European Union
European Social Fund

LAND BRANDENBURG
Ministry of Science, Research and Cultural Affairs

The project is funded by the European Social Fund (ESF) and the Federal State of Brandenburg via the Brandenburg Ministry of Sciences, Research and Cultural Affairs (MWFK).

Technische Hochschule Wildau
Technical University of Applied Sciences
WILDAU

The project is part of the funded project "Codi", realised at the Technical University of Applied Sciences Wildau.

How to foster digital skills in university-industry interaction – the Digital Innovation Camp approach

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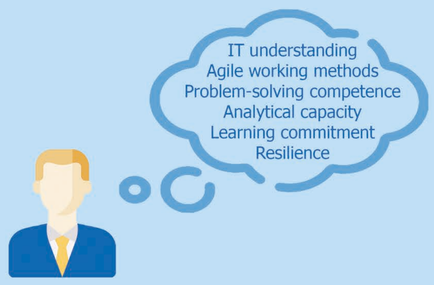
1 Background consideration

The transition between graduating and starting a career in a working environment is crucial: On the one hand, the professional knowledge gained during studies need to be complemented with a set of well developed soft skills and individual competences, on the other hand those set of skills and knowledge needs to fit the requirements and expectations of future employers.
Particularly in SME, a wide range of tasks must be mastered early on and taken on at graduates own responsibility.
The approach addresses precisely this interface, asks about the needs of both sides and strengthens competences in view of the increasing demand for digital and social skills.

Digitization **Globalization** **Flexibility**

In the education sector and the working environment, the keywords "digitization, globalization and flexibility" determine the effects and potentials of social change in the context of the digital transformation.
The result is an increasing complexity and rising demands on the competence profile of young professionals.[1,2]

Most important personal characteristics and methodical competences of young professionals:[7]



2 Methods and process

This study is based on the action research (AR) methodology[3] in order to learn more about DIC in university-industry interaction and is still work in progress. The presented results cover the first round of the action research cycle[4]. A second cycle will be implemented in 2021.

The approach is intended to support graduates to start their careers and prepare them in the best possible way. The focus is on **strengthening the personal competence profiles** of young graduates and the requirements for innovation and entrepreneurial action in a fast changing world. This is done by a combination of **interactive coaching workshops, intensive team work and virtual reflection phases**. In addition to increasing digital competences, soft skills and innovation awareness, the focus is on the students' self-efficacy and professional capacity to act as well as on the **integration of digital innovation problems** of small and medium-sized companies and start-ups. At the same time, the project strengthens the bridge between theory and practice as well as the networking of scientific and economic actors and creates a central basis for professional development and future innovative ability.[5,6]

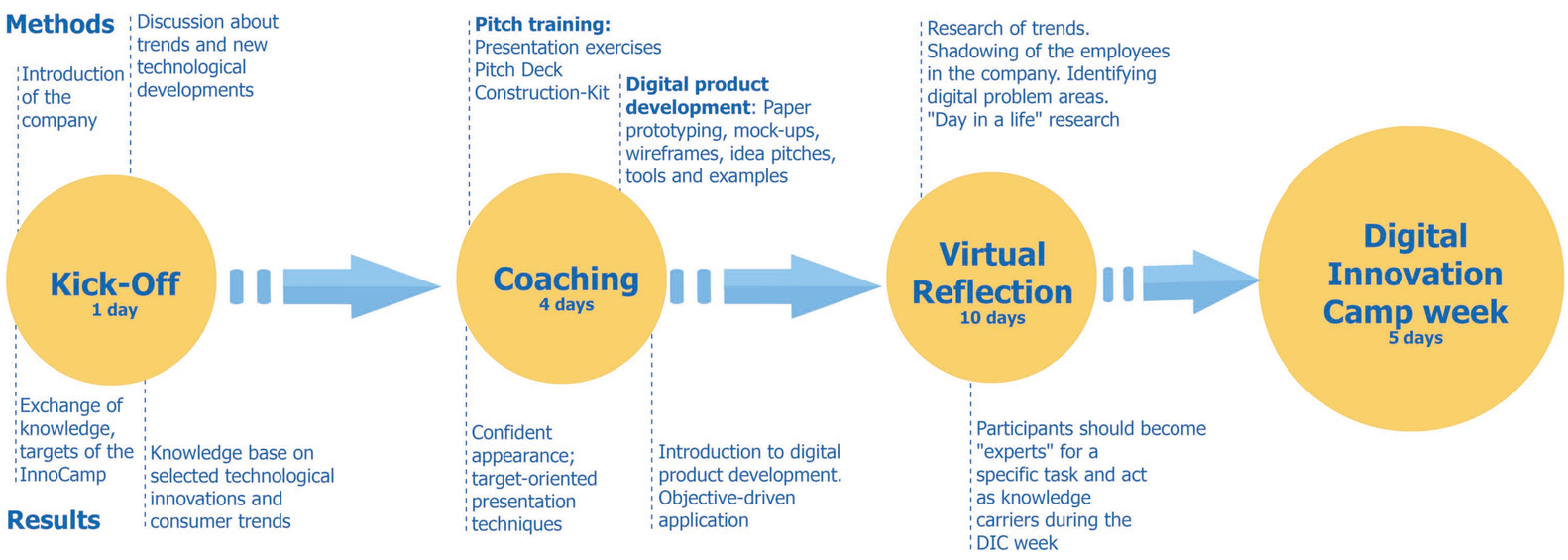
3 Digital innovation camp (DIC) approach

The DIC enhance creativity and support the development of creative solutions for company problems with regard to digitalization. The approach allows the integration of students with different backgrounds, experts, and corporate managers. Furthermore, potential customers/users can participate in various ways to give valuable early feedback on new concepts. In our study, the DIC concept was implemented for the first round in 2019 and centered on the corporate challenge of solving digital problems of a regional SME. The participants (students) faced the challenge of developing a customized digital communication tool for the company and a digital marketing compaign to attract new trainees.

The students focus on the following learning targets:

- **learn and apply creativity**
- **problem-solving techniques**
- **design digital prototypes**
- **conduct initial tests with users**
- **solving real innovation problems of companies**

During one intensive week (5 days), students, facilitators, and experts developed ideas, observed customers, presented and reflected on generated concepts, and developed concept prototypes. The DIC was set up on campus but in an unusual learning environment so as to break out of normal classroom settings. The room concept included a big joint working space with possibilities for group work, visualization, relaxation (food, music), prototyping, presentation equipment, and several tools to support the implementation of creativity methods. The DIC involved 11 students (10 BA, 1 MA level) from management studies, biosystems engeneering, business information technology and industrial engineering.



DIC	Methods	Results
Common knowledge base	Sharing knowledge, Empathy training, "putting yourself in the shoes of potential customers"	Basics of innovation management. Shared expert knowledge from the virtual reflection phase
Creativity methods/ idea generation	Creation of personas, brainstorming, clustering of ideas, idea evaluation	Deep understanding of the customer's problems, needs, values, expectations
Prototyping	Presentation, visualisation and discussion of the results of the second day, creation of prototypes, interview guide for testing	Prototypes directly adapted to customer needs
User Testing/ Concept development	Status presentations of the concepts, feedback, user testing with potential users / customers	Customers feedback, detailed and iterated prototypes
Presentation	Presentation of the concepts and discussion	Sophisticated concepts and prototypes, feedback from management

4 Outcomes

The DIC resulted in three different concepts (a) an internal communication tool (app), (b) marketing campaign for the attraction of trainees (c) knowledge storage tool, developed by three interdisciplinary student teams. The first implementation cycle of the transfer-oriented teaching and learning approach shows that students were able to put themselves in the position of the company in order to identify innovative solutions by implementing innovation management methods in the course of the DIC. In a relatively short period of time, they were able to develop different concept prototypes which are ready for further development and implementation by the company. Furthermore, students and company representatives got in touch with and learned from each other in terms of digital innovation challenges.

The results show that DIC are a viable avenue to initiate open innovation activities[8,9] in the form of collaboration among corporations and universities ("transfer via heads"). In this regard, DIC proved to be a possibility for the corporation to test acceptance of digital advancements and to further investigate its innovation potential.

By doing so, corporations can accomplish a collaborative discovery of opportunities driven by digitalization. Furthermore, universities and their affiliated members get a firsthand look into corporate problems and can channel their research results directly into the corporate life. Both partners profit from the collaboration because they can develop new knowledge and can verify their perspectives. In this regard, the DIC can evolve into a win–win situation for both transfer partners. In terms of teaching and learning this approach allows to incorporate new approaches, e.g. the strong focus on interdisciplinary teams, the decomposing of traditional classroom settings or the fast integration of new methods (e.g. digital tools). Furthermore, the DIC acts as a testbed for curriculum development within the University. Depart from the focus on digitalization and innovation management methods, the DIC supports the development of student's soft skills by working in interdisciplinary teams, various presentation and communication exercises.

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