Science 2 Society

Blueprints – Co-creation

University – Industry Interaction Mechanisms 2.0

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 693651

www.science2society.eu

Product development with future users in a virtual idea-laboratory

PROJECT TEAM – CO-CREATION PILOT

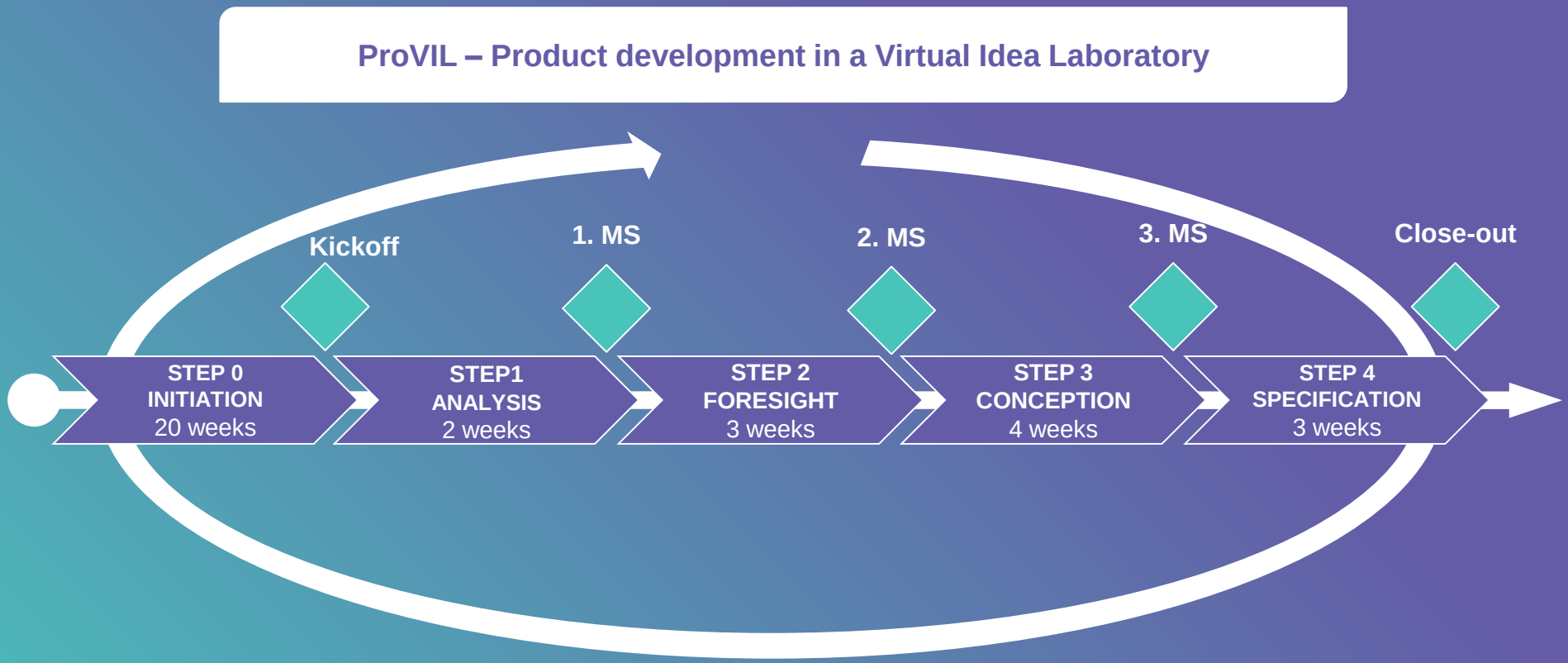
KIT-IPEK
Benjamin Walter (benjamin.walter@kit.edu)
Florian Marthaler (florian.marthaler@kit.edu)
Katharina Dühr (katharina.duehr@kit.edu)

Co-Creation (Definition)

*Co-creation is about collaborative product / service development between **universities** and **industry**, while **engaging society** in terms of (future-) users **during the whole product development process**.*

*The subsequent blueprint, to support the implementation of this interaction mechanism "co-creation", is based on an analysis of the process of systematically combining the **huge creative potential of mechanical engineering students** with the **strong product development process of industrial companies**. The objective is to create **relevant product concepts with high innovation potential**, to better match society's future needs with the relevant research.*

Process overview



Including students in innovation projects, ***using innovation platforms*** and other virtual communication tools enables ***co-creation*** across locations and organisational borders in order to develop relevant products with big innovation potential.

STEP 0
Initial engagement

- **Potential analysis for a joint co-creation project**. University and Industry (project partner) start a preliminary conversation considering several common advantages:
  - **For the industry:** expanding the innovative product ideas; agile development process and better analysis of the customers needs through support of the students which represent future users.
  - **For the students:** learning and acquiring competences in a practical industrial environment.
  - **For the university:** optimise didactic concepts and build-up network with project partner.
- **Define the structure** of the product development tasks .
- **Define the contractual terms** between University and project partner (non-disclosure-agreement, IP issue dealing with inventions and patents, etc..).

CHALLENGES & TIPS

- Early initiation of the process to clarify the legal framework at an early stage.
- Thoughtful selection of the co-creation team: highly motivated students and industrial partners willing to share innovation experience and knowledge.
- Industry must provide sufficient vision, commitment, guidance and resources.

MAIN ACTORS

- University (the university is responsible for providing communication tools)
- Project partner
- Software partner (provision of the functionality of the innovation platform is important)

ENABLING ELEMENTS

- Preliminary talks by phone & pelcos & webcos between university and industry
- f2f meetings to emphasise trust
- Previous final events

TIMEFRAME

~20 weeks

STEP 0
Kickoff

- **Welcome package** for students (with confidentiality agreement, Kick-off slides, project arrangements, tandem division, Inno-Coach division, platform login).
- **Project development task**. The students must have the goal clearly in mind and motivation must be generated.
- **Introduction to process and methodology and software**. Innovation project as Live-Lab in order to evaluate new methods for virtual teams in the area of product development.
- **Get together event** after introduction. Each student team meets their innovation coach. The innovation coaches are students with an economic background and they support the teams with their knowledge about the process and giving feedback.

CHALLENGES & TIPS

- Clearly defined process model to run the co-creation.
- Co-creation in a virtual environment requires high commitment of partners: early interaction and harmonisation between all stakeholders and high mutual trust to be implemented.
- Weekly survey with students for continuous improvement and identification of the motivation.

MAIN ACTORS

- University
- Project partner
- Software partner
- Innovation coaches
- Students

ENABLING ELEMENTS

- Motivational speeches from the head of the institute and the project partner
- f2f meetings

TIMEFRAME

~3 hours

STEP 1

Analysis Phase – Collection of information

Students:

- Understand **challenge** of the task assigned.
- Get to know platform and participants.
- Conduct research.
- **Generate future scenarios.**
- **Present research results.**
- **Methodology support** from research.

Deliverables at 1. Milestone with project partner:

- Presentations (research results, scenarios, user stories).

CHALLENGES & TIPS

- Clearly defined process model and questions. A good understanding of the goals to be reached.
- Timeline well structured.
- Motivation of all stakeholders.

MAIN ACTORS

- University
- Project partner
- Software partner
- Innovation coaches
- Students

ENABLING ELEMENTS

- Innovation platform
- f2f meetings
- Support methodology for students to get through the innovation process
- Access to knowledge platforms

TIMEFRAME

2 weeks

STEP 2

Foresight Phase – Understand customer & identify market potential

Students:

- Talk with (future) customers.
- **Generate product profiles.**
- **Validate benefit of customers, users and providers.**
- Combine and evaluate product profiles within **online community.**

Deliverables at 2. Milestone with project partner:

- Market podcast / Online survey / Interviews.
- Product claims (define what is needed in one sentence).
- Presentation.

CHALLENGES & TIPS

- Create a stakeholder panel that will analyse and evaluate generated product profiles to ensure potential
- Consider economic and technical feasibility of generated product profiles
- Use creativity to generate product profiles

MAIN ACTORS

- University
- Project partner
- Innovation coaches
- Students

ENABLING ELEMENTS

- Innovation platform
- f2f meetings
- Support methodology for students to get through the innovation process
- Creativity methods

TIMEFRAME

3 weeks

STEP 3

Conception Phase – Find alternative solutions

Students:

- **Develop product ideas.**
- Get **feedback from experts from the industrial partner.**
- Deepen understanding of **market potential.**
- **Select the best product idea.**

Deliverables at 3. Milestone with project partner:

- Product video.
- Product profiles (use case, first technical solution, benefits …).
- Milestone presentation.

CHALLENGES & TIPS

- Methodology to support the selection of best idea with great innovation potential.
- Use experts to validate solutions. Students can integrate external knowledge.
- Force students to think differently/innovatively to exploit their full creativity potential.

MAIN ACTORS

- University
- Project partner
- Students

ENABLING ELEMENTS

- Innovation platform
- f2f meetings
- Support methodology for students to get through the innovation process
- Supporting software for product videos

TIMEFRAME

4 weeks

STEP 4

Specification Phase – Specify solutions

Students:

- Implement product idea into **technical concept.**
- **Generate mock-ups** or **product models.**
- **Validate** mock-ups or product models.
- **Prepare final presentation** and **stand.**

Deliverables at 4. Milestone (final) with project partner:

- Mock-ups / models / (prototypes).
- Product show / (exhibition stand).
- Final presentation.

CHALLENGES & TIPS

- Validation with given criteria of project partner.
- More detailed look at feasibility (economically and technically).

MAIN ACTORS

- University
- Project partner
- Students

ENABLING ELEMENTS

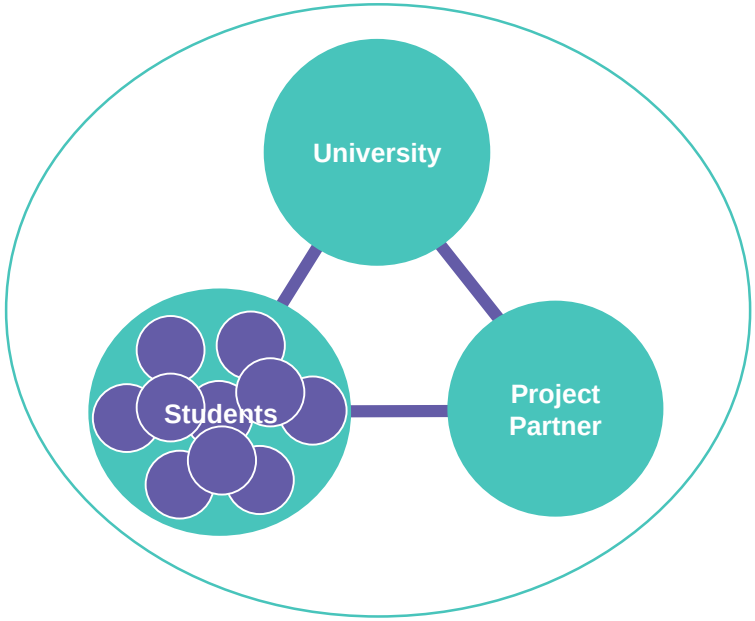
- Innovation platform
- f2f meetings
- Support methodology for students to get through the innovation process
- Possibilities for generating mock-ups and prototypes

TIMEFRAME

3 weeks

Elements to ensure a successful co-creation collaboration

- **Working software** for co-creation (innovation platform)
- **Early planned process** and dates
- **Suitable methods** to use in a co-creation environment



- **Motivation**
- **Team building events**
- **Talented students** with high motivation

- **Conviction and support**
- Involvement in **decision-making** process
- Give **appropriate tasks** to the students
- **Contact** possibilities for students

Learning points

- **Most important findings**
  - The combination of **methodological support** and **selection of talented students** results in a highly customer-relevant products / concepts in a very short period of time.
  - **Team building activities** for the students, which are organised in small teams (~6 people), enable **better results and accomplishments.**
  - The participation of **local and international students** can help overcome some barriers (e.g. language barriers) and reach a bigger audience (international) for surveys and questionnaires.
  - **Meetings in a non-virtual environment** are obligatory between all stakeholders but not very easy to organise due to the different countries of universities and industries.

- **Most important recommendations**
  - In general, it is important to **keep the students highly motivated. More details about the application outcomes** of the project would be useful. The students want to see the prototype (result) of the product that they are developing and contributing to the future.
  - **Project partners need to stay interested!** Interest towards project results is especially necessary for the students. This goes hand in hand with the quality of the developed products (project results).
  - **Feedback from industry has to be from "one voice"** so that the students don't have to face divergent opinions, leading to problems in decision-making.
  - **Project timeline needs to be communicated well in advance** to avoid overlaps with other big projects and several parallel engagements for the students.

References

- Walter, B., Albers, A., Benesch, G., & Bursac, N. (2017): ProVIL–Produktentwicklung im virtuellen Ideenlabor: Anwendungs-und Implementierungsmodell eines Live-Labs. In Stuttgarter Symposium für Produktentwicklung.
- Hahn, C., Albers, A., Stöckner, M., Niever, M., Walter, B., Kerres, R., & Bursac, N. (2017): Innovation Coaching in Foresight Processes for Distributed Product Development at Collaborative European Research Conference (CERC).
- Walter, B., Wilmsen, M., Albers, A., Bursac, N. (2017): Zukunftsmanagement in Zeiten der Digitalisierung: Die Szenario-Technik als Innovationsmethode in der standortverteilten Produktentwicklung.In 13. Symposiumfür Vorausschau und Technologieplanung, Berlin, Germany
- Heimicke, J., Reiß, N., Albers, A., Walter, B., Breitschuh, J., Knoche, S., & Bursac, N. (2018): Agile Innovative Impulses in Product Generation Engineering: Creativty by Intentional Forgetting.
- Albers A., Bursac N., Heimicke J., Walter B., Reiß N. (2018): 20 Years of Co-creation Using Case Based Learning. In: Auer M., Guralnick D., Simonics I. (eds) Teaching and Learning in a Digital World. ICL 2017. Advances in Intelligent Systems and Computing, vol 716. Springer, Cham. doi: https://doi.org/10.1007/978-3-319-73204-6_69
- Walter, B., Dühr, K., Bursac, N., Albers. A. (2018): A project monitoring methodology for distributed product generation engineering. In: 12th International TMCE Symposium

Impressum

EDITOR

i2m GmbH
Graz, Austria
i2m@i2m.at
www.i2m.at

Bax & Company
Barcelona, Spain
info@baxcompany.com
www.baxcompany.com
...

LAYOUT AND DESIGN
Spirit Design – Innovation and Brand GmbH
Vienna, Austria
spirit@spiritdesign.com
www.spiritdesign.com

www.science2society.eu

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 693651