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Developing Cross-Border Curriculum – Case Futures Lab

Kaakkois-Suomen
Ammattikorkeakoulu Oy



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1 Introduction

This report describes the Futures Labs from the project Race4Scale – Development of the Multidisciplinary Educational, Business and RDI Opportunities for the Finnish-Russian Automotive and Motorsport Industry Ecosystem. The primary aim of the work package is to create new cross-border curricula and the Futures Lab is one part of the whole curricula.

As described in the project plan, “[i]t is expected that students of the Kouvola and Saint-Petersburg partner colleges and educational centres will become innovators of the new professions that will be demanded in the automotive industry. Via developing the joint cross-border educational curricula the project will incorporate and strengthen best practices of the Finnish and Russian educational systems. The unique cross-border industrial solutions will be realized by means of multidisciplinary interaction of the Russian and Finnish industrial leaders as facilitators and co-developers of the business and educational challenges.”.

The participatory nature of the designed implementations drive further benefits to the students as they learn new skills through practically oriented workshops involving experts from different field of study and industries. The work was conducted between January 2021 and May 2022.

The report is structured as follows. The first chapter has introduced the context of the report. The second chapter will introduce the methodology base of the Futures Labs from the perspective of futures research. The third chapter will describe the Futures Labs’ implementations. Finally, the fourth chapter will discuss observations and lessons learned, and conclude the report.

2 Design

There are plenty of diverse kinds of futures research and foresight methods. As described by the Foresight Diamond (Popper 2008), different methods can be said to emphasize evidence, creativity, expertise or interaction (see Figure 1), while preferably foresight processes include or even integrate these different bases.

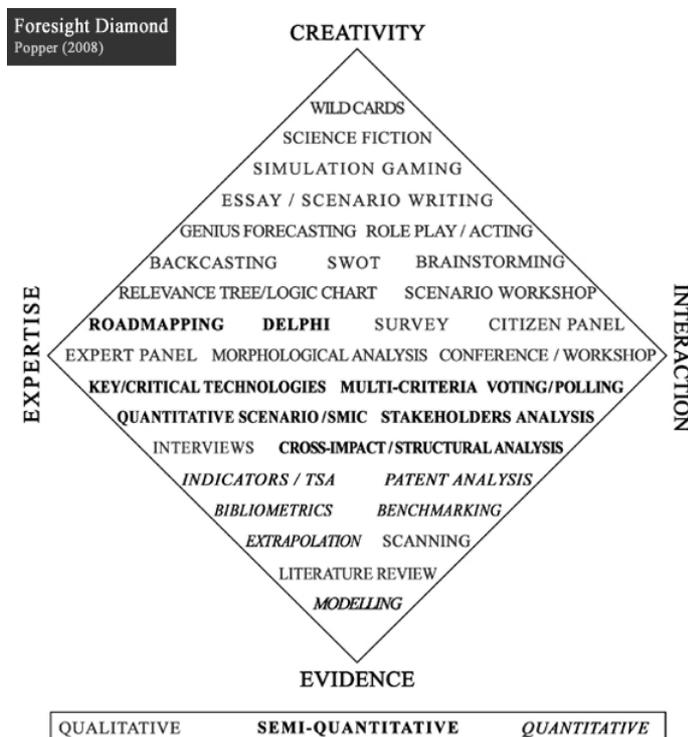


Figure 1. Futures Diamond (Popper 2008)

Based on the aims of the work package, the starting point for the design was to emphasize participatory problem solving. Thus, the selected approach should first and foremost lean towards interaction.

Participants are considered as experts in their fields, and external experts are to be called for in order to involve both academia and industry. Thus, the method was to be one that integrated workshopping with expertise, evidence and creativity.

Futures Clinique, a specific type of a futures workshop developed at the Finland Futures Research Centre in the University of Turku, was seen as a potential method to help achieve the aims of the project as it is suited to work with all kinds of topics. The method aims to promote futures thinking, preparedness and dialogue, and harness “collaborative creativity for insights, innovative ideas and practical solutions to the

selected futures topics” (Heinonen & Karjalainen 2013, 1) by applying multiple different foresight methods such as the Futures Window, Futures Wheel, Futures Table, horizon scanning and scenario narratives.

Based on the aims of the project and the Futures Clinique, the following participatory work process was designed for the Futures Labs (see Figure 2).

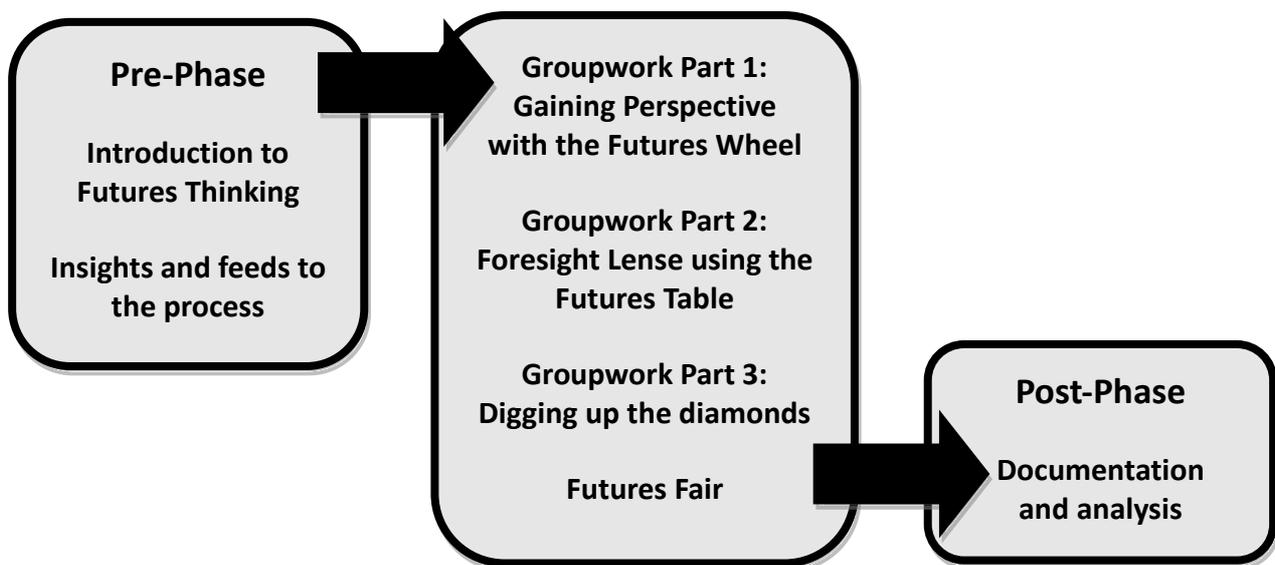


Figure 2. Participatory work process

3 Implementations

The Futures Lab was implemented twice online during the academic term 2021-2022. First during Autumn, and then during Spring. Next, both of the implementations will be presented.

3.1 Futures Workshops (Autumn 2021)

The first implementation was integrated to the course IB00EC57-3001 AI and future technologies led by Senior Lecturer Harrison Okuogume in Digital International Business at the South-Eastern Finland University of Applied Sciences Xamk. The Futures Workshops was offered as a possibility for the student to do part of the 5 ECTS course in the form of a project assignment. In this first installment, there were five student groups with 24 participants altogether from Xamk, the Saint Petersburg Electrotechnical University "LETI" and Kudrovo Educational Centre.

The title of the Futures Workshops was "Opportunities for competence development and cross-border collaboration within the virtuality continuum in 2030". The purpose was for the students to study the ways of developing competences needed in 2030 with the primary aim of constructing scenarios through a participatory futures workshop process. Their work focused on identifying opportunities for competence development with new and emerging technologies related to virtual, augmented and mixed reality environments, and cross-border collaboration between the Kymi Valley and the Saint Petersburg region. The student projects were conducted as group exercises. For all groups, the common high-level theme was "The new realities for competence development in 2030". In addition, each group was to define a specific topic, for example:

- Life-long learning on the job in 2030
- Virtual cross-border educational institution 2030
- Product design in the virtual environment in 2030
- Product testing in virtual environment in 2030
- Motorsport event experience in 2030

The topic could be from any field since the theme of competence development and the technologies related to virtual, augmented and mixed realities are generic and affect all industries. In addition, the possibilities of cross-border collaboration between the Kymi Valley and the Saint Petersburg region should be addressed within the selected topic.

In each group, there was a named student from Xamk to coordinate, instruct, encourage, and documents group activities. Unlike many workshops, these students also participate in the work. Otherwise the groups should be as diverse as possible: ideally different ages, sectors, industries, occupations, education, cultures, etc. All group members must take part actively in all phases of the groupwork.

The first meeting online with the named Xamk students was organized on September 8, 2021. The aim was to instruct the students regarding their role and work involved, and present them an introduction to futures thinking and the work methods and tools used in the workshops.

The first meeting with all the participants, the Group kick-off, was held on September 15, 2021. In the meeting, the group members introduced themselves to each other, discussed and specified their topic (based on the list of Possible topics), and exchanged contact information. Furthermore, the groups were assigned to perform a short preliminary task before the next meeting.

On September 29, 2021, the first workshop was organized. The program included inspirational keynote presentations from business and academia:

- Panu Johansson, UX Designer at Ponsse Oyj: Seeing wood for the trees: Users at the center of modern forestry
- Osku Torro, Doctoral Researcher at Tampere University: The future is 3D: How XR technology is revolutionizing the automotive and motorsport ecosystems

The presentations were designed to provoke ideas for future opportunities. In addition, the keynote presenters had prepared two-page primers, which were shared to the students in advance. Then, the workshop continued with groupworks part one and two. More detailed descriptions of the day and especially keynote presentations are provided in [<https://www.xamk.fi/en/research-and-development-blog/the-futures-lab-workshop-day-i/>].

During the second workshop day on October 13, 2021, the focus was on finalizing groupwork presentations and then presenting them to all participants in a Futures Fair. Table 1 includes the theme of each group and also the name of the single scenario they presented. Short descriptions of each work are provided in [<https://www.xamk.fi/en/research-and-development-blog/the-futures-lab-workshop-day-ii/>].

Table 1. Groups and themes

Team	Theme	Scenario
Team 1	Meaningful work augmented by technology in 2030	Future Hospital
Team 2	Product testing and creation in virtual reality	The juicy future of VR designing
Team 3	Meaningful work augmented by technology in 2030: How technology can enhance the learning process in the medical field	Virtual push

Team 4	Life-long learning on the job in 2030	Almost positive
Team 5	Smarter architecture with VR	Smart World

In addition to the Futures Workshops, the named students were tasked to ensure that the work and outputs of their groups are documented in their entirety. The students wrote a report on the outputs and asked the group for review, comments and additions. The reports were to include in some form the following sections:

- Introduction: Description of and motivation for the selected topic
- Groupwork Part 1: Gaining Perspective (Futures Wheel)
- Groupwork Part 2: Foresight Lense (Futures Table)
- Groupwork Part 3: Digging up the diamonds (An image of the future and the path leading to it, possible impacts to cross-border collaboration)
- Discussion: Descriptions regarding the conversations and reasoning behind the outputs, and reflections on the whole process.

The students were asked to deliver the completed reports by 9.11.2021.

3.2 Futures Lab Logistics (Spring 2022)

The second implementation was planned in collaboration with Senior Lecturer Jouni Ropponen from the Department of Logistics and Marine Technology at Xamk. Due to the collaboration, it was decided to organize the Futures Lab as a full 2 ECTS course focused on the larger theme of logistics. Hence the name, Futures Lab Logistics. Since the implementation was offered as a separate course, a full course description was planned considering the planned workload (see Table 2). The course was also communicated by the partner university LETI to their students (see FUTURES LAB: LOGISTICS).

Table 2. Futures Lab Logistics course description

Learning outcomes	The aim of the course is to learn about foresight and changes affecting the logistics industry in a practical manner through workshops. You will gain awareness of factors affecting change in the logistics industry and the importance of foresight in general. You will be able to identify possible future changes and assess their potential impact.
Content	During the course, you will explore the futures of a specified topic in the field of logistics in groups. The course is organized as a series of virtual workshops. The course concludes with a virtual Futures Fair where the group works are presented and discussed.

Languages	The course language is English.
Assessment scale	Pass/Fail
Assessment criteria	Course completion requires participation in teaching and workshops as well as an approved group work presentation.
Schedule	The course is organized between March 16 and April 27, 2022. All course meetings are organized remotely.

In addition, the structure of the implementation was influenced by the workload. While the plan remained very similar compared to the first implementation, there was not a separate named student who facilitated the groupwork and the requirement to produce a report was removed, too. Thus, the workload could be reduced. The programme of the Futures Lab Logistics is described in Table 3.

Table 3. The programme of Futures Lab Logistics

Date	Programme
Introduction 16.3.2022 at 12:00–15:00	Introduction to the course Introduction to Futures Thinking Formation of groups based on the listed topics Group discussions Group task to research the current situation regarding their topic from different types of sources
Workshop I 30.3.2022 at 12:00–16:00	Speaker presentations related to the selected group work topics with time for Q&A Groupwork
Discussion session 6.4.2022 at 14:00-16:00	Open session to discuss with the workshop speakers
Workshop II 13.4.2022 at 12:00–16:00	Groupwork Preparing the presentations
Support session 20.4.2022 at 14:00-16:00	Open session for the student participants to join and discuss any matter related to the group work and presentations

Futures Fair 27.4.2022 at 12:00–15:00	Groups will present the results of their work After each presentation, first a named group will comment it, and then all participants will have a chance to provide their comments and ask questions. After all presentations, we will discuss the overall topics and perspectives and share lessons learned
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In this second installment, there were originally 20 students altogether from Xamk and LETI. However, the students from LETI were excluded just before the beginning of the course due to the suspension of cooperation with Russia after the Russian military aggression on Ukraine. Thus, Futures Lab Logistics was organized with nine students from Xamk forming three groups. One group was unable to continue the course due to scheduling issues, and the number of participants was eventually decreased to six.

During the first workshop day on March 30, 2022, there were three inspiring keynote presentations from academia and business:

- Heikki Liimatainen, Professor, Transport and logistics, Faculty of Built Environment, Tampere University: Towards carbon neutral logistics
- Ulla Tapaninen, Tenured Associate Professor Maritime Transport, Estonian Maritime Academy: Maritime Digitalization
- Heikki Lahtinen, Acting Executive Director, LIMOWA Logistics Cluster, CEO, Ixtriim Oy: The Trends and Technologies in Logistics and Supply Chain Management

More detailed descriptions of the day and especially keynote presentations are provided in [<https://www.xamk.fi/en/research-and-development-blog/inspiring-presentations-about-the-future-of-logistics/>]

Between the workshop days on March 30 and April 13, a discussion session with Professor Heikki Liimatainen was organized on April 6, 2022. The session enabled the deepening of the previously held presentation by taking questions from the participants as a basis for the discussion.

On April 27, 2022, the Futures Fair event was organized with the purpose of presenting the groups results. Group one, which theme was digitalization of logistics, presented their work regarding RDIF as a Technology. The second group, which theme was transparent and resilient supply chains, presented their work regarding the Trans-Siberian Railroad. Followed by each presentation, the other group provided comments and questions to the presenting team. After the presentation, the whole course and collaborative process was reflected upon with the students based on the course's stated learning outcomes and content.



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Description of the Futures Fair and group presentations are available at [<https://www.xamk.fi/en/research-and-development-blog/the-futures-fair-logistics/>].

4 Discussion and Conclusion

The report presented the case of creating new cross-border curricula based on the project aims. The designed and implemented Futures Labs offer a participatory channel for multidisciplinary interaction for tackling future uncertainties and identifying opportunities collaboratively across different fields of study and industries. The implementation can also be varied at scope enabling the participants to perform a lighter or more in-depth project as the differences between the implementations show. The developed course content and learning outcomes enable the replication of the Futures Labs for cross-border curriculum, especially in an online mode. The Futures Labs could be further developed to enable face to face intensive course implementation, too.

Based on the feedback, the content of the Futures Labs was fitting and the recruitment of keynote speakers was successful. The presentation included both theoretical and practical aspects from industry and academia. There was also an effort to involve companies and have them provide company cases for the student groups, but these efforts were unsuccessful. The company cases could provide further motivation and practical meaning, which could elevate the significance of the course for participants. Therefore, more emphasis could be placed on recruiting company cases. Nevertheless, based on the feedback from the participants, the projects (groupworks) were seen useful. The participants learned to look at issues critically from many different perspectives and acquired new tools to understand trends and future changes and the factors that influence them, thus enabling them to anticipate, especially in their own fields, but more broadly in life as well. The participants also mentioned, that while trends are discussed in other courses, this kind of an approach taken in the Futures Labs has not been widely used in their studies.

5 References

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