Co-Innovation Lab - a Platform for Learning the Competencies of the Future

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Abstract

Digitization is changing the business world; digital technologies are affecting competencies, methods and opportunities in the business place. Competencies such as innovative spirit, analytical strength, customer orientation, team spirit and personal responsibility are becoming more important than ever. Universities teaching business students must ask themselves: How should a future oriented teaching concept in business administration - besides theoretical lectures and case studies – be structured? How can innovative tasks and experiences be integrated into a course? How do lectures at universities include cutting edge business-relevant challenges and questions?

In the "Co-Innovation Lab" at the Munich University of Applied Sciences (MUAS), companies work together with students in project-oriented courses on future innovations. This lab serves as a common development environment for innovation projects. Students change from discussing case studies to interact with business reality through projects and experience as well as develop new approaches to solving complex business problems.

Teaching in the Co-Innovation Lab is characterized as multi-dimensionality, self-activity and cooperative learning in projects. Companies receive innovations from and for an often little known target group and meet their potential employees of tomorrow. In the paper we use the example of "Brainnovative Consulting" (a lab stream based on the Co-Innovation Lab concept) to show how students carry out projects on their own responsibility. Brainnovative Consulting (www.brainnovative-consulting.de) is a student management consultancy integrated into the curriculum of the Master Programs "Digital Technology Entrepreneurship" and "Applied Business Innovation". The student projects include the discussion of a proposal with a target formulation for the cooperating companies, project planning, implementation to completion and reflection on current innovation topics. The students cover the entire lifecycle of a consulting project from acquisition, delivery to knowledge management and deepening their competencies during that activities. In addition to organizational topics such as project acquisition and corporate support, lecturers are responsible for coaching the teams.

In the future, in addition to the current version of the Co-Innovation Lab with focus on the topics of innovation consulting, process mining and business process management, we will add further topics, improve the project infrastructure, integrate further disciplines and increase the accompanying research.

Keywords: *Project-based learning, customer-orientation, innovation;*

1. Introduction

Digitization is changing the business world [2]: new business models, changed processes and cutting-edge technologies are challenging all industries. Especially digital technologies are affecting opportunities in the business place and also require other techniques for implementation. Suitable methods such as lean startup, agile project management or design thinking call for new or enhanced competencies such as innovative spirit, analytical strength, customer orientation, team spirit and personal responsibility. This must also be reflected in teaching and learning at universities.

Universities teaching business students must ask themselves: How should a future oriented teaching concept in business administration - besides theoretical lectures and case studies – be structured? How can innovative tasks and experiences be integrated into a course? How do lectures at universities include cutting edge business-relevant challenges and questions?

2. Adjustments of competencies and learning

In addition to changing contents and topics in business management modules, a large number of new skills and competences (fig. 1) will be brought to the spotlight [4]. Previous teaching concepts such as

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theoretical lectures, but also role plays or case studies cover only a small part of these competences. Either the conceptual component, the implementation, or the soft skills are missing.

project management skills and personal responsibility
to control implementation with the help of project processes

passion to innovate and conceptual strength
to actively seek new ways to develop business models and products

New Competences

consulting and communication skills
to solve customer problems in an interdisciplinary team

analytical and problem-solving skills
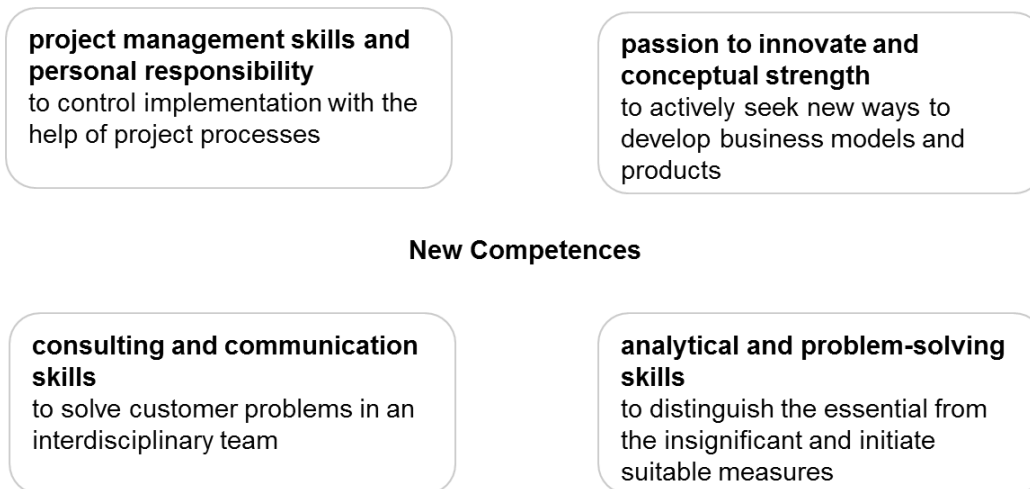to distinguish the essential from the insignificant and initiate suitable measures

Fig. 1. New competences for actual business challenges

The new didactic demands are: opening the subject classification to situation dynamics and from instruction to self-directed learning [5]. The fundamental change of perspective from a knowledge transfer didactic to didactics of self-directed appropriation of knowledge and competences is essential. Behind this is the insight that learning is most effective and efficient when the learner can independently acquire the knowledge, experience its sustainability and apply it in experiments [5].

"Competence building and maturing learning is a self-motion through which the learning subject develops skills for self-organized and appropriate problem solving. It moves in a learning environment (which defines a competence profile and distribution channels), but at the same time realizes a learning world (self-learning and design)" ([1], p. 5 f.).

In the classic definition of self-directed learning, Knowles ([3], p. 18) describes the process of self-directed learning as a process in which individuals take the initiative - with or without the help of others - and analyze their learning needs, formulate learning objectives, identify human or material learning resources, select and implement suitable learning strategies and evaluate learning outcomes.

It should be particularly emphasized that a constant reflection and an improvement loop is built into the process of self-directed learning through the evaluation aspect. The teacher takes on different roles in the learning process. He is an expert for the learning content, an active listener and productive questioner, facilitator of a concentrated and trusting (learning) atmosphere, trainer who recommends exercises, and process facilitator in the sense of a "critical friend" ([6], p. 104 ff.).

3. Co-Innovation Lab Concept

In the Co-Innovation Lab training of required competences for the digital world is supported. This lab serves as a common development environment for innovation projects. It promotes university courses - independent of programme and education level. Currently, several streams are offered at MUAS (fig. 2). In the following we introduce idea, organization and method of the lab.
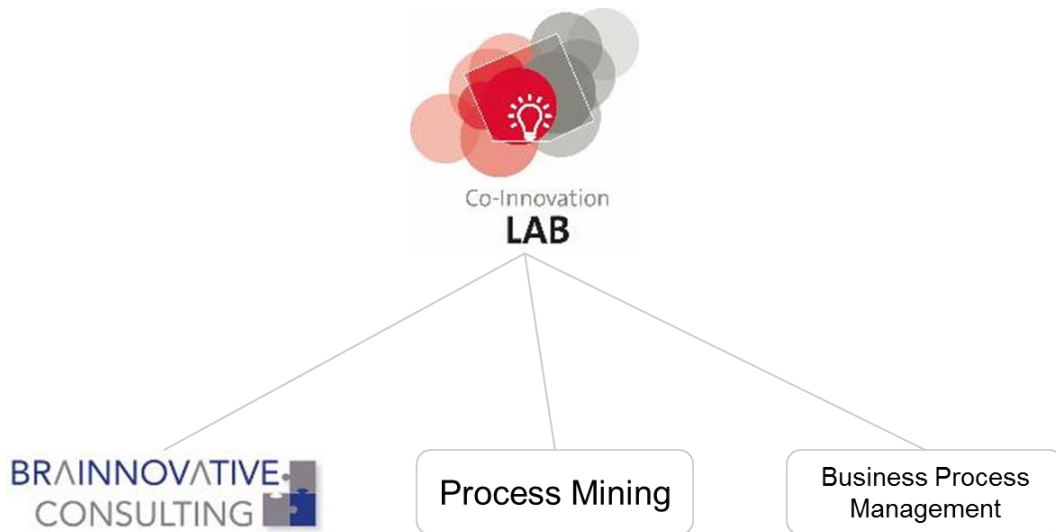
Fig. 2: Actual Co-Innovation Lab streams

3.1 Idea

In the Co-Innovation Lab of the Munich University of Applied Sciences, companies work with students on their future innovations based on digital technology as part of their courses. The Co-Innovation Lab serves as an organizational platform and interface between lectures and companies. Temporary innovation partnerships are created with a joint development environment for innovation projects - from an idea, through testing to results in a maximum of ten weeks. We strive for a win-win situation for the university, students and companies.

Companies receive innovative solutions from a view of an often unknown customer base. They also meet potential employees of tomorrow. Students build up necessary competences by changing from case studies to reality and intensify the teaching content. Lecturers get new contacts to companies and their current challenges. The platform supports the acquisition and setting up of real projects and the implementation of projects through procedures, templates and processes and, last but not least, increases one's own visibility with press articles of successful projects.

The didactic concept ground on small teams consisting of a maximum of four students autonomously carrying out real industrial tasks in a self-directed learning mode. The lecturer acts as coach. Analogous to the often-used agile approach [7] consisting of several iterations and retrospectives, the teams independently set up the requirements, prioritize, plan and execute.

3.2 Organization

For the back office organization of the Co-Innovation Lab a variety of processes and methods are used. A customer database is essential for professional acquisition and customer management. A framework with templates for presentations, papers and time reporting for students, but also project management instructions and templates for legal aspects for lecturers accelerate the integration into existing modules.

The project database with all current and previous projects serves for external marketing activities and setting up further projects. Sophisticated knowledge management with an online and offline component supports new project teams and avoids the repetition of errors. Furthermore, project results and cooperation are presented on various platforms such as university and Co-Innovation Lab (www.co-inno-lab.org) websites.

3.3 Method

In addition to developing the theoretical basis of the course, the most important task of the lecturer is to integrate innovation partner companies and project topics for a specific course. Our utilized steps are comparable with a consulting lifecycle process of a consulting company.

1. The acquisition is done by the respective lecturers - they have to decide whether the project topics are suitable for the course. Through personal contacts or former projects provide additional engagements. Although an attempt is made to establish a "pipeline" of project

inquiries, the start of a project is often only decided shortly before the start of the project due to professional necessities and the guaranteed participation of a company representative. In the acquisition, information about the company is collected and the problem is outlined in order to prepare the students.

2. In the following, the scope, method, work products, organization and timing are planned. Depending on the respective course, this task should be performed by the students. The students interview the stakeholders in order to find out the "true" problem (and not only the symptoms).
3. Parallel to the planning activity, formal contracts are concluded to set the legal framework. On the one hand, confidentiality clauses are required, and on the other hand, the question of intellectual rights of the results is clarified.
4. The implementation is carried out according to the procedure model described in the project plan. A conventional or agile project management approach can be chosen. The team continuously documents the activities so that the client and the lecturer can follow the progress.
5. The project ends with the presentation and handover of the results by the team. In this case, additional people from the partner companies are often invited, which is an additional challenge for the students, but also motivation.
6. During the internal follow-up, the students complete the assignment internally. A self-reflection, the follow-up of the process model for knowledge management, the creation of a case study for the training of other student groups and the obtaining of a reference letter from the customer are carried out by the students.
7. In the final discussion with the students, the lecturer compares the expectations and experiences of the stakeholder.

4. Lab Stream „Brainnovative Consulting"

The consulting company "Brainnovative Consulting" is our platform in which students of our Master programme "Digital Technology Entrepreneurship" and "Applied Business Innovation" at MUAS solve consulting assignments for real companies. Only a small part of this is held as regular attendance hours. Students are provided with the necessary theoretical basics in several earlier courses, so that in these modules only a small amount of input is required.

The aim of the module is to apply the work practices and techniques of an innovation or digitization project under realistic conditions on the basis of a concrete, complex project. Students acquire the ability to apply solution-oriented, adequate working practices, techniques of consulting and project management for the implementation of theoretically taught teaching contents in concrete projects.

Experiences from the projects of the last semesters has shown that the following aspects lead to a positive project outcome:

- The topic should be based on a real necessity in the company, so that the seriousness for a consultation and sufficient temporal commitment of the company is given.
- The topics must be close to the topics of the master program so that they can be solved in a short period of time.
- An autonomous planning of the project with regard to content and effort by the students and the overall retrospective at the end leads to a significant increase in learning among the students in addition to the increased interest in the project.

The students' commitment is consistently high due to their practical experience and personal responsibility. This has a high learning effect: students experience the effects of incorrectly calculated costs, change requests accepted without negotiation or incorrect planning in the project plan in the negative sense or positive feedback and inquiries for follow-up orders in the positive case.

5. Summary and Outlook

The participating lecturers and students see the Co-Innovation Lab as an opportunity to come into contact with topics of practical relevance at university. However, the greater added value lies in the expansion of the competences required by the digital transformation.

The Co-Innovation Lab is being further developed in several directions: the community of participants will be expanded and other disciplines will be involved. This can be done either in an interdisciplinary team or sequentially, for example by computer scientists developing applications from the business

concepts. We are also working on the project infrastructure, acquisition and marketing to maintain the pipeline of cooperation partners and topics. Furthermore, the experiences with this model are analyzed in an accompanying research.

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