focus on the business processes in terms of change management (e.g., nature of change, role of leader, problem-solving, etc.)
Semester project II - Knowledge Integration	Semester project after gaining theoretical knowledge. We'll try to encourage students to have projects related to HR topic
Spring Semester 2021	
Innovation Management in [International] Business	Focus like SMEs training "Innovation process"
Strategy and Politics of Enterprise	Focus the development of business strategy and policy, among topics Business administration and HR
Practicum	Students will be encouraged to have project related to HR and business administration
Bachelor Thesis	

Admission and organisation of the training

Participants of the courses

Participants of the implemented courses were mainly students of the 2nd or 3rd year of the bachelor study programmes "International Business and Sustainable Economy", "International Marketing and Advertising" and "Start-up Entrepreneurship Management" at the Riga Stradiņš University, as well as some Erasmus students. All students have successfully completed these courses.

Course title	Study programme	Number of students
Autumn Semester 2020		
Theory and Management of Organizations	IBSE, SEM, IMA	39 students, 3 rd study year
Public Support Models in International Business	IBSE, SEM	26 students, 3 rd study year
Change-Management	IBSE, SEM	26 students, 3 rd study year
Spring Semester 2021		
Innovation Management in International Business	IBSE	11 students, 2 nd study year
HR Management in International Business	IBSE, SEM, IMA	39 students, 2 nd study year

Admission requirements to apply for the IBSE, SEM, IMA programmes (for applicants who have obtained secondary education in an accredited education institution of Latvia)

- The general admission criteria for bachelor study programmes - completed secondary education (secondary/high school diploma and academic transcript). Graduates of the general and vocational secondary education programmes can apply for the bachelor level study programmes.
- Programme specific requirements (usually required for admission in the programmes of social sciences) - certificate of Centralised Examination of such subjects as Mathematics and Latvian language as well as certificate of Centralised Examination of English or results of an internationally recognised English proficiency test.

The abovementioned requirements would be similar for both academic and professional-type study programmes of social sciences in Latvia.

Organisation of the implementation and practical learning

Implementation of the courses took place during the Covid-19 pandemics, where all the teaching and learning activities were organised completely remotely, using various digital solutions – Zoom, Miro, KahooIT, etc. Due to the limitation of practical activities, most of the lecturers have customised topics, case studies or tasks according to COVID-19 business environment trends, whereas onsite meetings with experts, visits to enterprises had to be excluded from the curricula. Some of the lecturers have organised guest lectures with representatives from local enterprises or international organisations.

Course title	No of lectures	University learning	Self-studies	Total hours
Autumn Semester 2020				
Theory and Management of Organizations	6 lectures and 6 seminars	24	56	80
Public Support Models in International Business	7 lectures and 7 seminars	28	92	120
Change-Management	8 lectures and 6 seminars	28	92	120
Spring Semester 2021				
Innovation Management in International Business	7 lectures and 5 seminars	24	56	80
HR Management in International Business	6 lectures and 6 seminars	24	56	80

Due to the virtual study process and remote working format in many companies, it was difficult to involve entrepreneurs directly in the course activities and vice-versa – the study process in the business environment. Nevertheless, a number of methods – analysis of practical cases and guest lectures – as well as activities (beyond of the tested

course) were used to cover practical learning of students – R&D projects between students and SMEs, practicum.

More efforts by lecturers were placed on providing more materials and tasks linked to the practical business environment – practical cases and analysis were added to some of the course topics. Also, the guest-lectures were organized with experienced entrepreneurs or other relevant experts, where its support in organisation was provided also by LU CETS team resulting from synergy of the implemented KaforHR activities. For example, as the result of successful collaboration during the KaforHR training with SMEs “Innovation Processes” (September 2020), the HR manager of 4Finance was involved as a guest lecturer to discuss the practical organisation of remote work.

In the framework of the semester project, there are foreseen R&D projects between students and local SMEs to tackle issues and challenges related to various HR or business management aspects, where companies formulated their necessities. The work on the projects to be performed during the autumn semester 2021 (results of the work will come in January 2022). The R&D projects’ activity were organised in cooperation with Latvian KAforHR partners – LCCI (PP9) and VD (PP10).

Besides, a four-week-long practicum (full-time, 3rd study year, 6 ECTS) within the RSU study programme “International Business and Sustainable Economy” took place at the end of spring semester 2021. Among other students had a choice to focus on business administration and HR management to apply acquired theoretical knowledge into practice. In the result, two students performed practicum focusing on the HR strategy at the digital agency and the employees’ motivation programme at the training centre.

In addition, together with Latvian Chamber of Commerce and Commerce (PP9) and its members-SMEs new project ideas with two further directions were elaborated – “Tomorrow`s Entrepreneur” and “Investors` Academy”, which go in line with KAforHR project idea.

The major idea of “Tomorrow`s Entrepreneur” (start of the project is foreseen in January 2022) is to connect SMEs and students. SMEs are willing to share their practical

knowledge and experience to participate in creating future entrepreneurs. The project`s keywords and instruments are as follows:

- Search for “entrepreneurial genes”
- Offer internships for students
- Create interest in business
- Share knowledge
- To prepare students for the business environment
- Show practical examples
- Company rating – social participation
- Facilitate Investors’ Academy
- Study visits to companies

“Investors’ Academy” – an idea to be launched by the end of the spring semester 2021 – aims to organize a series of events bringing together SMEs (investors; their real-time challenges) and students (idea generators). It will be slightly similar as hackathons but includes learning elements in both sides – students will learn to prepare, present and sell business ideas; SMEs (investors) will learn to evaluate and assess the risks and potential of an investment. One of the events will be Pitches, organized together with RSU Business Incubator, where students (throughout the semester will prepare and) present their business ideas and LCCI members will act as investors.

Participants Profile

Participants were 2nd and 3rd year students of the bachelor study programmes “International Business and Sustainable Economy”, “International Advertising and Marketing” and “Start-up Entrepreneurship Management” from Latvia, and several Erasmus students from bachelor programmes at the universities in France, the Netherlands, Germany and Spain. The backgrounds of the participants are rather equal – age around ~20, first higher education, academic and professional interests related to the programmes` titles. 3rd year students usually have their interests focused thus adding to

course contents through their own motivation. Vast majority to all proved to be responsible, responsive, engaging and strengthen the group spirit, dynamics, discussion.

As mentioned previously, cooperation with SMEs has been limited due to the Covid-19 restrictions. Those SMEs which were connected to the study process, covering national Latvian and the national, local offices of international companies, e.g., construction sector, media agencies, training centres, financial sector, social entrepreneur, corporate governance consultations, the LCCI itself and few other.

Execution of the Training (courses)

Methods used:

In addition to lectures and seminars, students have worked in teams and individually by performing case studies, individual summaries, team summary and its presentation, feedback on colleagues' summary presentation, simulations of various scenarios, team work on the course project (report), literature analysis and its presentation, presentation of article. Also, a guest lecture with representative from Latvian start-up was organised. Main materials used in the study course – presentations, articles, internet resources and videos for reading or watching (e.g., Guide to International Labour Standard, examples on job advertisements, etc.), workshops, online questionnaires (e.g., based on the Schwartz value theory), simulations.

Final examination: Written form exam

Certificates/diplomas

After completing the professional bachelor study programme, graduates receive the professional higher education diploma with the bachelor's degree (6th LQF/EQF) and also higher professional qualification diploma (5th PQL).

In case of the course testing, participants were not provided with separate certificates, as courses are part of the bachelor study programmes “International Business and Sustainable Economy”, “International Marketing and Advertising” and “Start-up Entrepreneurship Management”. At the end of the studies (successfully completed

study courses and internship as well as defended thesis), students are awarded with their education diplomas.

Observations and feedback from lecturers

Goals of the courses – all lecturers have admitted that the goals of courses have been met to provide content matching labour market and business environment needs, which is also demonstrated in the students' feedbacks. In the result, students were provided with the knowledge and skills that allows them to start, analyse and manage various processes in the business environment, including in international one.

Regarding to motivation, lecturers have expressed their satisfaction that most of students' have a very good background formed by the previous courses, level of engagement (extra-curriculum interest) and responsibility. Those students who already work (or have working experience) provided an added value to the discussions by delivering practical, sometimes even contradictive opinions. Some lecturers observed (e.g. Theory and Management of Organisations) that an online study format for some students created difficulties to ask questions and openly discuss matters of their concern, as well as that the exclusion of visits to enterprises and meetings with experts from curricula (due to the pandemics) to a large extent worked against students' motivation. Nevertheless, most of students put additional efforts to study even though the situation was very unusual.

Overall, the high motivation of students indicates to their readiness and good opportunities in the labour market, using the knowledge and skills gained during the studies.

A common observation of the study process for all lecturers that students are longing for practical, real-cases-based elements and innovative & interactive learning tools, but motivation of students is directly related with the lecturer's teaching manner and teaching methods. Two main aspects that help to keep a good student's motivation, pointed by lecturers:

- At the beginning of the course to discuss students' expectations and interests, which to include in the content and activities (e.g. students define topics of

their interests for the joint debate, research, home assignment, self-organisation of the groups, etc.). Then there is an active engagement and responsibility towards course activities, even if it's intensive.

- Free, inclusive and creative atmosphere, an opportunity to be involved, to share the thoughts and opinions is the most important and valuable activities, even if opinions might be different from others.

Covid impact – main considerations

- The change of the course format from on-site to online required quite some arrangements and adjustments of the course contents and structures to keep the meetings and online work interesting, motivating, engaging and attentive. On the other hand, it allowed for better understanding of the needs (also of SMEs) to adjust to ever changing business environment and ability to identify opportunities and creative solutions in increasing competition.
- The rapid adaptation to the remote format of classes appeared challenging and more time-consuming for some lecturers (including, transformation of teaching methods and revision of study materials and literature).
- The pandemic-induced disruptions and the move to online teaching and learning demonstrated that there is a strong demand for flexibility of the course curricula.
- Covid-19 crises situation itself allowed together with students to discuss how to plan in advance, adapt to this kind of global changes and how life after covid-19 will look like.
- In general, online mode impacted learning quality of students.

Strength – what was good from participants' point of view?

“Innovation Management in International Business”

- The lecturer has a very original creative approach to the course organization and knowledge structuring. It was assessed as open, creative, engaging and well-organised lecturer and course content, different from other courses.

- Interesting and varied tasks and study materials and case studies from the own business experience, use of various digital solutions (Miro, Kahoot, etc.).
- A perfectly balanced teaching procedure and plan, excellent lecturing, as well as feedback from the lecturer after each submitted work / summary was very valuable, practically applicable knowledge.

“HR Management in International Business”

- Diversity of the provided study materials, activities (e.g., simulations, case studies, individual and team summaries) and topics. Specifically interesting were practically oriented topics - e.g., tools and approaches in HR management, gamification and micromanager explained through practical tasks. And, through groups tasks, developed teamwork skills.
- Discussion with lecturer and students on the home assignments’ results that allowed to think beyond your limits and generate new ideas for HR management
- Additional resources that helped to perform home assignments or team works (e.g., recommendations on teamwork from the last year students).
- Guest lecture with start-up CEO and summary of the guest lecturer’s answers on students’ questions published at the e-studies.
- The course content appeared valuable for employed students and or having professional experience in the private sector. In this case, the gain is a real opportunity to evaluate tactics, apply or recommend various tools for implementation at the employment place.

“Change Management”

- As the main strength of the course, students have highlighted - professional background of the lecturer who shared the practical experience and real cases (over 20 years), active and lively lectures, actuality of the course in the context of global changes (right timing for the course).

- work in smaller groups appeared efficient, but evaluation of practical cases, discussions on the scenarios how entrepreneurship organization will look like after pandemics - useful and transferable at the workplace/ companies (e.g., the role of a leader / leader in change).

“Public Support Models in International Business”

- Lecturer’s preparation and time investment into organisation of virtual learning format. Students have highly appreciated interactive activities and tools throughout the entire course that gave a great motivation to pay attention and get involved – e.g., short videos about the main idea of the topic, form of the exam with student’s generated questions. The organisation of debates was specifically highlighted as valuable opportunity to develop critical thinking and ability to prove students’ opinion.
- Opportunity to express the opinion, suggestions and observations through the summaries, discussions and presentations. Everyone had a chance to speak in a non-forced environment.
- Most of students were happy about Idea to choose their own topics for summary reports and other tasks which motivated to invest more time to perform the assignment.
- Free, open and good atmosphere during the classes as well as charismatic, supportive, friendly-type and professional lecturer. Students shared a lot of positive feedbacks about the course and expressed their willingness to keep it in the same manner and with the same concept also in the future.

“Theory and Management of Organisations”

- Most of students expressed their opinion that the lectures were delivered in a clear and comprehensive way. The topics discussed were relevant to current trends in management and organization of a company (e.g., students answered “It was a good and interesting course, I learned a lot and diverse aspects of management.”).

- The practical part, including discussions on lectures related matters, case studies and evaluation of the current business situation in Latvia were appreciated. Also, both guest lectures were seen as an opportunity to discuss new tendencies in the labour market and skills that need to be developed to ensure employability as well as practical experience in organising remote work and healthy engaging employees.

Weaknesses as seen by participants – what could have been done better?

“Theory and Management of Organisations”

Students indicated that it would be beneficial to have better developed digital content of the course, and meetings with industry experts could be provided on a regular basis. Obviously, students were lacking the communication with companies’ managers on the spot.

Some lecturer’s speeches could have been livelier and teaching format more diverse, with inclusion of interactive tools and more discussions. Also, more international experiences in the content would be appreciated.

“Public Support Models in International Business”

At the end of this course, students were additionally asked by the lecturer to evaluate what to START and STOP doing in the next courses. Most of them couldn’t indicate significant weaknesses or aspects to be removed. Few students proposed to introduce strict time limit for presentations, to involve into discussions an expert from start-up environment, and pointed that there is a large amount of information, although interesting and useful, to be absorbed in a short period of time. Other suggestion was more structured introduction of the course that would give better picture what expect from it.

“Change Management”

In the evaluation form, students indicated several aspects that can be better from their point of view: wider range of the teaching methods, more clear and transparent evaluation system, a bit longer period for course implementation to cover more topics

on strategy building for certain type of organizations/companies. Some students express that there were too complicated (theoretical) topics, but some had opposite opinion – that for some topics would be great to have more theory.

“Innovation Management in International Business”

No major weaknesses were reported by students. In general, everything was in its place, perhaps it would make sense to talk a little more about creation of innovative ideas, start-up development and management, raising funding for start-ups and innovative companies and to get more information about real innovative experiences from real entrepreneurs from Latvia or abroad. Also, list of literature could be less academic and more practical, related to the modern innovative business practice.

“HR Management in International Business”

Among the weaknesses reported by students – time management of the lectures and seminars (e.g., not sufficient time for all students to present, short breaks, etc.), a bit chaotic organisation of the course activities, materials and information that required additional concentration not to miss something; much information/topics to be perceived in the short period of time and which sometimes was viewed superficially.

Main Findings and Conclusions

Overall, the implementation of the five selected courses was assessed very good by the participants. Due to the situation of the pandemic, the entire educational process was transferred to a virtual format, and meetings with experts and visits to enterprises had to be excluded from the agenda. This required additional efforts from lecturers to engage students in the learning process, located in the other side of the screen. In the result, those courses that covered variety of practical activities (few guest lectures, debates, analysis of the real business cases, etc.), interactive tools (Miro, Kahoot, etc.) and “space” for students’ creativity, received higher evaluation rates and more positive feedbacks, than those having more academic approach.

Most of the suggestions and hints provided by the course participants or LU CETS team are related to an individual level (linked to the specific course), the main suggestions are listed below:

- To consider the following questions when planning course content: How should taking the course change students? What skills should students gain in this course? How does this course relate to other courses in the discipline? How, then, might you define the course goals accordingly (e.g., for an introductory, fundamental, or advanced course in the discipline)? How the practical knowledge can be delivered? For example, practical projects, internship, analysis of practical cases, etc.
- For courses representing comprehensive sector, such as HR management - to avoid a wide variety of topics and very detailed information under each topic. Instead, it's suggested to keep the focused course line. Large number of topics, specifically in a short period of time, can create confusion what is more and what is less important, and can impact learning quality.
- Introduce information about the course - when planning the introductory part of the course, it is suggested to prepare a detailed information for students on the course structure, activities, and evaluation criteria. It can be done also in the interactive form, e.g., video message distributed prior and discussed at the first lecture. This will ensure better picture for students what to expect from the course and how to arrange their time.
- Students have appreciated interactive elements used during the classes (the short videos on each concept, Kahoot, etc.), which for some lecturers crystallized an idea to develop additional elements for the future courses - e.g., H5P tool that includes quizzes, tests and even the exam in the video - combines watching videos with answering test questions, that makes the knowledge more sustainable. Moreover, the interactive tools can be used when learning is taking place onsite.
- To consider interests of students - for example, in one of the feedbacks participants expressed will to analyse the business-related cases to have both successful and unsuccessful examples. And as in case of the course "Public Support Models in Int. Business", students' interests can be discussed at the beginning of the course.

- To keep the eye that the evaluation system (scoring) of performance is understandable for course participants and it does not present subjectivity. To avoid possible subjectivity claims, the criteria for evaluating the qualities of students' performance can be defined.
- To plan balanced course schedule - foreseen time for active learning during the lecture, this will allow students to prepare better for exams, keep balance between individual home assignments and groups' tasks/projects, consider (count) how much time students could spend on the home assignment (will it be sufficient to get through all the major topics?).

As of the common observation, lecturers emphasized that students are longing for materials and tasks linked to real business environment and interactive teaching methods, but motivation of students is directly related with the lecturer's teaching manner and methods, which in the virtual format appeared unusual. Two hints for students' engagement – free&creative atmosphere and inclusion of students' expectation in the course activities – are discussed in the previous chapter (Observations and feedbacks from lecturers). Also, lecturers agreed that exclusion of onsite study visits from agenda impacted learning process, as the opportunity to touch real things and to feel real innovative business spirit is added value to theoretical studies.

Lastly, for further organisation of the trainings and dual studies, it should be considered that the post-pandemic world will generate the hybrid-type work-model, where employers will keep benefits of both remote and onsite work formats, which means that the curricula related to HR and business administration will need to be upgraded accordingly.

The curricula should be also adapted to post-pandemic benefits such as increased digitalization and exploitation of different digital platforms for classes and most of all for discussions and work in groups and students' ability to conduct tele-work.

In regard to future, development of these courses will be continued by integrating more practical elements and business environment in the study process

In relation to the programme's significance of usability in the labour market, significance for activities in companies, etc. – on one hand there is both, relatively high demand for such social sciences study programmes by students and high employability of graduates of such social sciences study programmes that also signalling the high demand of specialists by the labour market; market; in such context the professional /dual / work-based learning B.Sc. programme HR&BA developed internationally with integrated European higher education area experiences shows a competitive advantage in local, national and regional labour markets.

On the other hand, due to the very same high demands, the programme will face also a high competition because comparatively similar study programmes are rather widely offered – in this context the previous advantage of the programme's dual aspect that comes with the additional year of studies (4 years in total) might decrease its competitive advantage as the potential students might chose 3 years study programmes offered elsewhere. Still, overall, the programme's significance of usability in the labour market is competitive (with noteworthy precondition of smartly targeted marketing activities for the specifically identified target audience) and undoubtedly beneficial.

6.3 | Evaluation of the study program „Human Resources and Business Administration"⁶⁷

6.3.1 | Evaluation Concept

Introduction

Evaluating the training, teaching, and learning has been an emerging issue in the 1980's when it was actively researched within several disciplines like education, pedagogics, psychology and organizational sciences. During the 1990's the enthusiasm flagged, but the interest woke up again in parallel with the waves of refugees and immigrants arriving to the Europe. The needs to include newcomers to the hosting

⁶⁷ Dr. Kari Lilja and Dr. Sirpa Sandelin, Satakunta University of Applied Sciences, Pori

society, to teach local culture, habits and language, and to train professional skills to comply with the local requirements have highlighted the importance of developing new teaching and training methods. These new methods and tools in teaching and training should be compatible with the requirements set by cultural diversity of both the refugees and immigrants, and the societies more or less voluntary receiving the incomers. This has during the past years been one of the trends that has powerfully conducted the development of both education and evaluation methods and processes.

Furthermore, during the past two decades the western countries have met - in addition to enormous flood of settlers - another phenomenon that challenges the education system: The post-war baby boom generation reaches age of retirement. This has two consequences, both requiring the answers from school systems. Firstly, the western countries should have a capability and capacity to educate and train more and more nursing personnel to cover both the vacuum left by those retiring, and to answer to the needs of ageing population. Secondly, these countries should be capable to renew their education systems to be able to satisfy the needs of business, to be able to train skilled labor and to be able to educate more persons that are both capable and willing to create their career as entrepreneurs and to continue the work of retiring entrepreneurs. If this fails, the consequences for European economy might be fatal or even disastrous.

This challenges not only schools and universities or teachers and trainees, but also those developing the courses and teaching and training methods used in the courses. Evaluating the learning of trainees, used methods and the impact of these methods on the learning would help teachers, designers and analysts to improve the methods.

The aims and targets of the evaluation are context dependent issues. Thus, in ideal world, the courses, the methods used in the courses and the means to evaluate the outcome of the course, the learning of trainees and the efficacy and success of the methods should be designed together so that the whole course is seen as main process inside which the training and evaluation are parallel subprocesses. This would be the best way to ensure that exactly those goals set to this unique program are measured during the evaluation. In this case the education programs have been planned partially parallel with the planning of the evaluation.

Education Program

Dual bachelor's study course on the topics of Business Management and Workplace Innovations in SMEs combined with R&D tasks for SMEs (WP5).

The following should be achieved:

- a) High-quality qualification of young entrepreneurs and managers.
- b) Attraction of much needed junior staff for SMEs.
- c) Development of capacities to increase awareness for Workplace Innovations.
- d) Realization of individual Workplace Innovation projects, which the students carry out as employees of the participating SMEs with the support of professors of the respective university in connection with the dual studies in SMEs.

The target groups of the program are 1) lecturers and consultants from (or delegated by) chambers, universities, other partners; 2) students in educational institutes, vocational schools and universities (of applied sciences); 3) SMEs, entrepreneurs, managers and specialists in SMEs. The planned duration of course varies depending to the educational level and purposes. Each lesson lasts 45 minutes. Methods used in lessons will be lectures, teaching talks, working in small groups, case studies and examples from real world. Material used during the teaching consists of e.g., information material (basics & backgrounds, thematic introductions etc.), presentations, questionnaires, question guides, checklists, analysis results, good practice examples and so on.

Evaluation of courses including gained results and found problems is essential to be able to develop further the existing training and education programs as well as to consider the experiences gathered from these programs when building new curricula. The evaluation process of each course has been designed hand in hand with the course itself. This concept presents an overview of evaluation process and questionnaire.

When evaluating courses, the goals and real results should be compared. This is not always possible or fair and just. The evaluation should be targeted only to such measurable issues on which the designer, teacher, facilitator or student himself has an impact. Evaluating the impacts of training programs against the presented main goals

would require large societal research including the recording of the initial situation before starting the programs and the long-term follow-up research in which the conducted interventions and actions (In this case new forms of training and education) and their impacts on change of variables is followed. The final conclusions can be drawn just after some years or after decades. In this project this is not possible and the whole evaluation process must be rethought and simplified.

The most important variables, on point of view of achieving the goals set, are the motivation of student, the support he gets, the relevance of issues in curricula, the quality material and training and the ability of facilities to support training and learning. Although most of the variables presented above are so called soft variables, which can't be measured directly by targeting the measurement tool to some point or phase in the process, they can be assessed indirectly by assessing the feelings and comments of participants and other stakeholders.

The assessment of feelings and comments can be done with many alternative tools, e.g., surveys, interviews, and follow-up studies in which a researcher follows lessons and training in practice and observes the students and teachers collecting comments and registering e.g., the atmosphere in the classrooms and during the training in the workplaces.

In this case the experiences and comments of participants will be surveyed by simple questionnaire with questions approaching the common impressions, the applicability of facilities, the relevancy and importance of each issue and the experienced quality of each lesson and material used.

Evaluation concept

The objective of the evaluation is to determine whether the goals of the program will be achieved in the implementations evaluated, and how the program has impact on student's career and opportunities.

The type of the evaluation follows standard course evaluation methods, i.e., formative, process and outcome evaluation, the latter only partial:

- The formative evaluation will provide feedback to the curriculum designers, developers, and implementers to ensure that designed and implemented courses really meets the needs of the intended audience, i.e., assure or improve the quality of program. Formative evaluation and analyses will answer to the following questions:
 - Were the goals and objectives suitable for the audience?
 - Were the training methods and course materials appropriate for the audience?
 - Should the program or some part of it be developed further and if, how?
 - Furthermore, formative evaluation also provides information that benefits the development of the program, facilities, and timing.
- The process evaluation will provide information concerning the training and lectures, like asked questions and verbal feedbacks.
 - Process evaluation answers the question “What did you do?”
 - It focuses on procedures and actions used to produce results.
 - Process evaluation takes place during the training delivery and at the end of the training.
 - The organizer (Responsible for the course)
 - monitors the training,
 - describes the training process as a whole, and
 - records the findings into the written report.
- The outcome evaluation tries to find out how the knowledge, attitudes, and behaviors of the audience developed. It takes a long time to find out the outcomes of the education and training, so in this stage only the main topics participants can do at the end of training, will be assessed.

The evaluation process will be as follow:

Surveys Participants

1. Semi-structured questionnaires will be created for the participants (Appendix A): If needed, the topics (topic 1, topic 2...) are renamed to match to the parts of the course. It is also recommended that co-organizer (Responsible for the course) writes the name of the evaluated course in the beginning of the questionnaire before printing it to make sure that the name is correct.

2. Time for the survey (approx. 15 minutes) will be allocated in the end of the course

3. In the beginning of the course the co-organizer (Responsible for the course) will inform participants about the evaluation and its importance for further development actions

4. The co-organizer (Responsible for the course) distributes the questionnaires to the participants to be filled in before leaving the course. The purposes of the questionnaire and how the data will be used should be explained clearly to the participants. This will help to improve the response rate and encourage them to make comments that can be useful to improve future programs.

5. The participants complete the questionnaires and return them to the organizer.

6. The organizer collects the questionnaires and deliver them to the evaluator.

7. The evaluator compiles all feedbacks and summarizes written analysis on the evaluations.

Surveys Lecturers

1. Semi-structured questionnaires will be created for the teachers (Appendix B): It is recommended that co-organizer (Responsible for the course) writes the name of the evaluated course in the beginning of the questionnaire before printing it to make sure that the name is correct.

2. Each teacher completes the questionnaire and returns it to the organizer immediately after having the last lecture or after having given the last feedbacks to assignments, exams or project works, i.e., after having finished the tasks connected to this course.

3. The organizer collects the questionnaires and deliver them to the evaluator.

4. The evaluator compiles all feedbacks and summarizes written analysis on the evaluations.

Interviews

The organizer selects 3 - 5 students, 2 - 3 lecturers and, if enterprises are included, also representants of 2 - 3 enterprises, and interviews them either face to face, via videoconference (e.g., Skype or Microsoft Teams) or by e-mail depending to the situation. The interview questions are in Appendices C (Students), D (Teachers) and E (Enterprises).

Approach

The evaluation approach will be based on a combination of qualitative and quantitative methods. The Microsoft Excel package will be used to transcribe the feedbacks and interviews. Open questions will be categorized, and qualitative analysis of the groups will be done.

The final evaluation report will discuss the following issues:

- Did the curriculum reach the targets?
- How well was the knowledge creation and sharing realized?
- Did the participants assimilate knowledge and tools?
- Was the venue and equipment appropriate for the training course?
- What kind of further development will be needed, if any?

Schedule of the evaluations

The schedule of the evaluation should be matched to the phases of the curriculum. There is no sense to evaluate the course before the students have a true and fair view of the course, its phases, and contents. Thus, the survey will be conducted in the end of the course.

The appendices that contain the questionnaires can be found on the project website www.ka4hr.eu.

6.3.2 | Evaluation Report

Results of the evaluation

According to the answers, participants seem to be satisfied with the facilitations of the courses (Figure 1), although the course Human Resource Management in International Business gets lower ratings than the other courses in 8 out of 12 questions. The course change management is another course that remains lower level in many topics. In common, students seem to believe that they can utilize the skills and knowledge gained, they will participate other courses held by the same lecturers, they felt that teachers respected them, and the information, skills and knowledge given was considered to be relevant, topical and fresh. The lectures and presentations were clear and understandable. This was confirmed by questions approaching each topic.

In the free speech answers and interviews of students, some issues were highlighted. Participants found it good to use practical cases and examples as a part of the lessons. They also valued professional background of some teachers and quest lecturers. Some topics and issues were felt to be too theoretic, and English as a teaching language may have caused difficulties to both some teachers and students. Considering the exceptional circumstances and online lessons, the Zoom-environment gained both satisfied and unsatisfied comments. This was possibly depending to the experience of participant in using the on-line systems. In some of the courses, the schedule itself and lecturer's capability to manage the schedule and timing of the course could have been better. In this issue, however, the opinions were contradictory. Some said that the lessons were too long, that time spent by screen was too long, or that student presentations took too long, whereas others said that in some courses there were too many topics compared to the time available and they wished either less topics or more time (= longer course periods). Although, in common, the on-line learning was considered to be success, some were missing the face-to-face meetings and real physic participation in groups, lessons etc.

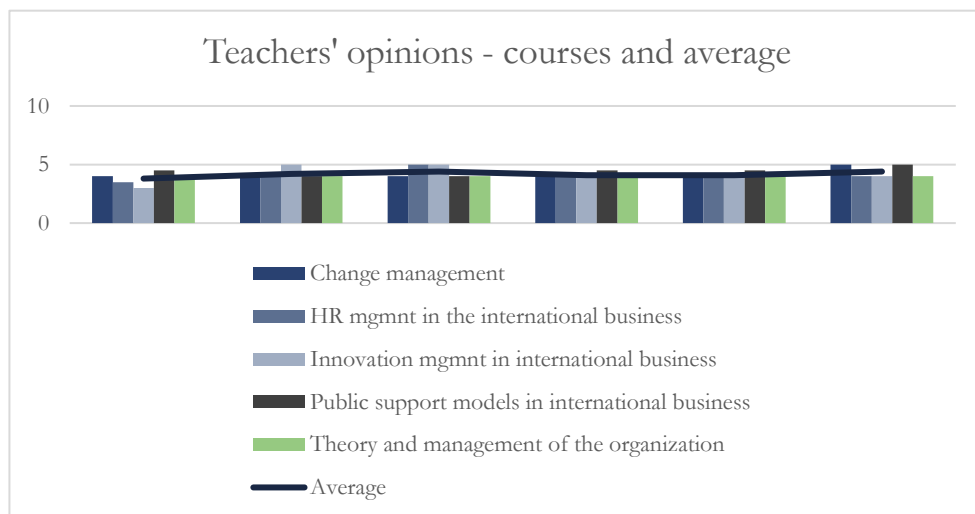
Common questions concerning the facilitation of the course



	Change management	HR management in the international business	Innovation management in international business	Public support models in international business	Theory and management of organization
Topic 1	Nature and trends of change: in the world, Europe and Latvia.	Introduction to the course, Introduction to HRM, Strategic HRM, Managing HR in international business, Presentation Skills	The nature and role of innovation	1st topic: business environment's and public administration's interaction aspects	Organisation management Changes in the organization: its levels
Topic 2	An individual and organisation in change.	HR and legislation, HR department, HR planning	Innovative entrepreneurship	2nd topic: business environment protection mechanisms	Management evolution and
Topic 3	Problems and approaches to solving them.	Team development and management, Conflicts and motivation	Innovations in Latvia and the world	3rd topic: business environment support mechanisms	The essence of organization: Organization: in a changing
Topic 4	Basics of system thinking.	HR learning and development, Future competences, Learning abilities	Innovation process and strategy	Public support for start-ups in Europe / Latvia / Germany.	Internal and external environment organization
Topic 5	Terminology: stakeholders, learning organisation, organisational well-being, etc.	Rewarding and recognition	Innovation marketing	The rise of the gig economy is beneficial to businesses, workers and the economy as a whole (debate)	The nature and of planning
Topic 6	Impact of the internal and external environment. Their identification, proactivity, prevention.	Talent management, Workshop: International HRM and Global virtual teams	Human and innovation	Progressive tax system	Decision-making and methods
Topic 7	Change management: conceptual recommendations and models.	Organisational internal and external environment, Health, Safety and Well-being of employees, New employees' induction	Innovation infrastructure		Basics of organization structure for
Topic 8	The role of a manager/ leader in change.	HR planning, Job analysis, HR External recruitment and selection	Intellectual property		Fundamental management and motivation employees
Topic 9		Employer Branding, International labour market trends, Unemployment	Protection of innovation		The essence of motivation
Topic 10		Performance assessment, HR Retention	Social aspects of innovative activities		Basics of communication effectiveness

Teachers' opinions

According to the teachers, the contents of the topics were very good, curricula matched the needs and goals of the students, schedule was either very good or excellent, level and motivation of the students was very good, and the contents of the education matched to requirements of the qualification either very well or excellently. In this rating scale there was only one exception: The overall content of innovation management was rated to be “Good”. It was stated that the overall content was less academic and based on business books, real life stories and examples. According to lecturer, the content should be more connected to the international practice and experience.



In the free speech answers and interviews of the teachers, some issues were emphasized. For example, the course dynamics depend every year on situation and topicalities in business as well as on the group of students. Covid-19 challenged the design of the course, and this did not help students to acquire the contents. The principal ideas of the lessons are sometimes easier to make visible in practice. More real business cases, successful and unsuccessful innovation examples might be needed. In some topics, the schedule and issues did not match very well.

The lecturers believed that the goals of the course were clear and could be reached. The participants were at good level and motivated, and the programme might increase their career opportunities. In common, the facilitations succeeded, although there were some minor problems with online technique. The curricula could be more connected with the practice. The transcript of the free speech comments and interviews is in appendix A.

Conclusions

The assessment of the Covid-19 impacts on an undergraduate business programme in general and each course in particular shows that the pandemic-induced disruptions and the move to online teaching and learning require flexibility of the course curricula. The curricula should be adaptable to changing circumstances and establish benefits such as increased digitalization and students' ability to work online and to supervise teleworking for the post-pandemic era. In common, the courses' curricula seem to stimulate students and faculty to adapt and adjust to online learning during the post-pandemic era too. However, we still need to identify and evaluate the impact of the pandemic on education and training.

Concerning the courses evaluated, the adaptation from class-based courses to on-line courses seems to have succeeded well, and the problems occurred were either caused by technique or by individual differences in needs of privacy and / or closeness, motivating impact of group spirit, and individual's self-direction. It could be a good idea to consider these issues when designing curricula, and by different what-if –scenarios to test how the designed curriculum would be modified in exceptional circumstances. It would also be worth considering that the curricula could be designed hybrid, i.e., to be taught simultaneously in class and on-line. In such cases moving to totally on-line –mode would be very easy, and also the technique would be tested, and use learned as a part of normal routine.

The timing of lessons and balancing the schedule are also issues that should be considered. A good practice could be, that those teachers, who already have experience in teaching certain topics both on-line and face-to-face, collect and share their experiences with those designing curricula and modules.

Concerning the material, it is recommended, that obligatory and additional material were clearly specified. This is essential when teaching is in on-line-mode and all the material is available in on-line platform in advance. If the material is available in advance, also the reverse learning (Students read the material before lesson) would be very usable method.

6.4 | SME specific R&D tasks on Workplace Innovations

6.4.1 | Process for the exchange of technology and experience

Introduction

Within the project "Innovative Entrepreneurs and Innovation Support for SMEs: Knowledge Alliance Human Resources and Organizational Development" (KAforHR), there were

a) transferred and implemented the existing bachelor's degree program "Business Administration for SMEs" and

b) developed and implemented a new dual bachelor's study program "Human Resources and Business Administration".

In direct connection with the implementation of bachelor's degree programs, innovation promotion for companies is to be realized. For this targeted support of companies, a concept is presented that will be applied and evaluated during the project period in connection with the testing of the new bachelor's degree program.

Promoting innovation and SME needs

Small and medium-sized enterprises (SMEs) are the backbone of the economy. At the same time, they stabilise the development of the society. They are anchored in their region and can use the possibilities of international cooperation and strengthen their position without relocating their workplaces abroad. The economy of the Baltic Sea Region will be shaped mainly by small and medium-sized enterprises, which provide

over 99% of all services and about 70% of all workplaces. The Baltic Sea Region, with its efficient SME economy, has excellent opportunities for economic strengthening and mastering international competitiveness. The Baltic Sea Region has the best prospects to develop into an innovative and economically strong region with international recognition.

The Baltic Sea Region has outstanding potential in the knowledge economy, higher education, and research and development. Especially in small and medium-sized enterprises, employees are the most important asset. However, considerable bottlenecks are emerging here for the future. Securing the influx of trainees to excellently qualified companies, executives, and workers as well as significant innovations will decide the future of small and medium-sized enterprises and are therefore the most important funding task for SMEs and the skilled trades.

Mastering the future requires intensive collaboration: "Connections are more important than products". Information technologies come into play as problem solvers when they are needed. Cooperations combine forces but preserve independence. Trust and cooperation management are in demand. Successful companies and collaborative cultures must build on strengths, embrace employee integration, and harness the creative potential of all minds. And indeed, SMEs need specific support to exploit opportunities and minimize risks.

In the days of the Hanseatic League, the Baltic Sea Region was one of the most innovative regions in the world, and today it still has distinctive innovation potential that must be generated and exploited. International competition can only be won if the Baltic Sea Region is faster and better than other regions and once again becomes the most innovative area in the world.

- Effective innovation strategies in the Baltic Sea Region have to extend region-specific strengths, support spatial cooperation of strong points and the division of labour, as well as use cultural differences as a potential for creativity.
- Excellent fields for innovation for the SME economy apply to all domains which are currently shaped by shortages. Within the shortage areas of energy,

climate and environmental protection, health, information processing and problem-solving capabilities, electronic production, and communication systems, as well as personal and organisational development, the Baltic Sea Region has distinguished learning and research capabilities, as well as large entrepreneurial potential at its disposal, so that especially promising starting points for targeted innovation policy could emerge here.

- Support for research and development by universities and colleges has to turn towards the SME economy in a more intensive and consistent way. Promotion of some clusters of high-tech development is an important part of the present innovation policy. However, a specific innovation promotion for small and medium-sized enterprises must be particularly developed and intensively realised. Customer-oriented definition of innovations and a more concise policy of support is therefore important here and it can allow for example for the development of adjusted techniques and new products, new forms of organisation and the involvement of employees in the process of innovation or the transfer of technology.
- Colleges and universities have to assume the transfer of innovation, which is an essential task for small and medium-sized enterprises, as a binding and obligatory task. Study and graduation activities should consistently incorporate the development tasks of small and medium-sized enterprises.
- Cooperation between colleges and universities, as well as small and medium-sized enterprises has to be strongly improved and expanded. Therefore, chambers and prominent support institutions of the SME economy can assume the economic communication functions.

Promotion of SMEs must be given the highest priority. Particularly important for small and medium-sized companies are long-term strategies that are implemented consistently and reliably. SMEs need a reliable framework in which they can orient well and plan securely.

Smaller companies do not have central staff functions covering a wide range of management tasks as large companies do. In the case of small and medium-sized enterprises, these staff and support functions must be provided externally, from universities and economic self-governance. The universities are the central innovation service providers that give small and medium-sized enterprises the necessary tools, provide company-specific and reliable advice and offer them monetary benefits.

Setting highest political priorities for the promotion of SMEs:

a) the area of education, innovation and internationalization, since for many regions of the Baltic Sea the largest growth opportunities and resources for the SME sector are found here.

b) any forms of intra-and inter-company and international cooperation of SMEs, which should be systematically sourced from the chambers.

Specific innovation support for small and medium enterprises must be developed and implemented consistently. There is a need for user-and demand-driven innovation and broader support policies that actively consider, for example, social and organizational innovations, development of appropriate technologies and new products, new forms of organization and employee involvement in innovation processes and the transfer of technology. Companies do not necessarily have to invent something themselves but could take good ideas and new technologies and modify those for themselves. Funding for the implementation of innovations in enterprises should therefore be increased.

There is an urgent need for a broad concept of innovation that is geared specifically to the needs of small and medium enterprises. Promotion of innovation should involve development of new technologies, high-tech and appropriate tools, new discoveries and honing, product-, process-, and organizational and social innovations. A very significant added value must be sourced from all innovation subsidies, the one affecting the growth of the "human resources and organizational development" and including education, organization of work, development of partnerships etc.

The promotion of research and development by colleges and universities must turn more intensively and consistently to medium-sized businesses. Colleges and universities need to be given a mandatory task to serve as an important innovation transfer medium for the economy. In course of studies and thesis papers the issue of development small and medium enterprises should be brought up consistently. According to the principle of "region as a living laboratory" research institutions need to achieve a variety of measures to promote innovation with and for the medium-sized businesses, such as tailored research and development projects, effective knowledge sharing, development and transfer of adapted examples of best practice or the implementation of demonstration projects.

In a comprehensive study and survey of SMEs from Germany, Lithuania, Norway, Poland and Russia, the need for innovations in SMEs and their promotion was examined. The results of the study are summarised below.

The role which SMEs play in the economy of the Baltic Sea Region makes creating adequate conditions for their innovation and competitiveness growth a key challenge. For this reason, it is vital to broaden our knowledge of the level of SMEs innovation and to gather data on a demand for innovation support in SMEs.

In the study, the Baltic Sea Region entrepreneurs have been asked to specify a kind and a degree of intensity of innovation changes implemented in their companies. It turns out that marketing and product innovations are most frequent. Moreover, an innovation climate based on openness in organization culture in these companies has proved to be an important factor in innovation implementation in the majority of the analyzed SMEs. SMEs in general have a bad opinion about the innovation climate in the country in which they operate. A difficult access to financing innovation activities by financial institutions is a common problem with building a friendly innovation climate in all the analyzed countries. Major problems which SMEs struggle within innovation implementation are lack of financial resources, complicated legal procedures, and a deficiency of adequately qualified staff.

A cooperation with scientific and R&D circles and other institutions designed to increase SMEs innovation level is vital on the account of the specificity of SMEs, which

generally have limited human resources and a low financial potential. The results of the analysis indicate that local authorities including chambers of crafts and commerce and entrepreneurs' associations are major partners in innovation cooperation for SMEs.

As far as an SMEs cooperation with R&D institutions is concerned, a leader-role is generally played by universities. Moreover, the intensity of this cooperation is quite high. The percentage of SMEs cooperating with R&D centers amounts to 50% in the Germany, 64% in Norway, 75% in Lithuania and 90.9% in Russia. Only the Polish SMEs declare a very low intensity of contacts with R&D sphere (only 16.4% of the Polish SMEs can boast of such contacts). The intensity of cooperation with R&D institutions does not translate into R&D projects in the Baltic Sea Region SMEs, however.

In the majority of the Polish, German and Norwegian SMEs, there have not been any R&D activities, when the study was conducted. The Russian and Lithuanian SMEs are exceptions to this rule, because 9 out of 10 analyzed enterprises have been involved in R&D projects. Product and service enhancements are a predominant type of R&D activities presented in the Baltic Sea Region SMEs.

Moreover, the study has shown that about 90% of the analyzed SMEs can see barriers impeding cooperation with scientific institutions. The major barrier SMEs encounter is insufficient proper funds to finance R&D and difficulties with access to external financing. However, according to the SMEs, the reasons for low intensity of cooperation with R&D sphere are scientific institutions themselves - SMEs report difficulties with initiating cooperation with scientific institutions, a lack of interest of these institutions to involve in such a cooperation, and ignorance of the economic subject matter on behalf of these institutions' representatives.

Barriers preventing cooperation between SMEs and R&D institutions in 5 countries of the Baltic Sea region (in %)

	Poland	Norway	Lithuania	Germany	Russia
substantial costs, financial barriers	41	76	50	38	55

difficulties with starting a cooperation	29	32	33	31	36
lack of interest of R&D institutions to start a co-operation	20	28	42	19	19
legal barriers	18	4	8	X	X
R&D representatives do not understand the issue	18	64	46	25	27
communication problems with R&D representatives	10	36	29	13	X
no barriers	11	8	X	6	18
other (if so, what kind of barriers)	2	x	8		x

An attempt has been made to assess the demand for innovation in SMEs when analyzing the Baltic Sea Region SMEs' innovation potential and their cooperation with R&D sphere.

It turns out that SMEs from all the countries indicate a high demand for R&D activities. Polish SMEs are an exception in this respect, because only 1 in 3 of the analyzed enterprises shows interest in R&D activities. Unfortunately, a high demand for R&D is not accompanied by SMEs' intentions to conduct such research in the future. The study shows a high degree of uncertainty among SMEs as to satisfaction of their R&D needs.

The demand for specific types of support from universities has been much lower than the analyzed above demand for periodical R&D. The entrepreneurs have been mostly interested in periodical trainings and workshops for enterprises which were preparing, or which were involved in innovative projects, as well as information meetings on specific types of and kinds of innovations. Such a low level of demand for support

from universities is due to the fact that most analyzed SMEs cannot see any potential benefits resulting from cooperation with scientific institutions.

SMEs demand for innovation support from universities (in %)

	Poland	Norway	Lithuania	Germany	Russia
information meetings on types and kinds of innovations	30,7	41,6	37,5	33,3	72,3
periodical trainings and workshops for persons preparing and realizing innovative projects	35,5	58,3	50	20	36,6
allowing access to practical training and didactical materials	22,6	16,7	16,7	20	36,4
individual consulting directly in the company	22,6	37,5	62,5	26,7	18,2
individual consulting by phone	7,3	20,8	16,7	x	x
individual consulting via e-mail	11,5	16,7	16,7	x	x
other	2,94	x	4,2	x	x

The only positive effect of such a cooperation, which most of the analyzed SMEs from all the countries have agreed upon, is "launching new products and services". However, the analyzed SMEs have declared a very high demand for trainings and consulting services from scientific environment. Services, products, and new technologies are desired fields of a possible cooperation

Finally, cluster involvement in innovative projects of the Baltic Sea Region SMEs as well as their intentions to engage in future cluster cooperation have been analyzed. It turns out that the majority of the companies have not been involved in a cluster so far. Unfortunately, the majority of the analyzed SMEs do not have any intention to start cooperation with any cluster.

The above results show that it is necessary to start intense activities destined to increase the Baltic Sea Region SMEs' understanding of benefits resulting from cooperation with scientific institutions, and the involvement in a cluster venture. Moreover, abolishment of the barriers identified in this study (mainly financial barriers) limiting both innovation implementation processes and SMEs' cooperation with scientific sphere is recommended.

Expected benefits SMEs can get because of their R&D cooperation with universities (in %)

	Po- land	Nor- way	Lithu- ania	Ger- many	Rus- sia
launching new products/services	38,1	44	62,5	50	81,8
enhancing products/services quality	21,3	60	54,1	50	63,6
optimalization of organization operations	20,1	20	37,5	43,7	45,4
improvement of cooperation with suppliers and customers	30,7	48	25	31,2	27,3
sales increase	33,8	52	58,3	25	27,3
improvement of competitive position	17,7	28	58,3	32,5	45,4
costs lowering	27,1	56	75	31,2	27,3

increase of ecological activity	7,8	24	41,6	18,7	x
increase of company's prestige	27,3	52	45,8	37,5	36,3
access to latest know-how	17,9	44	25	50	27,3
possibilities of new innovations implementations	16,1	16	62,5	31,2	27,3
possibilities of HR development	9,6	16	33,3	25	9,09
gaining new customers/increasing market share	30,2	40	45,8	25	45,4
increase of company's profitability	17,2	52	45,8	25	27,3

In summary, innovation promoting requires an inter- and transdisciplinary approach and additionally a learning theory of the interrelation of theory and practice. Innovation support measures for small and medium-sized enterprises must meet specific conditions of SMEs, in particular:

- SMEs do not have any in-house staff; they require comprehensive services that equal the staff performance of large enterprises, which would offset the size-related disadvantages.
- Services must be provided in closeness to companies and accurately according to specific needs.
- Services must be accessed by the SMEs precisely at the point in time when they are really needed. Services and information on stocks are not really helpful to SMEs.
- SMEs suffer from bureaucracy, they are time- and expense-sensitive. All the necessary services must be provided without red tape, from a single source and must be cost-effective.
- Continuous exchange of information, stable foundation of trust, high reliability and continuity are important. This requires one, permanent contact person.

- Services must be provided in the language of the SMEs and offer financial benefits to enterprises.
- Services must be of outstanding quality, match individual needs and need to be provided exactly at the right time.
- Services must encompass different areas like business administration, engineering, marketing, human resources, sales, etc. Of prime importance are also measures which promote international cooperation, because they create great potential, in particular for SMEs.

When universities and companies cooperate with SMEs within the framework of dual courses of study, this results in particularly intensive networking, direct technology and knowledge transfer and excellent opportunities for tailor-made research and development work, which is carried out in the company by students supervised by professors and lecturers.

Promotion of innovation in conjunction with dual study programmes

The innovation capacity of SMEs is most limited by the availability and skills of entrepreneurs, managers and professionals. Due to a lack of skills and entrepreneurs and employees, innovation in SMEs is already much lower than it could and should be. Except for Sweden, the number of younger people of working age in all Baltic Sea countries will fall by up to 25% over the next 15 years. At the same time, qualification requirements are increasing; human resource and social skills are becoming equally important alongside specialist knowledge. Improving qualifications and eliminating the shortage of skilled workers are the most important promotional task and the key to sustainably strengthening innovation, competitiveness, and growth in SMEs. The realisation of dual bachelor's degree programmes, in which the studies are combined with relevant vocational training, makes a decisive contribution to mastering this challenge in order to attract the high demand for junior staff in innovative entrepreneurs and managers for SMEs and at the same time to emphatically strengthen innovations in SMEs.

Under dual study programs, close collaboration between academia and small medium-sized enterprises is achieved. In that regard, further welcome features are active exchanges of knowledge and experience as well as implementation of manageable research and development tasks for and by SMEs. Students will implement their semester or bachelor's theses at companies where they complete their practical training. They will select topics that are particularly business-relevant, thus ensuring notable benefits to SMEs.

A dual bachelor's study program is composed of the following basic elements:

- Admission requirement: higher education entrance qualifications (i.e. A-levels) or advanced technical college certificate.
- Duration: 3 to 4 years maximum (depending on subject).
- About 50% of the educational period as practical training or professional activity in a company. Vocational education takes place in dual form in companies and vocational schools.
- About 50% of the educational period takes place at the university.
- Both parts of the training are coordinated with each other and are carried out in parallel. Theory can be taught in longer blocks (e.g. 3 months) or 3 days a week with shorter additional blocks.
- About 60% of the courses offered at the university are taught by full-time professors and lecturers and about 40% by practitioners from companies.
- The participants sign a contract for vocational education/activity with the company and a contract for study with the university.
- Degree: Journeyman/skilled worker and Bachelor.

The bachelor's degree also entitles the holder to follow a master's program at a university later. However, the aim is that at least 80 % of the bachelor's degree holders should remain in the small and medium-sized business sector as entrepreneurs and managers and, building on their initial bachelor's degree, improve their skills within the context of ongoing continuing education.

The excellent qualifications acquired in the dual study programs are also decisive prerequisites for high innovations. In addition, the participating universities/colleges should also take part in practice-oriented research and development projects for medium-sized companies and thus promote innovations in the long-term. The study programs and innovation promotion are aimed at the identical target group, namely high-performing, medium-sized companies and their management personnel. As companies are always included in the dual study programs, there is direct cooperation between companies and universities, which can be used for knowledge and know-how transfer as well as for research and development work by companies. Research and development tasks can be carried out in various ways, for example

- Work as part of semester or bachelor's theses of the participants/students
- Targeted individual assignments of the companies or consulting/know-how transfer by professors and teachers
- More complex projects with public funding (especially from the EU)
- Joint work on projects with several companies in one industry (industry association projects)

Universities and companies are training partners in dual study programmes. About half of the entire training period takes place at the university and half at companies. Credit points required for the bachelor's examination are earned both during studies at the university and to a certain extent during training and work in the company. The change of qualification in the university as well as in the company can take place in block form (e.g., three-month blocks) or in daily form. The dual study programmes are Bologna-compliant and lead to a recognised bachelor's degree. The qualification in the company can be combined with a vocational training with the degree "journeyman" or "skilled worker".

The close cooperation between universities and companies in teaching offers optimal conditions for the promotion of innovation by SMEs through universities. The following starting points and funding measures are particularly relevant.

a) The professors and lecturers of the universities must see themselves as equal partners of the companies. They must regularly visit the companies, check their innovation needs, provide advice, transfer new technologies, best practices, etc. and accompany implementation in the companies. The self-analysis "Workplace Innovation for SMEs" developed in the project is an excellently suited instrument for this work in the enterprises, in order to find out the most important innovation fields for the respective enterprise as entrance. The more effectively companies experience such innovation support, the greater their willingness to participate as training partners.

b) In addition to personal exchange and transfer, universities shall maintain a comprehensive written and electronic transfer. For example, regular publication of newsletters, innovation platforms, publications of prepared research results, dialogue forums, etc.

c) Approximately 60% of the teaching at the university is carried out by the academic staff of the university and about 40% by practitioners from the companies. In connection with this, the practitioners should continuously bring the needs, topics and tasks of the companies for innovation development into the research and development work of the universities, so that an SME-specific orientation can be achieved. At the same time, through the participation of practitioners in teaching, entrepreneurial thinking, modern management methods, etc. can be transferred to the universities and thus future-oriented organization, administration, work processes, etc. in the universities.

d) Since the students spend half of their time in the university and half in the company, a personal transfer of knowledge, new technologies, best practices etc. from the universities to the companies can be optimal. Equally intensively, questions, concerns, tasks, etc. can be transferred from the companies to the universities via the students and the work of the universities in research and teaching can be stimulated and shaped in a way that is close to the company.

e) Topics and tasks for semester or bachelor's theses should be formulated by the participating companies according to their innovation needs, which are processed by the students in the companies after review and approval by the university. This work process is accompanied by professors and lecturers in the companies who advise both

the students and the companies on the development work and subsequent implementations. In this way, innovative tasks and manageable research and development tasks in the companies are realized in a targeted manner and without additional costs.

f) For the realisation of complex research and development tasks of SMEs, additional financial resources must be obtained. National, but also especially the EU innovation support programs are too bureaucratic for small businesses; the cost of application and project management is in disproportion to the potential outcome of the project and is too much for many companies. Another obstacle to innovation is that SMEs cooperate too little in research and development, in contrast to large companies. Universities must therefore develop their role as an innovative service provider for the SMEs. They can advise companies on formulating project proposals, or even serve as an applicant's representative and project manager. Industry association projects with several SMEs should also be developed by the universities, applied for funding and carried out by the universities as lead partners.

During the project a new dual bachelor's study program "Human Resources and Business Administration" was developed and implemented. During the testing of these program, the above-mentioned innovation support was implemented and tested at the same time. The focus is on the implementation of manageable research and development tasks (see e). During the project, both the pilot of the study program and the testing of the innovation support measures were evaluated. Based on the evaluation results, both the dual study program and the innovation support concepts were then revised and updated.

6.4.2 | Results of the R&D Work⁶⁸

Examples of R&D – co-operation between Satakunta University of Applied Sciences and SME-enterprises⁶⁹

Company projects combine the needs of the companies, the expertise of the professionals and the fresh and innovative views of the students.

Case Pekan Parhaat – Automation of Bakery Packaging Line

Student Jenni Alatalo from Satakunta University of Applied Sciences created an automation plan for the packaging line of a bakery. The thesis was commissioned by Pekan Parhaat Bakery, and it was implemented as a part of 5VTA project (Five effective technology steps in food industry SMEs project). The project partners include Satakunta University of Applied Sciences, Seinäjoki University of Applied Sciences, Regional Council of Satakunta and Regional Council of South Ostrobothnia.

The purpose of the thesis was to find out how the cutting and packaging of Swiss roll slices could be automated in a bakery enterprise. The most appropriate devices were found based on the production volume, the costs were estimated, and a simulation was made according to the most cost-effective automation plan. The goal of the thesis was also that automation would enable more effective use of time, help in gaining savings based on accelerated packing, and increasing the production volume.

When selecting the devices, besides the price special attention was also paid to the suitability of the devices in a bakery environment, where hygiene is extremely important. The space required by the devices is also a significant factor for the working to be pleasant and safe. A major benefit in the selection of the devices is the possibility

⁶⁸ Dr. Kari Lilja, Dr. Sirpa Sandelin, BBA Petra Janhunen, BBA Juliana Aguilar-Mäkelä, M.A. Johanna Vannes, B.Eng. Petri Keski-Korpela, Satakunta University of Applied Sciences

⁶⁹ The R&D work of Satakunta University of Applied Sciences is presented as an example. The extensive results of the R&D work of the two other universities involved in the project University of Technology Gdansk and University of Latvia can be found on the project website <https://ka4hr.eu/>.

to use the devices in the manufacturing process of other products, thus making the investment more beneficial.

Three plans of a different level were drawn up for automation:

1. In the first plan, all the stages related to cutting and packaging are automated by utilizing automated devices provided for bakeries. Moving the packed products to a cardboard case is the only phase done manually.

2. In the second plan, a collaborative robot cuts the pieces by a special tool designed for it. The same robot moves the cut products to individual packages that are conveyed through flow pack packing machine. From the packing machine the products continue to a rotating table, which an employee empties at appropriate intervals to cases.

3. In the third plan, only the flow pack packing machine and the following rotating table are utilized. Thus, the cutting, packing of individual products and packing of plastic-coated products into cases is carried out by manual labour.

When cost calculations were made based on these plans, it was discovered that the cost of the automation with the first plan would be more than 200 000 € without the installation and programming costs. The devices in the second plan cost altogether approximately 70 000 € and in the third plan about 40 000 €. Based on these plans, the most cost-effective solution in this situation was plan number two.

Company: Pekan Parhaat Bakery

Collaboration partner: Seinäjoki University of Applied Sciences

Branch: Food industry

Solution: As a result of thesis there are three automation options that have different levels of automation and budget. The most cost-effective automation plan was plan number two (70 000 €). Selected solution in which a collaborative robot is used for cutting and packaging of Swiss roll slices.

Case Boliden Harjavalta – Machine vision as an instrument for industry

Robotics Academy was commissioned by Boliden Harjavalta nickel smelting plant to utilize machine vision in their process. The possibilities of machine vision were

studied by students. The aim was to deploy machine vision to study the concentrations of different constituents in slag after the smelting process.

A system where computer vision is applied for industrial purposes is called machine vision. The system consists of a light source, a target to be imaged, a camera, a computer with an image processing software that automatically interprets the image.

Machine vision systems mainly execute tasks that are strictly pre-programmed. In this commission concentrations given by the customer were recognized on a conveyor belt. The used application was Cognex application In-Sight. In a smart camera all the image processing and calculations happen in the camera itself.

During the project the students learn how to utilize different camera and light options. The project gave mutual benefit. The competence of the students grew, and the commissioner received the information they hoped for. With the knowledge gained, projects requiring machine vision can be met better.

Company: Boliden Harjavalta

Branch: Metal industry

Solution: Machine vision systems mainly execute tasks that are strictly pre-programmed. In this commission concentrations given by the customer were recognized on a conveyor belt. The used application was Cognex application In-Sight. In a smart camera all the image processing and calculations happen in the

Case Hangan Vohveli – UR5 Collaborative Robot Working in Café Environment

Robotics does not only refer to assistive devices used in industry. Robotics can also be utilized in more everyday tasks, and that's what Robotics Academy students were commissioned to find out. A group of students started researching the possibilities of using UR5e collaborative robot at a café, especially in making coffee and waffles.

Group members Pietari Pulkkinen, Jukka-Pekka Rajahalme and Timo Virtanen started the project by collecting all the necessary equipment to create a demo café. An old Moccamaster coffeemaker was found at the campus, and the commissioner

provided the group with a Belgian waffle iron, a real “Mercedes Benz” in the field. For the robot to work smoothly in the kitchen, the group had to design and 3D-print auxiliary devices suitable for a finger gripper, e.g., a new handle for the coffee pot.

Once the demo café was completed, programming the functional features of the robot was a smooth operation for the group, and the robot carried out the tasks brilliantly. Among the industry-centered projects, making waffle was a nice and tasty change. Besides, having coffee has always belonged to the life of engineering students.

Based on the demo, the students believe that the UR5 collaborative robot is well suited for tasks at a café.

“UR5e is suitable for simple and repetitive tasks at a café. Besides the tasks conducted in the demo, the robot can be used for e.g., spreading dough with suitable tools, pouring different drinks, cutting cakes and pies, and decorating cakes”, Pietari Pulkkinen, member of the project group, lists.

The case was commissioned by Hangan Vohveli and its owners Aarno and Leena Törmälä. The commissioners were happy with the cooperation, and they intend to employ the robot in café tasks at their café.

“Working with the students was a pleasure. They showed initiative and really aimed at finding a functional robotized solution for making coffee and waffles at our café. Our intention is to realize the robot solution, if not yet next summer but at a later stage. Besides functionality, it will be a nice sight for the customers, and we can all learn the kind of assistive tasks the robots are already capable of”, Aarno Törmälä says.

Company: Hangan Vohveli

Branch: Food and beverage service activities

Solution: Based on the demo, the students believe that the UR5 collaborative robot is well suited for simple and repetitive tasks at a café (tasks conducted in the demo and e.g., spreading dough with suitable tools, pouring different drinks, cutting cakes and pies, and decorating cakes)

Case Oras – Collaborative robot in assembly work

Robotics Academy was commissioned by Oras Group to research the suitability of a robot for assembly work. The goal was to automatize a five-part assembly line utilizing an assembly robot.

The robot chosen for the project was a dual-arm YuMi robot, which has been developed to assemble small parts. The robot capable of real cooperation has arms that change position flexibly, part location function based on camera and a precise control system.

In the project, the tasks of Robotics Academy students included the programming and simulation of the robot, utilization of machine vision and the design and implementation of the parts connected to the robot, i.e., jigs, pallets, and layers, by 3D-printing. The project gave the students a possibility to comprehensively learn the functioning and limitations of the robot. The primary goal was reached, i.e., the assembly task was executed by the robot.

“Cooperation with Robotics Academy was easy, and we key into each other already at the first meeting. The assembly of our product varies and with this project we became aware of potential new ways of functioning. The results were interesting, and they are a good basis for further consideration. I believe both cooperation parties gained benefit from the project.” - Maarit Ruohola, HSEE Manager, Oras Group

Company: Oras Group

Branch: C28140 Manufacture of other taps and valves

Solution: The primary goal was reached, i.e., the assembly task was executed by the YuMi robot, which has been developed to assemble small parts. Academy's students were responsible for programming and simulating the robot, using machine vision, and designing and implementing parts of the robot's tools, i.e., jigs, pallets, and levels, by 3D printing.

Case Neorem Magnets – Magnet stacking with the help of an industrial robot

Robotics Academy was commissioned to assemble certain magnets to a required length and form. The possibilities to use an industrial robot for this purpose were

studied by students. The goal was to research whether this given task could be implemented by using different industrial robots.

An industrial robot is a computer-controlled machine that can execute the same repetitive task with the same accuracy and speed several times. An industrial robot is a general-purpose machine, and the same robot can execute several different tasks, depending on the program and the purpose.

The commissioner was Neorem Magnets, the Finnish magnet factory. Their main products are different magnets and magnetic solutions, and they produce high-quality magnets for the different fields of industry utilizing state-of-the-art technology in the field.

Two robots were used in the project: UR-5 and ABB IRB-120. The robot chosen to finalize the project was UR-5 because it met the requirements and hopes of the commissioner better. UR-5 is easy to program and sufficiently fast to execute the task in question.

In the project the students learned how to program and utilize the different features of the robots in an industrial environment. Altogether, the benefit gained was mutual. The competence of the students grew remarkably, considering that this project was the first touch to the wonderful world of robotics to some students. With the competence gained, future robotics challenges can be met even more efficiently.

Company: Neorem Magnets

Branch: Metal industry

Solution: Two robots were used in the project: UR-5 and ABB IRB-120. The robot chosen to finalize the project was UR-5 because it met the requirements and expectations of the commissioner better. UR-5 is easy to program and sufficiently fast to execute the task in question.

Case Neorem Magnets – Measuring magnet dimensions

Robotics Academy got a challenge from Neorem Magnets connected to measuring the dimensions of the magnets. The dimensions of the polygon-shaped magnets should be measured with the accuracy of hundredths of a millimeter.

The challenge was tackled by first conducting a project, where Belgian and Spanish exchange students studied how the measuring of magnet dimensions could be executed by a smart camera. Already at the beginning of the first project it was known that even the best of smart cameras with the highest of resolutions were not accurate enough for the accuracy of hundredths of a millimeter. The goal was set to find out what kind of tools and setup were needed for the measuring to succeed.

At the beginning of the project Colin and Nicolas from Belgium and Jaime from Spain got acquainted with the analysis program of the smart camera and built a setup to be able to capture an image of the magnet as precisely as possible, in stable conditions and repeatedly. When the basic functions of the analysis program had been studied, they started to execute the measuring program. With the measuring program, machine vision system recognizes a piece, finds its edges, and measures the distances between the edges in relation to each other, and measures the angles between the edges. When the program was ready, the students tested imaging and measurements by measuring all the pieces three times on both sides. Thus, data was received on the repeatability and measurement error of the analysis program.

Based on this first project, the results showed that measuring of magnet dimensions was possible by machine vision, and by measuring technique the repeatability and speed of the measuring process could be improved. Based on this project, the goals of the next project were defined, i.e., building more precise imaging arrangements and an applicable analysis program. Moreover, designing a more accurate image jig was set as an objective, as it helps to stabilize the magnet on the imaging platform.

Implementation of the first project was a very pleasant project work for the exchange students. They learned how to program smart camera analysis program in an environment previously unknown to them. They also genuinely focused on presenting the results concerning different pieces and measurements.

“The students had created a really impressive program in a short time and a lot of data was compiled for the report, which is particularly valuable when evaluating the functionality of the program and analyzing the areas for improvement. With cooperation we will receive valuable information on different machine vision systems and their price categories and applicability for our different needs to support the investment decision.” - Jukka Hissa Production development engineer at Neorem Magnets.

Company: Neorem Magnets

Branch: Metal industry

Solution: Measuring of magnet dimensions was possible by machine vision, and by measuring technique the repeatability and speed of the measuring process could be improved. The project used an IDS camera that captures the subject in very high resolution.

Exposure therapy and guided imagery in virtual reality – Welfare technology

Increasing number of people meet challenges of wellbeing of the mind in their everyday life. For example, fear of social situations, performance anxiety and stress are commonplace. Especially young people need new solutions that suit their world to support the traditional paper and pen-methods. Technology offers much needed low threshold instruments to work on these challenges.

Exposure therapy is one of the most efficient methods in treating anxiety. According to studies, 60 – 75 % of people treated with exposure treatment feel they get some sort of relief in their condition and the effects are long-lasting. Exposure therapy is based on facing the fear. When persons are exposed to the targets of their fear long enough, the mind adapts to the stimulus that causes fear, and thus it will not cause a stress condition anymore. Virtual reality is a potential tool for exposure therapy because it helps to create experiences that feel real in a safe environment. Digital environment also assists in making all kinds of changes (e.g., adjusting the number of stimuli and the progress of the situation), which in the real world would be cumbersome or expensive to implement (cf. fear of flying and flying).

Example: Exposure application for agoraphobia

- In the demo the user is at a store, and the goal is to queue and pay for the shopping. The demo uses a real 360 degree-image that is watched with virtual reality headset. In the demo the user can proceed from one interaction (go to the queue) to another (do business with the salesperson) at their own speed. The aim of the exercise is to result in an anxiety response, wait for the stress condition to ease and then continue with one step at a time, at own speed.

Relaxation

VR technology can also be used to support relaxation. The user can be taken virtually to diverse relaxing environments (e.g., the nature). Therapeutic tools can be added to the virtual world, which help in boosting relaxation and recovery. For example, breathing exercises added to the virtual world can help to activate the parasympathetic nervous system to promote recovery.

Example: Breathing exercise

- The relaxation demo uses 360 degree-image, which has been filmed in the fell scenery in Lapland (Picture 3). Controlling the relaxation exercise takes place by a figure created for the demo. In addition, a ball that becomes larger and smaller at the right rhythm is utilized in the demo to guide the breathing to boost relaxation and recovery.

“At its best, virtual reality offers completely new possibilities of implementing e.g. exposure therapies. Utilization and continuous development of virtual reality and various technological applications is reality and the role of technology in psychiatric nursing will most likely increase even more in the future.”

-Anna Mäkelä, Adolescent psychiatrist, locum chief psychiatrist, Satakunta Hospital District, Adolescent Psychiatry Outpatient Clinic

Company: Satakunta Hospital District

Branch: Health and Care

Solution: Cost-effective and easily available solutions to promote the wellbeing of the mind: Virtual reality demo application for relieving agoraphobia, using a 360-degree image of the store and Virtual reality demo application for relaxation, using a 360 degree -image which has been filmed in the fell scenery in Lapland.

Rehabilitation games customizable according to user – Welfare technology

The field of rehabilitation needs novel means to support independent rehabilitation. However, the customers are a heterogeneous group with individual needs for rehabilitation and with different level of functional ability. The games utilize many elements that help to increase motivation, enthusiasm, and commitment. So-called “beneficial” elements can be embedded in games, and then they are called serious games. The challenge in serious games is adapting the contents of the game for different user groups. Especially a solution that is modular and customizable according to the user is needed.

The idea of the game is to activate the user for a light physical exercise, and at the same time practice coordination and perception. With those seriously disabled, the main goal is participation and enabling new experiences.

Controls

To increase physical activity, body movements are utilized to control the game. The game is controlled by a small sensor that monitors the position (inclination sensor). Sensor data is sent by Bluetooth to a mobile device, which has the game installed. The sensor can be attached to different limbs or to different items that the player moves. Thus, the control movement needed can be modified according to the user’s needs. Modularity can be added by customizable control solutions that are 3D printed. 3D printing makes it possible to manufacture entirely individual controls when the sensor is connected to the control.

FDM (Fused Deposition Modeling) was selected as 3D printing technology. A plastic thread is fed through a nozzle and heated to a temperature suitable for the material.

The molten plastic is extruded onto a build platform, layer after layer and finally forming the entire product. The used printing material was PLA (Polylactic Acid) because of its printing properties, such as low printing temperature and dimensional accuracy.

Here the example controls used were:

- a balance board when the movements can be made by using feet (by sitting on a chair or standing on the balance board)
- hand controls, with various ways of gripping (the handles can be changed, and the control can be attached to the body)
- head control, which enables controlling without the use of hands or feet

Games

As an example, a simple labyrinth game was implemented where the player (a mouse) needs to collect hearts (picture). The game can be adjusted according to different users. For example, the size and speed of the game elements, the amount and location of the mazes and the number/quality of the opponents can easily be modified according to the needs of the user. It is essential to adjust the level of difficulty to the player's abilities. The game was realized to be adaptive – it adapts to the player's abilities by raising the level of difficulty with opponents and mazes. The game begins as simply as possible without mazes or opponents. Then e.g., those with challenges in perceptual ability or motoric skills can concentrate only on collecting their first heart during the whole game, without the fear of the game being too difficult and thus killing the motivation. On the other hand, an advanced player does not get bored because the game becomes automatically more difficult when more hearts are being collected. The same control technology can be utilized with various games, and they are being worked on all the time.

"It is important that rehabilitation is also nice. The games are a good aid to make rehabilitation more meaningful. We have taken these new tools both into individual practice and as a part of group practice" -Helena Myllymäki, Quality Manager, Occupational Physiotherapist, Rehabilitation Centre Kankaanpää.

Company: Rehabilitation Centre Kankaanpää

Branch: Health and Care

Solution: The idea of the game is to activate the user for a light physical exercise, and at the same time practice coordination and perception.

Spoiled slaughterhouse waste can be recognized by hyperspectral camera and artificial intelligence – Data analytics

Tampere University Pori Unit co-operates with Satakunta University of Applied Sciences and companies in commissioned cases. One example of this is reliable analysis mechanism for slaughterhouse waste that was developed for Honkajoki Oy. The analysis mechanism based on hyperspectral imaging could be used in the further processing of slaughterhouse waste.

The unit had a hyperspectral camera of Specim Ltd in use. The spoilage level of slaughterhouse waste could be recognized with the help of the camera. Also the foreign objects, such as metal, plastic, and glass, were identified and the water content of slaughterhouse waste was determined. Laboratory samples taken of slaughterhouse waste are used as reference values for hyperspectrum data. The images have been compiled together in co-operation with the researchers of University of Tampere and Specim Ltd.

The measurements of hyperspectral camera are fed to the Computing Unit of Tampere University neural network (artificial intelligence), where the neural network strives for learning the causal relation between hyperspectral camera measurements and laboratory measurements taken from slaughterhouse waste. Teaching neural network requires several interim stages because there is plenty of hyperspectral data and before neural network can be taught, the amount of data needs to be reduced without, however, losing any essential data. Thereafter, the size of the neural network must be determined, and optimum web learning parameters found before the actual teaching of the neural network can take place. Moreover, Dyme Solutions Oy has implemented a data acquisition solution with which data from different processes of Honkajoki Oy is collected in one place. Researchers from Tampere University are trying to find cause-

and-effect relations in the collected data. Success in this would lead to development of different processes, e.g., review of energy consumption and reduction of energy consumption in future or predicting the breakdown of components related to process.

Company: Honkajoki Oy

Co-operative partner: Tampere University Pori Unit

Branch: Food Industry

Solution: The collaborative partner uses a hyperspectral camera to recognize the spoilage level of slaughterhouse waste, to identify foreign objects, and to determine the water content of slaughterhouse waste. Laboratory samples taken of slaughterhouse waste will be used as reference values for hyperspectral camera data. A data acquisition solution has been implemented to collect the data from different processes to one place. Researchers are trying to identify cause-and-effect relations in the collected data. Success in this would lead to development of processes, e.g., review of energy consumption and reduction of energy consumption in future or predicting the breakdown of components related to process.

5VTA: Machine vision system to recognize the flavor of chocolate slabs and to guide the robot – Robotics and Automation

This example presents the planning and implementation of machine visions system that guides the robot to pick chocolate slabs on the line and pack chocolate slabs of different flavor in their own cases.

The machine vision system was implemented as a traditional machine vision system consisting of a machine vision camera, a LED light that lights the chocolate slabs and an analysis software running in the computer. The machine vision camera always takes an image of the chocolate slab at the same point of the conveyor

The analysis software running in the computer recognizes the flavor marking on the chocolate slab as well as the location of the chocolate slab, i.e., its coordinates on the conveyor. When the robot receives the information of the coordinates, it picks the

chocolate slab from the conveyor and packs it into the right case based on flavor information.

Project: Five effective technology steps in food industry SMEs – 5VTA

Collaboration partner: Seinäjoki University of Applied Sciences

Branch: Food industry

Solution: The machine vision system was implemented as a traditional machine vision system consisting of a machine vision camera, a LED light that lights the chocolate slabs and an analysis software running in the computer. The analysis software recognizes the flavour marking on the chocolate slab as well as the location of the chocolate slab.

5VTA: Mobile robot call application for food logistics – Robotics and automation

When we want a mobile robot to convey food packages to be boxed or boxes to be palletized, we must be able to call the mobile robot to convey the products if needed. In 5VTA project, a call application for mobile robots was made by way of example.

With the call application, a worker can call the robot to go and get the products, for example from the packing machine to be palletized. The call application functions on a mobile device and the worker can choose where the mobile robot is called and where it is sent to when the products are onboard. The call application enables also making a reservation for the robot, i.e., if the robot is busy, it can be reserved to come next to a determined place. The application can also be used to create a route for the robot according to which it can proceed automatically from one operating point to another, or first to the packing department and then to the dispatch department.

Project: Five effective technology steps in food industry SMEs – 5VTA

Collaboration partner: Seinäjoki University of Applied Sciences

Branch: Food industry

Solution: Call application for mobile robots so worker can call the robot to go and get the products, for example from the packing machine to be palletized.

5VTA: Processing of bakery products with a light touch gripper – Robotics and automation

In this example different bakery products are handled by a robot gripper, whose grip force can be adjusted so precisely that the products that are easily deformable do not stretch or get squashed.

The bakery products in this example are a doughnut and a mini sized doughnut. The light touch gripper is used in this example to:

1. Handle the doughnuts by lifting them on the inner edge
2. Handle the mini sized doughnuts by lifting them on the outer edge

Light touch grippers like these enable flexible manufacturing as they can be used to handle products of all forms, without affecting their shape. Thus, several different products can be simultaneously handled on the production line.

The locations of doughnuts and mini sized doughnuts are recognized by PickIt 3D camera that guides the robot to pick the bakery products from the right location.

Project: Five effective technology steps in food industry SMEs – 5VTA

Collaboration partner: Seinäjoki University of Applied Sciences

Branch: Food industry

Solution: Light touch grippers enable flexible manufacturing as they can be used to handle products of all forms, without affecting their shape. Thus, several different products can be simultaneously handled on the production line.

Omron mobile robot at Kodin Terra

Satakunta Co-Op commissioned Robotics Academy students to program a customer service robot for their newly renovated hardware store, Kodin Terra Pori. The aim of the project was to design and implement an application for a mobile robot that would allow a customer to specify a product. The mobile robot would then guide the customer to the new physical shelf location of the product.

The choice was made to use the Omron LD-90, an Autonomous Intelligent Vehicle or AIV, and build an application around its specifications. The LD-90 is ideal for routine internal logistics, such as moving materials. The mobile robot charts its environment and can then navigate independently around the charted area. The robot can be programmed to communicate with specified waypoints and has laser sensors that allow it to circumvent people, furniture, or other obstacles. These features were ideal for the project at hand.

The project partner clearly stated their wish for a simple and clean look to the user interface. In response, students created a landing page, a product search page, and a help page. In addition, a display was added that listed, in real time, where the robot was currently headed as well as the time it would arrive there.

To facilitate all these features, students chose JavaScript as the programming language, Node.js as the JavaScript environment for server, MongoDB database building and Git for version control. To provide customers with a familiar user interface, Omron was fitted with a Samsung tablet in a tablet stand. The application was loaded onto the tablet and through the menu, customers were able to choose their product category (e.g., laminate flooring) which would trigger Omron to calculate a path to the item.

The project taught the students programming of the Omron mobile robot, including how to chart areas, creation of user interfaces and project management.

Company: Satakunta Co-Op, Kodin Terra

Branch: Retail

Solution: An application for a mobile robot (Omron LD-90) that would allow a customer to specify a product. The mobile robot would guide the customer to the new physical shelf location of the product.

MeWet Simulated SMART Home

The MeWeT, or Model environment for Well-being enhancing Technology simulated home in Ulvila, encompasses smart home technology, renovation, accessibility, intelligent actuators, and traditional services. All of these are seamlessly integrated into

an apartment ideal for a person experiencing life changes which may affect things such as mobility.

During the spring of 2018, Robotics Academy students began work in the MeWeT home to install a Beckhoff home automation system. This modern, comprehensive building automation system makes sustainable and energy-efficient building solutions possible, allowing the lighting in the home to be automated and programmed on the Green Building model.

Beckhoff offers a comprehensive and scalable control system for building automation needs, ranging from PC and Ethernet-based control to modular I / O. The Beckhoff control system makes it possible to achieve energy efficiency class A according to EN15232 standards.

EnOcean switches are wireless and battery-free, generating all the energy needed to operate them when pressed. EnOcean technology is widely used in Europe for commercial applications such as hotels, as they are completely maintenance free.

For this reason, switches are available for most electrical components in Europe.

DALI (Digital Addressable Lighting Interface) is an international open standard (IEC 62386) developed by lighting manufacturing companies to create a simple and flexible way to manage and control a great number of light control devices from on or off site.

In the MeWeT house, DALI lighting was grouped into rooms or sub-groups within a room. Students added dimmer options which the user controls with the EnOcean switches located in the home. Since the switches do not need to be attached to the walls, this idea fit into the idea of the MeWeT house splendidly.

Academy students learned to program various sensors and lights with home automation systems. Students learned the structure of the I / O system by first building their own system on school grounds. In the future, it will be possible to help with the challenges of home automation.

Customer: The MeWeT (Model environment for Well-being enhancing Technology simulated) home in Ulvila

Collaboration partner: SataEdu

Branch: Health and care

Solution: Robotics Academy students installed the Beckhoff home automation system. System makes sustainable and energy-efficient building solutions possible, allowing the lighting in the home to be automated and programmed on the Green Building model.

Application for Health and Well-being Professionals

At the Satakunta University of Applied Sciences, the health and well-being degree area needed an interactive teaching application that would allow students to get familiar with patient databases and patient management plans. Currently, students fill out patient information and patient management plans on paper forms, a practice that is becoming obsolete and impractical. A request was submitted to the students of Robotics Academy to create such an application.

The basis for the application came from graduate student Anu Elo's thesis ("Designing a nursing care plan application for nursing education in Finland"). The idea to implement a platform-independent application that would bolster theoretical learning with real-world simulations was applauded.

With the final application, healthcare students can simulate care situations, monitor patient care, make care plans, and record "real" patient information in the database. The app is connected to Satakunta University of Applied Sciences' internal information system, through which the students can log in to the application with their own student IDs.

For Academy students, this was a chance to explore and add new skills to their knowledge bank, using a wide range of programming languages and new programming methods. The application's program code was commented and documented because, in the future, the software will not be maintained by the Robotics Academy. Future functionality will be added to the application.

The following programs were learned during the completion of the project:

JavaScript (programming language), React (JavaScript library user interface), Node.js (JavaScript environment server), Express (Framework node.js), MongoDB (database construction), Git (version control), Bitbucket (web-based Version Management Archive Service) and Figma (Visual User Interface).

The objectives of the assignment were achieved: the result was a workable and clear application, and the ease of access for future contributors to continue development on the application was gained. Students improved their programming, customer service and project management skills.

Company: Satakunta University of Applied Sciences

Branch: Health and Care

Solution: Interactive teaching application that would allow students to get familiar with patient databases and patient management plans. The application's program code was commented and documented because the software will not be maintained by the Robotics Academy.

Automated beverage bottle opener

Satakunta University of Applied Sciences has a Universal Robots 5 (UR5) robot arm, which is utilized for educational purposes by students as well as for school demonstrations. A demonstration that has proven popular at public events includes UR5 dispensing drinks. Through code, the robot is directed to use its machine vision to take a bottle from a bottle rack, pour the drink into the cups and drop the bottle into the trash. One major issue with this demonstration is that the bottles need to be manually opened. The number of drinks served at these public events range from tens to hundreds, depending on the audience, so it made more sense to use a machine for opening bottles.

This case was given to the students of the Robotics Academy to solve. Having analyzed the current situation it was found that the robot's own grip strength was not enough to be able to spin the cap open and separate it from the bottle. The group

responsible for this case mapped possible solutions, taking programming, mechanical and functional needs into account.

The biggest challenge was designing a gripper/opening head, which would be suitable for majority of bottle types and would also work for the robot, in terms of possible features. From the mechanical implementation point of view, the multifunctionality of the opening mechanism presented a challenge. The opening head had to rotate to remove the cap and then the cap had to be removed from the device before the next beverage bottle was brought to the machine. Used caps and bottles had to be deposited in the trash to make the presentation table ready for the next bottle.

The body of the device was constructed of an aluminum profile and the cage was designed from plexiglass. SolidWorks -3D design software was used to design mechanical parts, each track and gear carefully modelled to fit together. When the models were ready, they were printed on the school's 3D printers. Biodegradable and inexpensive PLA plastic was chosen. In this way, it was easy to make the new parts just by printing more, if needed.

For programming the opener, the Ardo's Uno was chosen. It is a small microcomputer that is programmed with C ++ programming language.

The working solution: The robot takes the bottle under the opening head and the attachment removes the cap. The necessary equipment was made to place the removed cap in the garbage. The operation of the device was tested, and after the adjustments it was found to work consistently.

Utilization of ECM (Electro Chemical Machining) technology in Finland

At the end of 2018, Tasowheel Tikka begun to develop new ways to work on demanding metal tooled pieces and invested ECM (Electro Chemical Machining) technology. ECM technology is used to produce demanding metal parts. ECM-technology enables complex concave curvature components being produced easily by using concave tools. The tool wear is close to zero, thus, the same tool can be used for producing infinite number of components. Furthermore, there is no direct contact between tool and machined object, thus, there are no risk for residual stresses nor mechanical

damages, and the surface finished by the tool is excellent. As an accurate process the machining can reach tolerances of the order of 0.05 mm. The ECM technology can be used to machine extremely hard metals and alloys, and deep, small and/or odd shaped holes.

However, there are some challenges in the use of technology. The tools used in the process should be made of material having enough thermal and electrical conductivity, and a high chemical resistance to an electrolyte. Although all metals can be worked by ECM method, the application is commercially reasonable only in mass production because the implementing cost is high and designing and fabrication of tools difficult. In addition to this, the power consumption of the process is very high. And, furthermore, the corrosion and rusting of workpiece, tools and other metal equipment connected to electrolyte, is a continuous challenge.

ECM-process is based on Faraday's Laws of Electrolysis: The workpiece is set as anode, and the tool as cathode. The gap between the tool and the workpiece should be very narrow, approximately 0.5 mm. Low DC voltage (between 3 and 30 V) is connected between the anode and cathode, and an electrolyte is continuously pumped through the gap. The current flows through the electrolyte, positively charged ions are attracted towards the cathode (tool), and the negatively charged ions towards the anode (workpiece). As the result of the electrochemical reaction, the metal will be removed from the workpiece. The sludge, born during the process, is drained out by the flowing electrolyte.

At the moment, TGO-group is the only Finnish workshop with a readiness to provide machinery with ECM technology. The purpose is to use ECM technology to offer domestic customers the machining of metal components in a unique way and thus increase Tasowheel Tikka's turnover and profitability. By acquiring ECM technology expertise at Tasowheel Tikka, the company believes that they will significantly improve their supply of services and that they can create a new type of service concept based on new technology.

The ECM machine that arrived at Tasowheel Tikka 2018 has not been put into productive use. The reason for this is the challenges caused by long delivery times of the

jigs, and the quality of the result of the machining. The target of this project is to study and learn the ECM process so, that Tikka could independently design and manufacture the jig and create programs for new products. The project requires mechanical design, study of materials and a lot of testing with different configurations. Especially the manufacture of cathodes (tools) is a completely new process for the company.

Company: TGO Group / Tasowheel Tikka

Branch: Metal industry

Location: Tampere, Finland

Solution: ECM (Electro Chemical Machining) technology is used to produce demanding metal parts. ECM-technology enables complex concave curvature components being produced easily by using concave tools.

Case: Further Development of the Insta Blue Aware™ (IBA) Product Family

IBA is a lightweight and scalable web-based situational awareness solution for optimizing safety-related decisions and operations. IBA connects to multiple data sources and works on laptop, tablet, and smart phone.

Insta Advance builds the technical basis for the SURE project. IBA will be used in the command centres, the mobile app Insta Blue Tracker™ on the field, and Insta Blue Sky™ for drone operations. Different sensors and data sources (e.g. CCTV cameras, public transport, defibrillators, CO2 meters, and traffic data) are integrated into the situational awareness platform. AI analytics data is being collected into a database and visualized. 3D models and visualizations are used for planning and anticipation. Skills for rehearsals and simulations are developed.

What is new and interesting in this development project, is that the SME is doing the product development in the scope of an EU-funded project that aims for urban development and is not a funded by an instrument targeting SMEs. The work is done in cooperation with the whole project consortium.

Company: Insta Advance

Branch: Cyber security and secure digitalization

Location: Tampere, Finland

Solution: lightweight and scalable web-based situational awareness solution for optimizing safety-related decisions and operations.

Compressed Air as a Service

The founding idea of Tamturbo is that the world needs a more environmentally friendly alternative to producing compressed air; we cannot continue wasting our most valuable resources, energy and environment. Their business innovation is based on unique technological advances combined with ingenious engineering work that have led to a range of oil-free air compressors that far surpasses the legacy industrial air compressor technologies both in performance and in significantly lower life cycle cost. The Touch-Free™ technology enables reliable and fully oil-free air compressor design and eliminates risks of compressed air contamination.

Born in one of the air compressor capitals of the world, in the industrial city of Tampere, Finland, Tamturbo is expanding its footprint globally through distributors and partners. The turbo compressor product family is complemented by a range of value adding products and services for efficient management of the compressed air production, e.g. mobile container-based air compressor rooms, multi-compressor control systems to 24/7 remote monitoring, and comprehensive air compressor service.

Company: Tamturbo

Branch: Metal industry

Location: Tampere, Finland

Solution: Producing compressed air to industrial sector as a service.

7 | Dissemination of project results

The project KA4HR involved 72 associated partners from 13 countries who are transfer recipients and implementation partners. They were continuously informed by the Baltic Sea Academy in writing and in person at conferences, general meetings or other meetings the BSA carried out or participated in. So, the suggestions of the associated partners were continuously fed into the ongoing project work.

Representatives of the target groups were involved in the development of the educational products. All these were tested and evaluated in practice. The subsequent dissemination to project partners and all associated partners and utilisation took place through various channels:

- a) Curricula, instructions for implementation, etc. were sent in writing and electronically for all training measures.
- b) Lecturers from project and associated partners were invited to participate in the tests as observers so that they could gain experience for their own implementations.
- c) In workshops with all project and associated partners as well as stakeholders, the uses were discussed in person and models for future realisations were developed.
- d) For all educational products as well as for the implementation of R&D tasks, project and associated partners received individual implementation consultations.

The aim of the project was to ensure that as many of the project and associated partners in 13 countries as possible use the training products on a permanent basis, achieve very high participant numbers in the medium term and carry out the R&D tasks with a growing number of SMEs, if possible, in all 13 countries. In order to ensure this, the Baltic Sea Academy will continue to provide individual advice and funding for implementations even after the end of the project. As the 72 project and associated

partners serve around 475,000 SMEs, strong dissemination with high numbers of participants can be achieved.

The following additional measures were used to further disseminate project results:

- A stand-alone project website was developed with the following content of focus:
 - Detailed information about the project and its implementation. This includes project description, abstracts and Power Point presentations, which are also used by all project and associated partners for their presentations at third party events or for their committee work.
 - All project and associated partners and their contact details.
 - All project results with all supplementary documents as OER for free downloading.
 - Dialogue and cooperation forum Knowledge Alliance.
 - Service pages for the various target groups (SMEs, SME employees, students, lecturers) with all target group-specific offers, dates, invitations, etc.
 - Service pages for institutions of vocational education and training, further education and higher education with all cooperation offers, invitations to workshops, train the trainer seminars etc. as well as field reports etc.
 - Dialogue, contact and partner forum
- In addition, comprehensive information about the project and its results was provided on the publicly accessible websites of the Baltic Sea Academy and the ten project partners.
- The lead partner Baltic Sea Academy and the sister organisation Hanse-Parlament make intensive use of social media and have their own long-standing accounts, e.g., Facebook. Both organisations have ongoing dissemination via these media with intensive dialogue and exchange.

- Press conferences and press releases provided intensive information about project results and their use. In addition, all project and associated partners provided information in their own platforms and member magazines.
- At numerous international events organised by third parties, project results, possibilities of use, etc. were presented in person in various countries.
- Project results were published in the form of this manual in a book, widely distributed and sold at low cost through the book trade.
- Project and associated partners introduced project results into political decision-making processes as part of their day-to-day business and support cooperation between SMEs and universities in particular.
- The Baltic Sea Academy, as an international organisation, is involved in numerous committees and provided information here about project goals and results in order to disseminate project results and secure funding for intensive cooperation between SMEs and universities.
- Thirteen result videos were produced and published on the websites of the project partners and in a You-Tube channel of the lead partner.
- An international consultation and transfer conference was held, which unfortunately had to be organised online due to the Corona pandemic.

All project results are fully transferable and can be used freely and without charge in all countries. In individual cases, adaptations to specific national conditions are necessary; for this purpose, appropriate assistance is provided for all results in application notes and recommendations for use.

Other Publications by the Baltic Sea Academy

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Latvian Chamber of Crafts, Latvia

Latvian Chamber of Industry and Commerce, Latvia

Lower Silesian Chamber of Craft and Small and Medium-sized Businesses, Poland

Master of Crafts Norway, Norway

Nordic Forum of Crafts, Norway

Organisation of Handicraft Businesses in Trondheim, Norway

Panevezys Chamber of Commerce, Industry and Crafts, Lithuania

Pomeranian Chamber of Handicrafts for SMEs, Poland

Russian Chamber of Crafts, Russia

Schwerin Chamber of Skilled Crafts, Germany

Small Business Chamber Warsaw, Poland

St. Petersburg Foundation for SME Development, Russia

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Wielkopolska Craft Chamber in Poznan, Poland

Association for the promotion of Hamburg's economic history and the tradition of the Hanseatic League, Germany

Baltic Sea Forum e. V., Germany

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