Kristiina Soini-Salomaa (ed.)

LAB Design Annual Review 2021

The Publication Series of LAB University of Applied Sciences, part 35

LAB University of Applied Sciences

LAB Design
Annual Review
2021

LAB University of Applied Sciences

The Publication Series of LAB University of Applied Sciences, part 35

Editor-in-chief: Henri Karppinen
Technical reviewer: Johanna Kiviluoto
Layout: Mervi Koistinen
ISSN 2670-1928 (PDF)
ISSN 2670-1235 (print)
ISBN 978-951-827-390-8 (PDF)
ISBN 978-951-827-391-5 (print)
Lahti, 2021

Contents

About the Authors

Sara Ikävalko, MA in Strategic and Industrial Design, is a senior lecturer and programme coordinator of Service Design at LAB University of Applied Sciences, Institute of Design. Her background is in user driven design and city development. She is especially interested in working on bringing public administration, designed together with people. She has been a pioneer in developing and implementing new co-design methods in the field of city planning.

Kati Kumpulainen, works as a RDI specialist and project manager on projects related to service design and user-driven product and service development in LAB University of Applied Sciences, Institute of Design and Fine Arts. She is interested in service design and sustainable design and helps enterprises, public sector operators and other entities take advantage of design in their business.

Mirja Kälviäinen, Ph.D (Arts and Culture) is a principal lecturer and course leader for the MA level design thinking studies at LAB University of Applied Sciences, Institute of Design and Fine Arts. She also carries docentships in two other Finnish universities. Her research work has included methods for user driven design, design thinking and service design with front end innovation process and co-design applications. Lately her research interest has concentrated on design for environmentally sustainable behaviour change.

Laura Montonen, BBA (Marketing and Communication), is an event coordinator at LUT University and LAB University of Applied Sciences, Institute of Design and Fine Arts. She is interested in development and organization of event production and communication.

Tommi Mustaniemi, Bachelor of Arts and Design, works as an RDI specialist at LAB University of Applied Sciences, and is a communications specialist in the Design Venture Programme. He is also a part-time teacher at Institute of Design and Fine Arts and a video & graffiti artist.

Katariina Mäenpää, Ph.D (B.A.) is a RDI specialist and project manager in LAB University of Applied Sciences, Institute of Design and Fine Arts. Her background is in-depth marketing and consumer behavior boosted with studies in Psychology and Sociology. She is familiar with innovations and inventiveness, advanced banking services, digital marketing, EU projects, service design and co-creation.

Paula Nurminen, B.A. (Industrial Design) student of M.A. (Design thinking), is a project coordinator and project manager at LAB University of Applied Sciences, Institute of Design and Fine Arts. Multidimensional and creative thinking and combining things are her strengths. Co-design, design thinking and systems thinking are her passions.

Noora Nylander, M. Sc. (Pack. Tech.), B.A. (Pack. Design), has been a senior lecturer and programme coordinator of Packaging Design and Branding at LAB University of Applied Sciences, Institute of Design and Fine Arts since 2010. She has been working also as a specialist in several EU projects. Her main interests are sustainable packaging and industrial design, user-centred packaging design and designing consumption as well as development of new packaging solutions.

Katariina Pakarinen, M.A. (Design) works as a RDI specialist and project manager at LAB University of Applied Sciences, Institute of Design and Fine Arts. Katariina's primary interests and core competences are design thinking and service design. She is also enthusiastic about graphic design and data visualization.

Anna Palokangas, BBA (Business), B.A. (Product Design), is a service designer who works as a teacher and RDI specialist at LAB University of Applied Sciences, Institute of Design and Fine Arts. She is interested in customer experience development and service design as a method for business and organization development.

Sini Roine, B.A (Industrial design), is a project coordinator at LAB University of Applied Sciences, Institute of Design and Fine Arts. She is interested in service design, user experience and co-design.

Annariina Ruokamo, Master of Arts (Art and Design), is a RDI specialist and a part-time teacher at Wearable Design programme at the Institute of Design and Fine arts at LAB University of Applied Sciences. She has worked in several Finnish clothing companies as a designer and a sustainability advisor. Her interests lie in sustainable and circular design and in concrete tools for creating sustainability through design.

Veli-Pekka Räty, Doctor of Arts (Art and Design), MSc (Technology), works as a RDI specialist at the Institute of Design and Fine Arts, LAB University of Applied Sciences. His research and design interests include mixed reality, broadcasting, interaction design, social media, storytelling, user experience design and design competence.

Ulla Saarela, MBA (Entrepreneurship and Business Competence), BBA (Financial Management of Social and Health Care), is a RDI specialist at the LAB University of Applied Sciences, Institute of Design and Fine Arts. She is interested in service design, culture and culture tourism.

Kristiina Soini-Salomaa, Ph.D (Ed.) is a Research, Development & Innovation (RDI) Director for design focus area at LAB University of Applied Sciences. Her main research and professional interests are strategic development of RDI activities, design research, design thinking methodologies, future studies and forecasting.

Marjut Suokas, is service designer who works as RDI specialist at LAB University of Applied Sciences, Institute of Design and fine arts. Her true passion lies in service and business development using service design tools, coaching, leadership and co-working.

Minna Tynkkynen, Bachelor of Business Administration, works as a RDI specialist at LAB University of Applied Sciences, and is an event producer in the Design Venture Programme. She is also working in the Digital Innovation Hub programme and studying for a master's degree in Business Administration.

Mirka Uunimäki is a fashion designer and a final year bachelor's degree student at LAB University Of Applied Sciences. She works in Finix - Sustainable Textile Systems project as a life cycle calculation researcher in the textile field and has a passion for developing future fashion design and production.

Kristiina Soini-Salomaa

Foreword

Towards sustainable and social impact through design

This is the second review of the publication series named the LAB Design Annual Review, which presents the latest research, development and innovation activities in the context of design written by experts from LAB University of Applied Sciences. This review presents some of the latest achievements made as part of our projects to reach the strategic development goals.

In the first article Design for Sustainable Impact Kristiina Soini-Salomaa opens the critical role of design in sustainability transition and the role of LAB design focus area as a strategic player for promoting sustainability at the regional, national and international level. The context, references, objectives and measures of the systemic-level sustainability development are shortly described. The article portrays the strategic collaboration with stakeholders and businesses, development of sustainable design education, research facilities and international activities. The second article by Katariina Mäenpää continues with the regional aspects of strategic design. Päijät-Häme Design Road Map is introduced, it outlines the goals and actions for the use, visibility, and strategic status of design in the region. A shared vision, goals, key themes, and national and international action plans were created in collaboration with regional actors. The article describes how the regional and national position of design will be strengthened as a vertical competence and how the full potential of design as horizontal enabler will be obtained.

Ulla Saarela and Laura Montonen introduce the Lahti Green Design Week 2021 which was one of the main events in Lahti Green Capital Year 2021. The event was an impressive design event for sustainable products, services, and environments as a joint implementation of the key actors in Lahti. The week consisted of expert seminars and sparring sessions for companies and experts, activities for young people and children, and

exhibitions and sales events. The article by Veli-Pekka Räty, Tommi Mustaniemi & Minna Tynkkynen continues with the design promotion themes. The Design Venture Day events have been created to raise the awareness of design, both in everyday life and in companies' development processes. In the 2021 event, the benefits of design in business in a variety of industries were showcased.

Working is no longer bound to a specific place, and it is done more often in different global networks via digital platforms. Also work tasks no longer remain unchanged, and the problems to be solved are increasingly more complex because of the growing amount of information and multi-layered processes. The need for new, efficient and effective additional educational service models, which can be studied flexibly, is recognized. Katariina Pakarinen and Marjut Suokas discuss in their article more specifically how continuing education is developed in a project Continuation - Lifelong education and competence building. Also in the article of UOMA project Annariina Ruokamo and Paula Nurminen describe the solutions for updating the continuing education and increasing the competence level in design and visual communication. During the project, training models and new training content of the topics IoT, AI, AR, VR, UI and UX were developed and piloted.

The paper by Anna Palokangas, Sara Ikävalko and Kati Kumpulainen discusses the advantages of service design for the service development of the public sector and presents City as a Service project. The project addressed the issue of customer experience as the city experience. Focus was making city services more efficient and fluent using co-creative service design approach. Along the project concrete service experiments and training were conducted and many of those were taken into practice during the project. Mirja Kälviäinen opens another perspective of service design in her article Residential participation for sustainable service provision. The Developing Sustainable Housing Services Together (ASKEL) project designs and tests service models for the circular and sharing economy, with two diverse residential area associations and three companies. The interesting results of the project are introduced.

User-driven design methods are important part of the design thinking. With this kind of thinking product development as well as packaging development can embrace diversity, find new markets and future opportunities. The important target is to involve human approach into development process. Through the KUPARI Integration of Fibre-based Packaging Solutions for the Needs of SME's project, Noora Nylander's article presents examples how user-driven design methods can be utilized in packaging design. The article also describes how generally user-driven thinking is included into design process. The next article by Sini Roine describes how the ECOtronics project has been studying and developing materials, components of sustainable electronics and optics. The amount of electronic waste will challenge designers and researchers to

work together to find sustainable user-driven solutions. In the project future scenarios have created, development process visualized and visual appearance and smart package concept designed.

The last article by Mirka Uunimäki discusses the big picture of sustainability transformation through fashion design. In fashion business most of the products are designed to be manufactured and consumed as fast and cost-effectively as possible. Fast fashion can never be fully sustainable in the way it is produced today. In the future design itself needs to be on the front of change, towards more environmentally centred solutions. In summary this publication brings together ideas of the strategic role of design in strategic development and sustainability transformation. It presents examples how design thinking and design methods can make real impact in many contexts, industries and environments.

I warmly thank all the authors who made it possible to publish this review. I hope that this review gives you some new insights and further ideas for sustainable and human-centred design education, research and development.

Lahti, 24 November, 2021

Dr. Kristiina Soini-Salomaa
RDI Director, Design

Kristiina Soini-Salomaa

Design for Sustainable Impact

Abstract

This article opens up the critical role of design in sustainability transition and the role of LAB Design focus area as a strategic player for promoting sustainability at the regional, national and international level. The context, references, objectives and measures of the systemic-level sustainability development are shortly described. The article portrays the strategic collaboration with stakeholders and businesses, development of sustainable business design education, research facilities for sustainable design and international activities.

Keywords: Design thinking, sustainable design, strategic design, circular economy, design for sustainability transitions, design for behaviour change

Challenges to be addressed

We are facing an enormous challenge in dealing with the climate crisis, biodiversity loss, resource scarcity, and other sustainability challenges. Despite promises and good intentions across the globe, we continue to see increasing emissions, environmental pollution and rising inequality. However, the global pandemic is starting to change the way we view things. Alongside extraordinary pain, trauma and hardship, it has brought an increased awareness of the way things are interconnected, how human development over the past centuries has impacted the environment, and how the changes affect us all. This challenge is not only technical; it is cultural and social. Design has a critical role to play. Design builds a bridge between technological research and innovation and their creative application to social practice. Designers work across virtually every relevant field and have the capacity to connect silos and sectors. They encompass a wide array of professionals (from graphic design to urban planning) and work at different levels from products to policy (Design Council 2021).

The ever-increasing pace of technological and social change poses number of challenges for effective design support: expanding the practice and scope of design, capturing a meaningful impact for sustainability in new products and design for sustainable behaviour change, public service and policy design, design literacy and edu-

cation, and capacity for design among business and innovation professionals (Design 4 Innovation 2018). Using design methods and tools to develop support can help us address sustainability challenges. Design's flexible and adaptive approach ensures that the solutions are iteratively improved to constantly respond to user needs. That is why LAB UAS is strongly profiling an agile design-driven development model.

Design for Impact

Design is a tool to support the move towards a more sustainable society and a circular economy. In a circular economy, the aim is to circulate products at their highest level of value. This is where the importance of design - both from the aspect of products and services and from citizens' behaviour - plays an increasingly important role. Design has proven its value to business success and in innovation processes numerous times. Among big multinationals and innovation leaders, it is a tool for daily operations as well as part of a strategy and the company's DNA. It has also gained recognition and credibility as a driver of user-centred innovation among policy-makers who aim to boost the competitiveness of their regions and countries through design. Design can be applied across the private and public sectors to drive innovation in products, services, society and even policy-making by putting people first (Design Council 2021; Soini-Salomaa 2021).

The role of design is two-fold. Design is a horizontal enabler of strategic and policy development as well as vertical competence within specific industry and policy domains. This means that design can be used as a method for policy-making and strategic

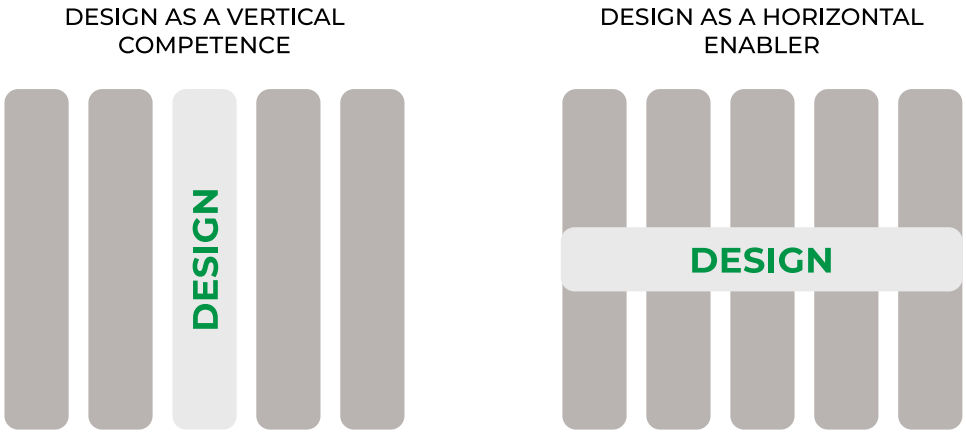


Figure 1. Strategic roles of design in innovation activities (Design 4 Innovation 2018).

business development. It can also be used as competence to achieve policy priorities and industry-specific product and service development (Design 4 Innovation 2018).

Design focus area promoting LAB´s strategy

Today, LAB is the largest design educator in bachelor-level offering the widest range of specializations. LAB is also the only higher education institution in Finland having design as a focus area. LAB's design-driven RDI activities and collaboration with companies and stakeholders have increased significantly in recent years. Currently, there are 28 ongoing projects with a total budget of nearly 3 million euros. Design expertise is also utilized widely in other LAB focus areas. Cooperation with companies is an important part of the design RDI activities implemented this year over 30 product and service development cases with companies.

Design has a strong tradition in the Päijät-Häme region. The region is famous for its furniture, textiles, mechanical engineering and wood-processing industries where companies have utilized design skills in their product development, which has given them a market advantage. Cooperation between LAB and companies is of utmost importance in the creation of a regional design cluster. Design creates added value to national and regional business competitiveness. The goal is to raise the competitiveness of SMEs by using design to improve the user-friendliness, sustainability and responsibility of products and services. The region's local government officers and representatives of universities and the business community work together to exchange information and assess activities concerning regional development in design.

Design has been one of the smart specialization (RIS3) themes in Päijät-Häme together with circular economy, sports and experiences. The regional competitiveness strategy highlights the significance of design education and design-intensive industry. In the next Päijät-Häme Smart Specialization Strategy 2022-2025 design is together with the circular economy a horizontal driver and a perspective of sustainable development. Following the region's strategic will to invest in design expertise, LAB has played a strong coordinating role in the regional innovation ecosystem. The Design Roadmap is coordinated by LAB and published in April 2021. It outlines the goals and actions for the use, visibility and strategic status of design in the region. Strategy work is conducted through a roadmap process involving local government, industry and academic stakeholders. The design vision of the region is: "Design promotes successfully resilient and sustainable Päijät-Häme generating significant business growth and societal benefits by 2030". Goals and actions are designed according to four sub-themes which are opened in the Design Road Map. (Päijät-Hämeen liitto 2021)

In South Karelia, design can be utilized as a cross-cutting approach and methodology developing the key business areas of the innovation strategy. In the next South Karelia Smart Specialization Strategy 2022-2025 the

smart specialization priorities are User-driven wellbeing services, Renewable industry and entrepreneurship, Pioneering the green transition and Acceleration of the experience economy. The role of design is both a horizontal enabler of strategic and policy development as well as a vertical competence within specific industrial product and service development.

LAB is currently running design RDI projects which improve product and service development capabilities of sustainable businesses (Design Venture Programme, KISU Longer life and recyclability by circular design, Integration of Fibre-based Packaging Solutions for the Needs of SMEs KUPARI and ECOtronics Sustainable Electronics and Optics). The CECI Citizen Involvement in Circular Economy Implementation project inspires citizens to adopt sustainable consumption habits and behaviour patterns (Interreg Europe). The regional business environment is developed in the City as a Service project, while European-level design ecosystem development cooperation is being prepared in the Deco Design Collaboration with European Ecosystems project. The demand for systemic design expertise is rapidly expanding (Design Council 2021), to which we respond by renewing design education (UOMA Renewing the Expertise of Design and Visual Communication Professionals, PARK Game Industry Leading towards a Pandemic Resilient Education and JATKO Life-Long Education and Competence-Building). Some of the projects mentioned above is also presented in this publication.

Design as a strategic tool for promoting sustainability at the regional, national and international level

A proposed solution to achieve a more sustainable future is to pursue a circular economy, a regenerative economic system aimed at designing our waste and pollution as well as keeping products and materials in use for as long as possible (Ellen MacArthur Foundation 2012). The circular economy is a possible model for sustainable growth and has developed into a relevant concept in the sustainability debate. Design plays a key role in the circular economy, which means a strong focus on research and development for sustainability transitions and on designing sustainable but also user-driven solutions. All the emerging, transformative economy models require system-human interaction and desirability design in addition to technical solutions.

Although addressing sustainability challenge such as climate change which are frequently considered a technical and behavioural challenge, there is a need for a transformation of the systems and structures that facilitate or constrain the practical responses to climate change. There is also a need for a transformation of the beliefs, values, worldviews and paradigms that influence how people perceive, define or constitute systems and structures as well as a need for the transformation of their behaviour and practices. In this respect, it embodies design for product-service systems, which aims to transform production-consumption systems through business model innovation and design for social innovation, which aims

to assist social change without seeing technological change as its pre-determinant. In the context of sustainability transitions, it is important to design a multiplicity of interconnected and diverse experiments, iteratively implemented over long periods, to generate changes in large and complex systems (Ceschin & Gaziulusoy 2019).

Action plan for sustainable transition

Referring to the latest sustainability research, the development work for sustainable ecosystems demands long-term planning and tools to build a common goal. At LAB, this strategic work is supported by regional collaboration with stakeholders, design and circular economy studies, methodologies and research. In practice, this means that our university supports system-based change processes for more sustainable choices, solutions and behaviour. We help businesses, communities and citizens by designing ecologically, economically, socially and culturally sustainable systems, products, services and living environments. We also challenge our partners to co-design smart and human-oriented solutions by utilizing our design expertise. Solutions must therefore bring new value to businesses and other stakeholders. The following measures will be implemented in the coming years.

1. Co-design of sustainable business innovations

We will experimentally develop and validate a methodological basis for co-design, co-creation and experimental development methods for sustainable business innovations. By combining the methods, we built a systemic way of how to co-create with our personnel and our customers. It will lead to a deeper understanding of customers' needs and the ability to support their continuous development. The objective is to foster a culture of learning, reflective dialogue and design methods (i.e. the Design Sprint model). This will include students, employees, companies and other stakeholder groups.

2. Development of sustainable business design education

We will develop new educational models in response to the needs of businesses and working life based on the co-design development. Design labs (learning environments) will be set up: STUDIOs for development and learning under certain themes; Sustainable Design Studio and MUOTOLA for agile product and service design and business development collaboration; and Customer Experience platform for service design, human-driven UX (user experience) and UI (user interface) design. Some of these models are already being piloted during spring 2021 and will be further co-designed together with the professionals and companies.

Agile and needs-oriented further education in Sustainable Design and in Design Leadership will be designed and piloted together with business partners. Bachelor and master studies will also be updated to a model where the first year is partly organ-

ized through online studies and strongly supported by tutoring activities. Learning activities during the second and third years will be strongly integrated into working life assignments (STUDIO model).

3. Infrastructure for sustainable design research, development and innovation

In order to realize and fulfil the needs of sustainable business development, the infrastructure and resources need to be reorganized and new expertise recruited. Sustainability and customer experience are fundamentally important both in education and for enterprises. Qualitative user research, data analytics, co-design methodologies, lean startup and agile approaches will be applied in the processes. Explorative research, experimentation, multidisciplinary piloting, iterative methods, testing and validation will be used to secure functionality, solution-user interaction, (quality) and impact.

Tre multidisciplinary, practice-based and internationally inclined platforms will be set up: Design for Sustainable Business Platform, Customer Experience Platform and Art for Change Paltform. The task of the platforms is to build high-quality research and development programmes for RDI activities in these two areas. Collaboration with LUT and other national universities (i.e. the Finnish Design Academy network) will be strengthened through concrete RDI projects.

Investment in human-driven methodology requires the development of easily applicable process-building materials, qualitative user research tools, data-analytics tools for business information and IoT and AI solutions, mobile (sustainable) IoT, UX and UI design environments and laboratories to facilitate experimentation, testing, piloting and prototyping, e.g. business models, service processes, gamification, mobile solutions and behaviour change. Additionally, the platforms will utilize STUDIOs.

4. System-level sustainability transition in Päijät-Häme and South Karelia

Cooperation with regional stakeholders, especially with the Regional Councils regarding the system-level sustainability transition, will be deepened and diversified. The work of the regional circular economy and design ecosystems will be systematized due to the planned actions and outcomes in the next ten-year period. A special focus is set on supporting sustainability in the Smart Specialization strategies (S4). The main cities of the regions are leading European examples of municipal-level sustainability (Lahti is the European Green Capital 2021 and Lappeenranta won the European Green Leaf 2021 award), which gives fruitful ground for continued sustainability actions. Measures are implemented in tight cooperation with the regional councils and municipalities.

5. International cooperation in sustainable business design

To boost the scientific quality and impact of joint RDI activities, international cooper-

ation with selected international networks is strengthened. New international network opportunities related to sustainable design will be systematically assessed, and at least three new and strategically the most potential collaborations with top-level international research and/or business partners will be created. International activities are strongly linked with other measures, e.g. international sustainable design education and ecosystem development will be used as references in internationalization. LAB's profile and role in the European circular economy and sustainable design ecosystems will be strengthened through cooperation with the strategic partners e.g. Avans University of Applied Sciences.

References

Ceschin, F. & Gaziulusoy, I. 2019. Design for Sustainability. A Multi-level Framework from Products to Socio-technical Systems. New York: Routledge. [Cited 9 Nov 2021]. Available at: https://www.routledge.com/Design-for-Sustainability-Open-Access-A-Multi-level-Framework-from-Products/Ceschin-Gaziulusoy/p/book/9781138315167

Design Council. 2021. Beyond Net Zero. A Systemic Design Approach. [Cited 8 Nov 2021]. Available at: https://www.designcouncil.org.uk/sites/default/files/asset/document/Beyond%20Net%20Zero%20-%20A%20Systemic%20Design%20Approach.pdf

Ellen MacArthur Foundation. 2012. Towards the circular economy Vol. 1: An economic and business rationale for an accelerated transition. [Cited 9 Nov 2021]. Available at https://www.ellenmacarthurfoundation.org/assets/downloads/publications/Ellen-MacArthur-Foundation-Towards-the-Circular-Economy-vol.1.pdf

Design 4 Innovation. 2018. Policy Booklet 1: Mapping Design Ecosystems. nterregEurope. [Cited 9 Nov 2021]. Available at: https://www.interregeurope.eu/design4innovation/library/#folder=923

Päijät-Hämeen liitto. 2021. Design. Päijät-Häme Design Roadmap. [Cited 8 Nov 2021]. Available at: https://paijat-hame.fi/en/smart-specialisation-and-innovation-environments/design/

Soini-Salomaa, K. 2021. Muotoilu aluekehityksen veturina. In: Miettinen, S. (toim.) Muotoilun avaimet älykkääseen teollisuuteen ja liiketoiminnan ketterään kehittämiseen. Helsinki: Teknologiateollisuus ry. 280-293.

Katariina Mäenpää

Design Road Map as Tool of Regional Development in Päijät-Häme

Abstract

Design is a spearhead of the smart specialisation in the region of Päijät-Häme, and one of the key factors of competitiveness in the region. To reach the goals of increasing the regional attractiveness and vitality, a road map for concrete actions, both in the short and long term, is needed. The Päijät-Häme Design Road Map outlines the goals and actions for the use, visibility and strategic status of design in the region. A shared vision, goals, key themes, and national and international action plans were created in tight collaboration with regional actors.

The road map aims to increase the use, visibility, and strategic status of design in the region of Päijät-Häme. In the short term, the roles of key actors were clarified, and the actions were modelled for implementation. In the long term, the awareness of design as one of the smart specialisation spearheads will be increased in both the national and international levels. The regional and national position of design will be strengthened as a vertical competence, and it will become the leading design cluster. Additionally, the full potential of design as a horizontal enabler will be obtained.

Keywords: roadmap, regional development, design, smart specialization, process description

The premise of the Road Map

In the Päijät-Häme Design Road Map, design is seen as a tool to discover, develop and implement solutions in a contextually flexible and systemic way. At the same time, it is important to remember to invest in strengthening in-depth design thinking, strategic design capabilities and design expertise, because without profound understanding and competence, the solutions remain shallow.

Design is human-centric, which means that it can be used to make our daily lives better and make our voices heard. Therefore, it is natural that the themes of the road map

comprehensively structure the utilisation of design from the perspectives of business, environment, wellbeing, and housing that are omnipresent for all of us in our life.

Sustainable development is the foundation of design in Päijät-Häme. It means that all three components are acknowledged: a planet- and life-driven approach ensures ecological sustainability, a resilient economical approach ensures continuity and stability of business, while social and cultural understanding secures social cohesion and welfare. Design is the tool to open and sustain the mutual interaction, as well as to gain a deeper understanding between these dimensions of sustainable development.

Soini-Salomaa (2020) has opened the policy-level importance of the Design Road Map in both a national and international context and stated that the road map will set the direction of international design cooperation in Päijät-Häme. A strong regional design ecosystem will provide an opportunity to build cooperation particularly with other European ecosystems and gain competence and success in the focus themes jointly agreed on.

Process of Building the Road Map

The project started at the beginning of September, 2019. According to the project plan, the most significant measure in this phase was the collection, compilation, and analysis of background material. The background material consisted of the regional key strategies, studies and conducted projects related to the topic. The industry-related data produced by Ornamo, an expert organisation in the field of Finnish design, as well as international studies related to the industry, were also reviewed. The framework for the road map was prepared on the basis of this background study.

The project team was organised within the Design Institute, who oversaw the implementation. In addition, the significant regional operators, and thus, potential members of the Päijät-Häme design group, were contacted and convened at the beginning of January, 2020. The group included key players from both the public and corporate sectors. As the workshops of the assembled design group were a success factor in the implementation of the project, special emphasis was placed on bidding for the service provider. DemosHelsinki was chosen as a partner for the implementation of the workshop series.

Two workshops were successfully carried out before the corona pandemic locked down the whole process, as it did for the whole world. The internal project team gathered around the workshop material to analyse and process it one to two times a week until May. The project was also discussed in Päijät-Häme design group meetings digitally during the spring. Stakeholders were involved in six group interviews, which were conducted remotely. Before forming the vision for design in the region, the project team amplified the definitions of the themes and reflected the road map work in international context.

The Design Road Map cooperated with the other spearheads of smart specialisation

in Päijät-Häme, i.e., “Circular economy” and “Sports and Experiences”, in terms of content and communication. Particularly, a lot of cooperation was done with the latter road map project, which was launched at the beginning of February. The joint communication event with other road maps and the Regional Council of Päijät-Häme took place on June 11th. The “Good morning Päijät-Häme!” event was streamed live and recorded for later sharing and viewing (Mäenpää 2020a).

By fall 2020, a persuasive draft of the road map with the goals, actions and roles was ready for the last workshop, where it was to be finished. The internal project team worked on analyses and processed the collected data to prepare an initial model of the road map. Stakeholders were involved in commenting on and enriching the themes of the road map in three remote group interviews. Also, a website communicating the road map process was under construction. Considering the continuation of all road maps, the Regional Council of Päijät-Häme took administration responsibility of the website, collecting all information and taking care of the updates, while the other stakeholders agreed to assist with the content. Joint communication efforts were continued, when in November at the “Smart Specialization Strategy and Road maps” event, organised by the Regional Council of Päijät-Häme, the work on the road map was presented (Mäenpää 2020b) and a workshop session provided an opportunity to discuss and share ideas with regional design actors. As a result, the Salpaus Further Education, regional provider of vocational education and training, joined the Päijät-Häme design group.

Due to the COVID-19 pandemic, the third workshop had to be postponed twice; it was finally implemented on November 12th. A total of 43 people attended the workshop of five themes, as regional attractiveness was covered as its own group. Also, the group of Design and Business Development aroused interest to such an extent that it was divided into two groups. The workshop sealed the cumulative process of building the Design Road Map, since after that, the expert group had all the capabilities to finalise the road map with goals, actions, roles and – above all – the vision for the future of design in Päijät-Häme. During the last two months of the project, it was time to review all the material once again, reflect on it and evaluate the proposed road map, and then organise the activities of Päijät-Häme Design group.

The communicative challenges caused by COVID-19 were tackled for the last time in a joint event with the Regional Council of Päijät-Häme and other road maps, which was streamed live and recorded for later sharing and viewing. Contrary to previous implementations, this time the practical factors and the implementers of the road maps, i.e., the representatives of the companies and the relevant stakeholders, came to the fore (Päijät-Hämeen liitto 2021a). The purpose was to demonstrate the benefits of design in practice and to offer a low-threshold experience of a pilot or the first trial with students at the Design Institute. Real-life examples told by real entrepreneurs are the

best ways to communicate cooperation opportunities to other companies. The shared website of road maps was presented at the same event (Päijät-Hämeen liitto 2021b). Also, a video covering the design themes of the Design Road Map was published on the website (Päijät-Hämeen liitto 2021c).

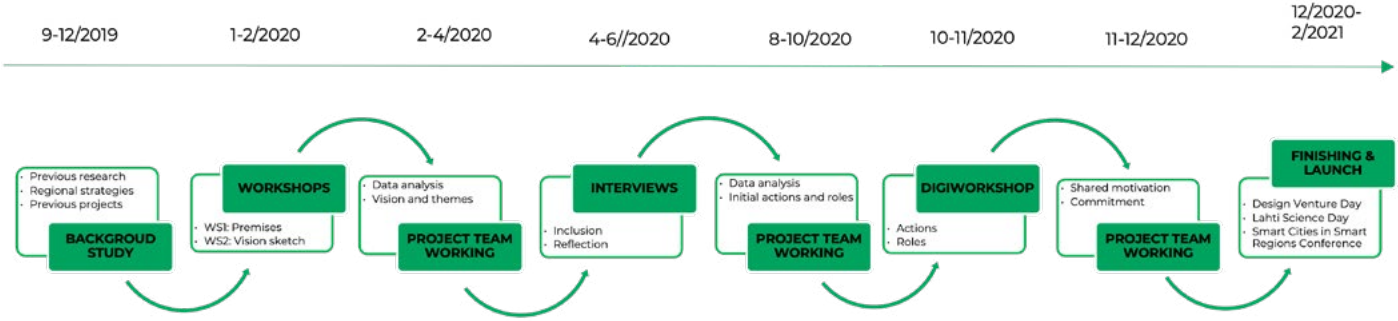
The COVID-19 pandemic affected practical implementation of the project and especially on communication, as face-to-face events were cancelled or at least postponed. For example, the plan to launch a road map internationally at the Smart Cities in Smart Regions Conference in Breda, the Netherlands, first in May 2020, then in November 2020 and in January 2021, failed, as the conference was postponed until November 2021. The intention is to prepare an article and participate in a discussion at a future event. Also, the launch in Design Week had to be cancelled, since the process didn't proceed in the originally planned schedule due to the pandemic.

Design as a regional attraction factor

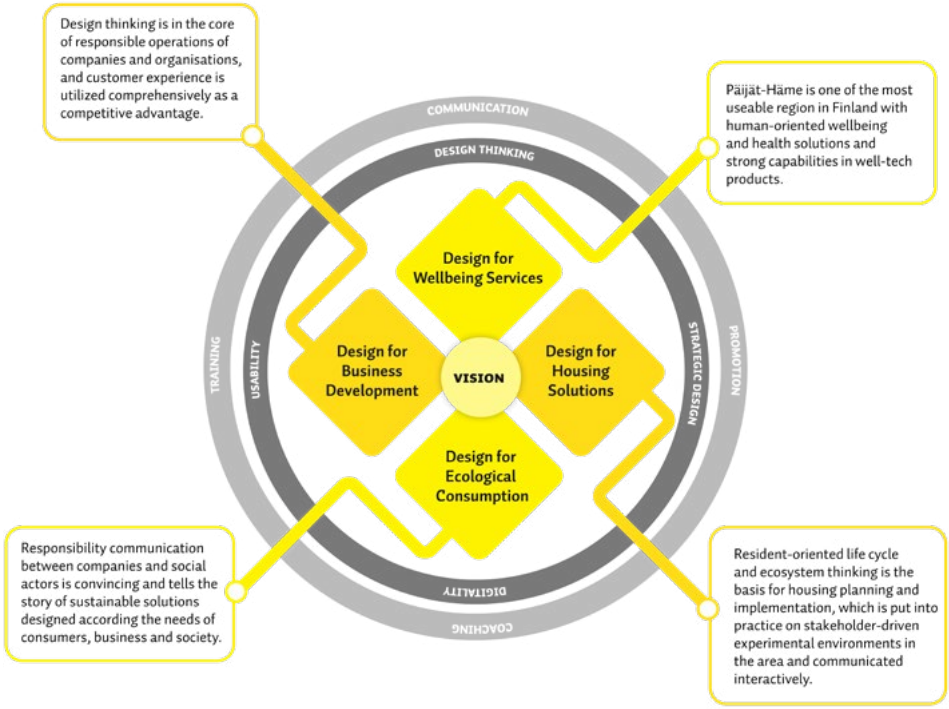
In Päijät-Häme, design know-how has long been utilised in local companies, in the development of the built environment, in streamlining public services and in building a city image and brand. Recently, the importance of design as an attraction factor has been acknowledged, and therefore, concrete measures are needed to profile Päijät-Häme more clearly as an international design reference area.

Design can be effectively utilised, not only in the development of a region and public sector, but also industry-specific, e.g., tourism service offerings as well as marketing communications. More effective co-operation between regional actors promoting the use of design can build an internationally interesting design ecosystem, which, with its products and services, will significantly increase the attractiveness of Päijät-Häme.

The Design Road Map as a tool for regional development presents the co-crea-



Picture 1. Timeline of the process (Picture: Katariina Mäenpää).



Picture 2. Themes and cross-cutting themes (Picture: Sini Myllylä).

tion process, shared focus themes, goals, actions and roles of regional actors to achieve the vision: **Design promotes successfully resilient and sustainable Päijät-Häme generating significant business growth and societal benefits by 2030.**

Digitalisation and communication are cross-cutting themes that are important in implementing the road map. Digitalisation delves deep into the core of doing, affecting content, but also acting as a means to reach and be reached. Communication is used to engage in interactive discussion and to make the road map visible, thus increasing the understanding of the usefulness of design.

Design for Business Development The design will help diversify, reform and grow regional business to become internationally competitive. New customer-oriented product and service innovations create new jobs. The diverse availability of design expertise and research and development partnerships in the field increase companies' interest in locating in Päijät-Häme.

A design-intensive company grows and develops in the more difficult competitive environment it operates in. In all its operations, the company is future-oriented, prepares for changes in regulations and customer needs, effectively solves emerging

problems and creates a competitive advantage for itself, differentiating itself from its competitors with its brand, redeeming its service promise to its customers every day.

The product and service offering of a company that actively utilises design is resource efficient, responsibly produced and meets the identified needs together with customers and end users, which increases the business result. Keeping products and services competitive is one of the most important tasks of corporate management

Design for Sustainable Consumption Design can be used to change consumer behaviour towards sustainable choices and actions. Companies learn to develop consumer solutions in line with sustainable development goals and to market and communicate them in an understandable and transparent way.

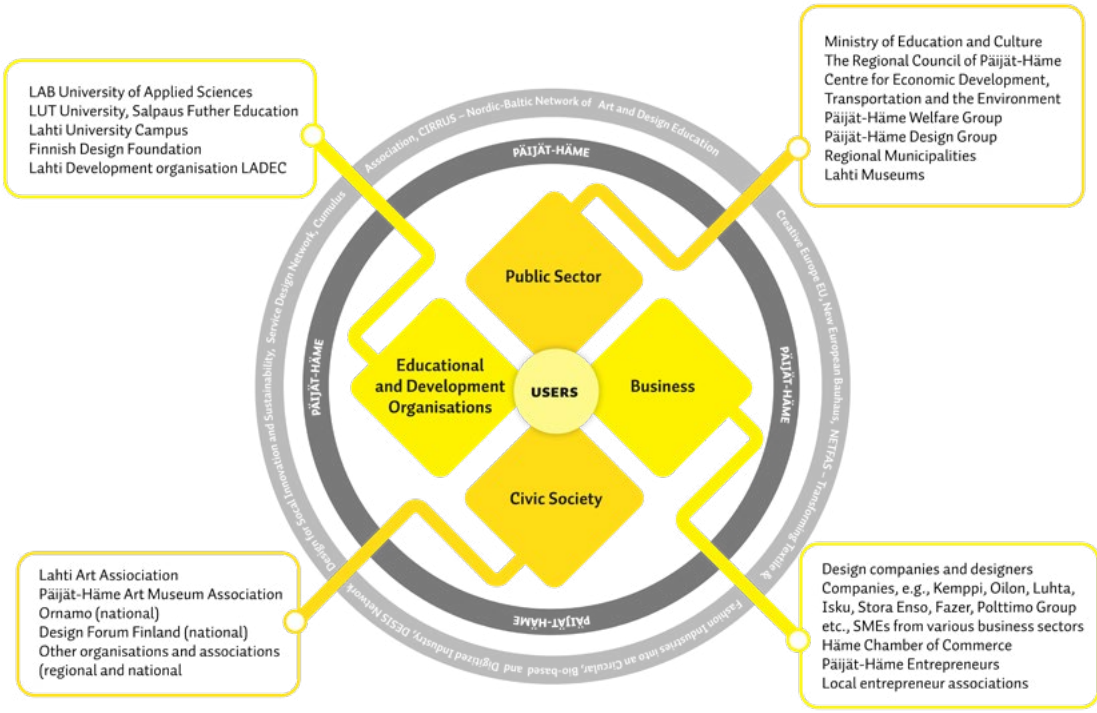
Customer-oriented and user-centric design is used to identify and develop various service systems required by consumption changes, such as the transition of product solutions to meet the requirements of the circular economy as product and service concepts useable for customers. Communication raises awareness of how design can address the environmental, social, and economic problems caused by consumption and steer consumption behaviour in a sustainable direction. This necessary transition also offers new business opportunities for companies. Companies are guided to identify the stage at which their sustainable development goals are and how they can be developed.

Tightening regulation is proactively considered in business development. The growing interest of consumers in responsibility and the growing importance of social responsibility as part of the corporate image motivate companies to develop their operations beyond the level required by regulation.

Design for Wellbeing Services Design is utilised in the design of timely, easily accessible, and increasingly digitised services that promote the health and wellbeing of residents. By involving stakeholders and customers in the development of service processes, design renews the public and private sectors and generates resource- and cost-effective service innovations. Well-functioning public and private services tailored to different population groups increase resident satisfaction.

Co-design service design and the development of digital solutions solve complex problems and turn service bottlenecks into cost-effective solutions that are continuously developed with continuously collected customer feedback. Customer focus and the resulting customer understanding serve as a key design tool in the development of welfare services towards cost-effective public and private services.

Design for Housing Solutions Low-carbon construction solutions and new product and service concepts for sustainable housing will be developed through design in Päijät-Häme so that an internationally competitive cooperation model that transcends companies' industries will emerge. In order to grow international business, new and re-



Picture 3. Stakeholders and networks of Design in Päijät-Häme (Picture: Sini Myllylä).

newed export products and total solutions are created, which can be offered to target customers, first in Finland and later in international markets.

Companies in the construction and wood product industries, with their cross-industry design and subcontracting chains, are involved in joint design. End customers are also involved in the design to better understand customer needs, expectations, and user experiences. With the help of design, the requirements of tightening regulation can also be anticipated in design work.

The stakeholders and networks on both national and international levels are represented in the picture below. There are plenty of long-term and strong cooperative relationships, as well as younger relationships that aren't yet as strong; but networking requires resources, because building and maintaining them takes time and competence. Collaboration is the only way to gain impact and effectiveness to become a convincing partner for projects and to become a prosperous region on a worldwide scale.

Table 1. Design Themes and Goals in Päijät-Häme

Design for Business Development
1. Companies in Päijät-Häme know how to utilise design and customer experience as competitive advantages · Customer insight through design is the base for brands, products, services and marketing solutions. **2. Design thinking is at the core of responsible operations of companies and organisations** · Design is a seamless part of corporate strategy and operational activities supporting sustainable and resilient development. **3. Design work has grown 100% in Päijät-Häme by 2030** · Design experts are employed in companies providing design services, as in-house designers and in various research and development tasks.
Design for Ecological Consumption
1. Design, pilot and implement environmentally responsible solutions together with consumers and stakeholders · Enabling responsible consumer choices by designing the solutions to be easy and attractive **2. Design sustainable solutions for the needs of planet, society and business** · Develop systemic solutions by assessing their sustainability impacts **3. Communication between responsible business and social actors is convincing** · The responsibility measures taken are fully reflected in the communication of the organisations
Design for Wellbeing Services
1. Päijät-Häme is one of the most useable regions in Finland · Usability expertise and user experience design have been utilised in multiple channels **2. Solutions for wellbeing and health are human-oriented** · The service environments are designed in a user-oriented and interactive way with different producers **3. Päijät-Häme has strong design capabilities in wellness products** · The area has a strong network of co-development and testing actors
Design for Housing Solutions
1. Resident-orientation with life cycle and ecosystem thinking is the basis for urban planning and implementation · Design desirable housing solutions with positive life cycle impacts together with experts and current and potential residents **2. There are stakeholder-driven experimental environments in the area** · Utilise design experiments at all stages of multidisciplinary development processes **3. Päijät-Häme is known as a pioneer in living and housing solutions** · Interesting housing solutions are interactively communicated

Over the finish line and forward

At the end of the Design Road Map project, the starting point and coordinates for the next ten years are now ready. The division of tasks and responsibilities have been made, but it is good to update it with a low threshold according arising needs after the actual implementation has started. The impact of the Design Road Map can already be seen in the operational and strategic activities of the Design Institute at LAB University of Applied Sciences, as the themes defined in the road map have already been strengthened by targeting project applications focusing on these themes. Currently, this is done within the framework of two ongoing projects: “DeCo - Design Collaboration with European Ecosystems” and “Design for Housing Solutions - Päijät-Häme's internationalisation of design towards sustainable housing solutions” projects are building international networks according to road map plans. In addition, it has been decided to set up two senior expert vacancies at the Design Institute to bring together research teams around the Design for Sustainable Business and Design for Human-oriented Solutions themes.

The road map identifies regional design priorities, enabling resources to be allocated more effectively to these areas in order to accumulate expertise and increase effectiveness. Cooperation with other spearheads of regional smart specialisation, i.e., Circular economy as well as Sports and experiences, will be actively pursued and developed, as this will promote the efficient use of regional resources and achieve optimal effectiveness. Good experiences were already gained during the project while conducting the joint communication efforts. In addition to communication, the co-operation will be expanded in the future by sharing networks and providing relevant design content with other road map themes, and to mutually utilise the substantive expertise and needs of other top themes in the development of design, where applicable.

The Design Road Map was drawn up to be effective through 2030. With the project, the Päijät-Häme design group was identified as the body responsible for the implementation and further development of the road map. The group is convened at least twice a year by the Regional Council of Päijät-Häme. The group includes representatives of companies and business associations, representatives of training and development organisations, and people from public sector organisations. This comprehensively addresses the horizontal and vertical needs of design and enables similar benefits to be reaped.

Design in Päijät-Häme has its roots in European design thinking, which is more relevant now than ever. According to the EU-level New European Bauhaus declaration (European Union 2021), design has a license – if not an obligation – to act as a link between art, culture, social inclusion, science and technology to shape more beautiful, sustainable and inclusive forms of living together, and that is exactly what we are up to with a good map.

References

European Union. 2021. New European Bauhaus - Shaping more beautiful, sustainable, and inclusive forms of living together. [Cited 7 Aug 2021]. Available at: https://europa.eu/new-european-bauhaus/index_en

Mäenpää, K. 2020a. Muotoilun tiekartta. Hyvää huomenta Päijät-Häme! -webinaari 11.6.2020. Päijät-Hämeen liitto. Youtube. [Cited 10 Sept 2021] Available at: https://www.youtube.com/watch?v=3KsOBLTGLpA

Mäenpää, K. 2020b. Muotoilun tiekartta. Päijät-Häme – the greenest region? Päijät-Hämeen liitto. Youtube. [Cited 7 Oct 2021]. Available at: https://www.youtube.com/watch?v=fVY-YoAzaoPw

Päijät-Hämeen liitto. 2021a. Päijät-Hämeen muotoilun tiekartta. Päijät-Hämeen tiekarttojen esittelytilaisuus 24.2.2021. Youtube. [Cited 7 Oct 2021]. Available at: https://www.youtube.com/watch?v=ZLOXnROmmKM

Päijät-Hämeen liitto. 2021b. Päijät-Hämeen tiekartat. [Cited 7 Oct 2021]. Available at: https://paijat-hame.fi/alykas-erikoistuminen/paijat-hameen-tiekartat/

Päijät-Hämeen liitto. 2021c. PÄIJÄT HÄME Muotoilun tiekartta. YouTube. [Cited 7 Oct 2021]. Available at: https://www.youtube.com/watch?v=nAliJizHuuo

Soini-Salomaa, K. 2020. Design for Smart Specialization in the Region of Päijät-Häme. In: Soini-Salomaa, K. (ed.). LAB Design Annual Review 2020. Lahti: LAB University of Applied Sciences. The Publication Series of LAB University of Applied Sciences, part 12. 14–19. [Cited 3 Sept 2021] Available at https://www.theseus.fi/bitstream/handle/10024/355273/LAB_2020_12.pdf?sequence=2&isAllowed=y

Laura Montonen & Ulla Saarela

Insights from Lahti Green Design Week 2021

Abstract

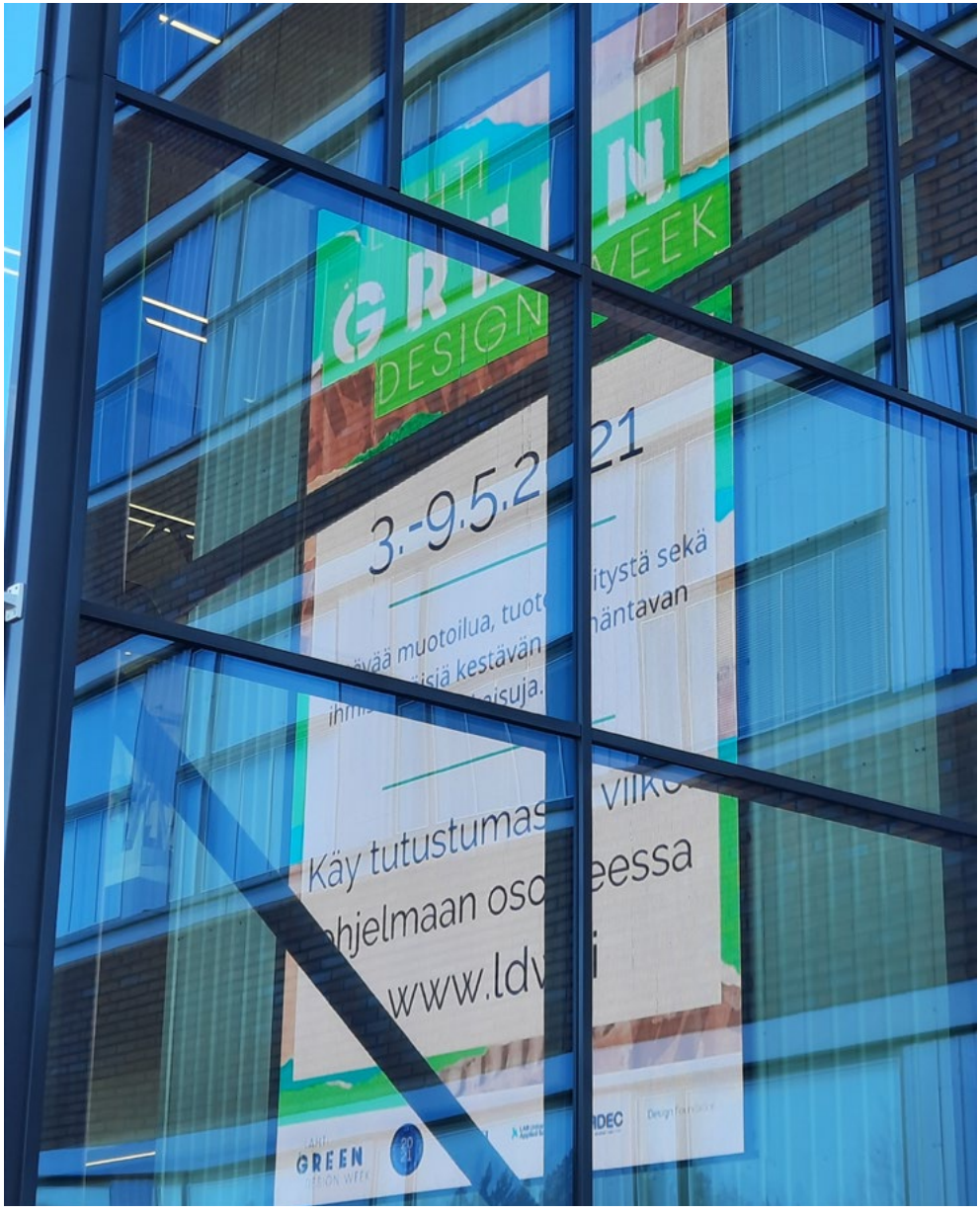
The third Lahti Design Week was held on 3-9 May 2021 with the special theme GREEN Lahti in 2021 as the European Green Capital. In addition, the design week was arranged this year by the project funding for the European Green Capital 2021 programme. Due to the constraints imposed by the global pandemic, the week and its events were organised as a hybrid event so that almost all performances could be tracked online and later as recordings. Where possible, exhibitions were held outdoors and then in exhibition spaces, taking into account the participation restrictions imposed by the coronavirus restrictions. LAB University of Applied Sciences was responsible for arranging this year's event together with the City of Lahti, Lahti Region Development LADEC and Design Foundation Finland. The main objective of the Lahti Green Design Week 2021 project was to organise an impressive design event for sustainable products, services, and environments as a joint implementation of the key actors in Lahti. The week consisted of expert seminars and sparring sessions for companies and experts, content that supports design education for young people and children, and exhibitions and sales events aimed at a wide audience.

Keywords: design, design week, European Green Capital, Lahti, sustainability

Background information of Lahti Green Design Week 2021 project

Planning for the 2021 Lahti Green Design Week 2021 (later LGDW) began a year earlier, in the spring of 2020, before much was known about the global COVID-19 pandemic that would spread later in the spring and the challenges it posed, which also severely limited the organisation of various events.

LGDW received project funding from the European Green Capital 2021 programme for event planning, coordination, event production and overall communication. The goals of Lahti Green Capital emphasized actions that improve a smooth and well-being everyday life; actions that produce the best solutions for



Picture 1: Lahti Green Design Week 2021 (Photo: Ulla Saarela).

sustainable cities and actions that strengthen the international visibility of the European Green Capital. The LGDW event was intended to be a showcase for how sustainable design, product development and people-oriented sustainable lifestyle solutions are implemented in the Päijät-Häme region.

As the main goal of the LGDW event, it was agreed among the partners that a design event presenting sustainable products, services and environments would be organised as a joint implementation. The co-operation network consisted of LAB University of Applied Sciences, the City of Lahti, Lahti Region Development LADEC and Design Foundation Finland.

Preparations for the Lahti Green Design Week 2021

The LGDW management team was composed of representatives of the collaborators and representatives were invited from the

Picture 2. The logo and look of Lahti Green Design Week 2021 was designed by Lotta Oksanen, a graphic design student at the Design Institute of LAB University of Applied Sciences.

Picture 3. The logos of the co-operators.

European Green Capital 2021 organisation, LAD Lahti Museum of Art and Design (later renamed Lahti Museum of Visual Arts Malva), Malski and Lahti City ry. The first joint meeting was held on 14 September 2020 and agreed on co-operation, the date of the event was set for week 18 and a preliminary plan for the program and communication of the event was set to be built. The management team met monthly, the program was refined and specified, and the event restrictions brought about by COVID-19 were discussed, the program and facilities were modified several times during the spring of 2021 with the goal of the most audience-friendly event entities possible. Immediately from the autumn of 2020, various actors such as schools were actively contacted, inquiring about their willingness to participate in the LGDW event with their own event and content. Postponement of the whole event was considered, but in early 2021 it was decided to hold LGDW event week at the agreed time, but as a hybrid - some events were completely online, however some of the exhibitions could be held live, as well as sales of student works.

Co-operators

LGDW collaborated with numerous other local actors. Each actor contributed to the implementation of the week's events. Schools in Lahti: Tiirismaa School and Kannas Upper Secondary School were involved in the event for the second time together with the design and art school TAIKA. It is very rewarding to see that design education in Lahti starts from primary school, continuing to the university level.

Local players such as Pro Puu, Dooroom and Oma Säästöpankki offered their premises for LGDW events. Dooroom became a marketplace for Showroom Muotsikka's products and Rehome - an exhibition space for temporary accommodation furniture. ProPuu provided a great setting for the EcoDesign exhibition.

Sitowise activated students to come up with ideas on how to make the vacant commercial properties in the city center more available. Six solutions for the revitalization of the city center took part in the competition. The victory came from the Alku District concept, which was a common view of LAB and Aalto University students on how to use the vacant business premises in the city center.

Numerous pupils, teachers, LAB staff, research, development and innovation projects, and students brought their expertise and know-how to the LGDW events.

The LGDW event package was also to include a carpet auction organised by Kankurin ILO. The design of the carpets was “L A H T I - the nature, landscapes, buildings and all the wonderful features of our city!” The carpets were woven from donated cotton materials, thus giving new life as wonderful examples of craftsmanship. However, the auction was postponed until later in the summer.

Effectiveness through Communication

The feedback from previous Lahti Design Week events has often been that there has not been enough communication - infor-

mation about the events has not reached everyone interested, etc. - communication is a difficult sport in today's world. The number of communication channels is vast, and everyone competes for the number of followers, clicks and likes. How to find the right channels and reach those interested in the topics and engage them to follow the event communication.

The marketing started in late 2020 for the LGDW 2021 event through social media. The communication utilized the communication channels used in previous Lahti Design Week events, such as the event's own website (www.ldw.fi), which has been used in each Lahti Design Week event. This has committed visitors from previous years year after year to look for up-to-date information on the event's website and to follow the event's FB and Instagram site, which have also opened to previous events. In addition, the website of the LAB University of Applied Sciences was used to market the event.

Marketing and communication were increased in number through different channels as different actors announced their participation and their own events and contents. The challenge for the coordinating party in building such an event is often that you must wait for information from the partners about being involved in the event and then about the content of the upcom-

Communication channel	
Event Website	www.ldw.fi
Facebook:	https://www.facebook.com/LahtiDesignWeek
Instagram:	https://www.instagram.com/lahtidesignweek/
Twitter	https://twitter.com/LahtiDesignWeek
Private social media channels of coordinators: FB, LinkedIn, Twitter	Numerous posts and likes especially at LinkedIn
LAB UAS website	https://lab.fi/fi/tapahtumat/lahti-green-design-week-2021 https://lab.fi/fi/projekti/lahti-green-design-week-2021 https://lab.fi/en/project/lahti-green-design-week-2021
LAB Intranet pages	For LAB students and staff
Yammer	Numerous posts at the company internal communication channel

Chart 1: Lahti Green Design Week 2021 communication channels.

ing event. Another challenge is that any subsequent changes and clarifications to the program will be communicated quickly and clearly to the coordinating party.

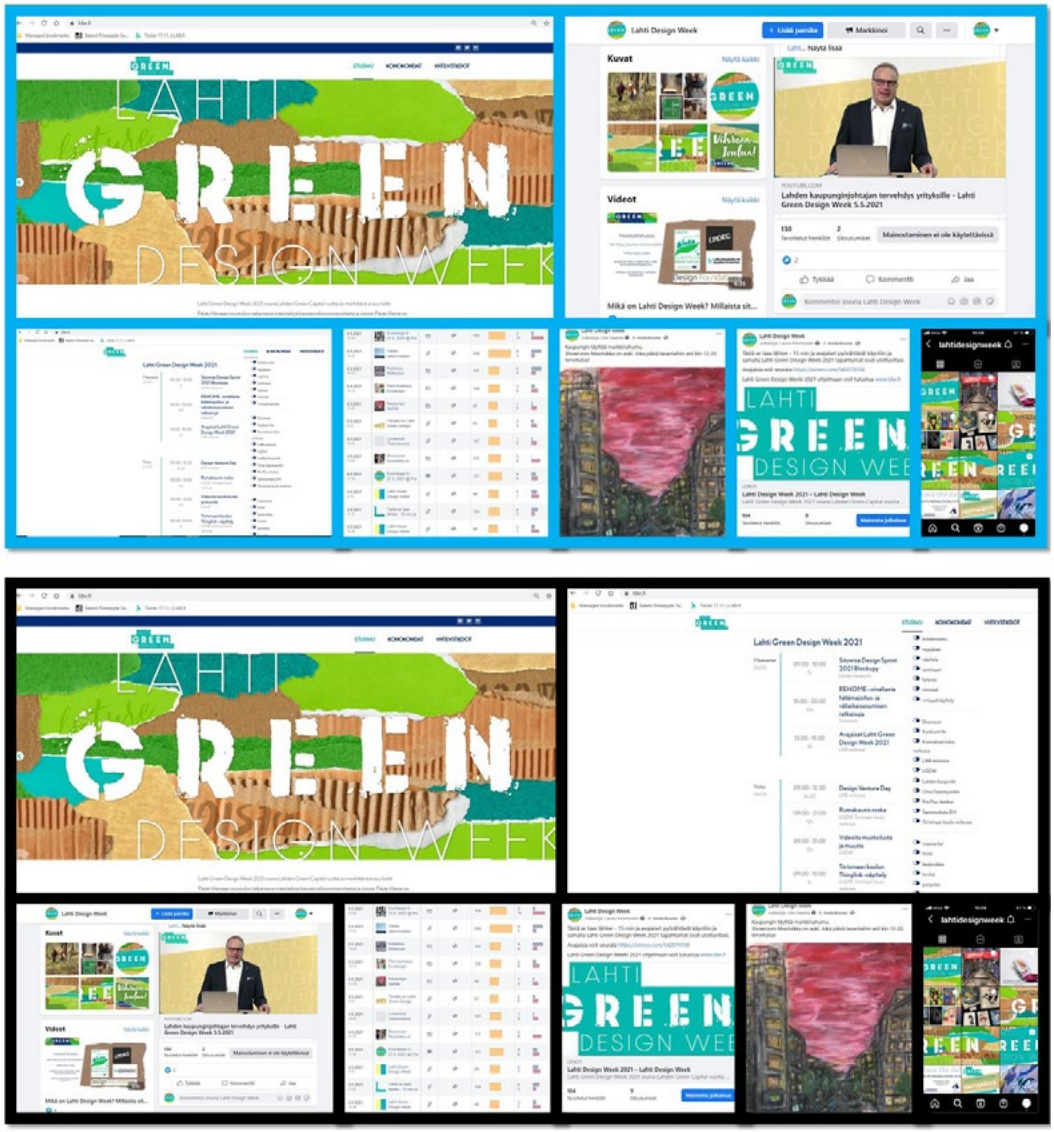
Communication was intensified as the event week approached and the peak of communication was reached during the event itself. The traditional press release about the event went to the media actors in Southern Finland and to the professional press in the field of design. Printed media visibility was achieved through the local newspaper Etelä-Suomen Sanomat. The products of the EcoDesign exhibition also received attention in the international interior design press.

It is easy to monitor the effectiveness of communication in the current time of virtual media. The numbers of followers and likes are easy to track. Another aspect is how committed the likers and followers are to their cause - this is then more difficult to verify. The diversity of communication channels also makes communication work fragmented.

In the upcoming Lahti Design Week events, it would be advised to continue to use the same virtual communication channels, encourage partners to share these messages even more in their own social media channels. In this way, the communication of a networked event would also benefit the network through the implementers' own networks.

The trainee is a great additional resource

LAB also has a strong background in utilizing students' expertise in projects and projects. Here, too, there was a strong desire to involve the student in bringing their own skills and insights. In this project, the aim was to strengthen communication skills and activities, so it was decided to recruit a student interested in event communication and documentation. The fastest way to recruit students for projects is to contact teachers directly, who can directly tip suitable students or put jobs on suitable courses. The LGDW 2021 event attracted the interest of three students, all three of whom were interviewed for the task. One of the applicants stood out clearly from the others. In her previous studies, she had focused on event production and event communication, as well as the opportunities offered by social media in event communication. Thus, Laura Jalava, a second-year student of Hospitality Management -education, was chosen. Based on the discussions with Laura, her tasks included managing social media before, during the event, documenting the events with photos, and hosting the opening of LGDW 2021. From the point of view of work, the tasks require prior acquaintance with the events to be held during the week and their implementers, as well as an independent approach to work. Enabling students to participate in LAB University of Applied Sciences' project work is seen as a paramount part of their studies. Through the project, students learn working life skills, project management, meeting practices, collaborating with different actors, and time management. In addition, the work increases the student's credit accumulation and thus also contributes to the student's graduation.



Picture 4 (a and b). Screenshot from LGDW website, Facebook and Instagram (Screenshot: Laura Montonen).

The Lahti Green Design week itself

Unlike before, Lahti Green Design Week 2021 took place almost entirely virtually. Due to the coronary situation in Päijät-Häme, most of the events, especially the seminars, were held virtually during the week, as was the opening of the event. Some of the exhibitions were also held virtually, but fortunately a few exhibitions could also be held outdoors or safely in the gallery spaces.

The week included numerous events: the opening ceremony, nine exhibitions, seven seminars, two workshops, the sale of products devised by the students at the Design Institute, an idea competition for students and the laying of the foundation stone for insect hotels in Pikkuvesijärvi Park. (See chart 2.)

The opening of Lahti Green Design Week 2021 gathered almost 50 viewers. The program of the opening included greetings from the financier, Lahti Green Capital, the City of Lahti and LAB University of Applied Sciences. In addition, the theme of the opening was public art, which is now quite on the surface in many cities. The Kerava Demolition Art House, which also received extensive media space in Finland in the summer of 2020, once again brought public art to

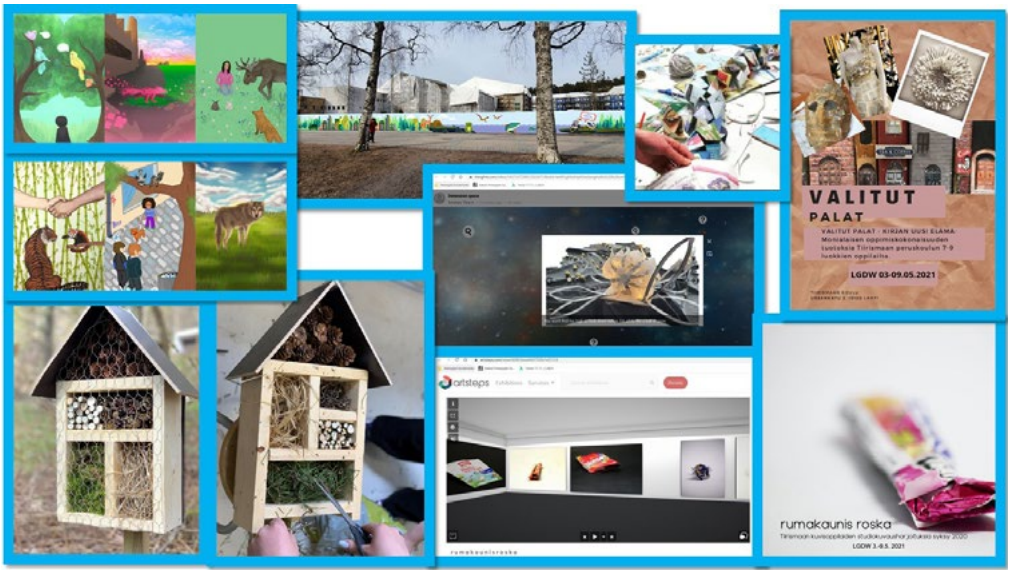
Seminars	Exhibitions	Other events
Design Venture Day	ReHome – oivaltavia hätämajoitus- ja välialkalsasumlsen ratkalsuja	Avajaiset
Inspiraatiopäivä yrityksille	Reflections – LAB Muotoiluinstituutin 2021 Degree show	Showroom Muotsikka
Energiatehokkuus paikallisessa rakentamisessa	Lahti vihreiden lasien läpi – julistenäyttely	Videoita muotoilusta ja muusta
Kaupunkimuotoilun päivä	EcoDesign -näyttely	Leadership & Innovation VIA Design -työpaja
Askeleita kestäviin palveluihin	Kannaksen lukion ympäristöviikon 2021 julistenäyttely	Sitowise Design Sprint Blockupy 2021 – keskustan tyhjien liikehuoneistojen aktiovointi – ideakilpailu opiskelijoille
Wood Talks: Puu puhuu kestävyydestä vai puhuuko	Green Lahti – suuri seinämaalaus	Apoli -työpaja
Palvelumuotoilua Lahestl	Valitut palat – Kirjan uusi elämä – virtuaalinäyttely	PARK-hanke – Muotoilu- pyrähdys!
	ThingLink -virtuaalinäyttely	Hyönteishotelleja Green Lahteen
	Rumankaunls roska -virtuaalinäyttely	Kankurln ILOn mattohuutokauppa
	TAIKA – talde- Ja muotollukoulun dlgInäyttely Ja Ympäristötaideteos	

Chart 2. Lahti Green Design Week 2021 events.

the lips of the people and to coffee table discussions. Various murals are also created in public spaces in Lahti and other public construction sites such as the Lahti Southern Ring Road (Lahden Eteläinen Kehätie). There is also a tradition of public art in Lahti Inspis ry, together with Lahti Energia, painted electrical cabinets together with young people about ten years ago. Anna Vilkuna, Art Director of Southeastern Art Society, introduced the audience to the secrets of public art. Based on the presentation, we also had a panel discussion, in which the speakers were e.g., demolition art guru Jouni Väänänen, Janne Nurminen from Inspis ry, LAB student Rosalinda Louhijoki, Ville Penttilä from SOK Hämeenmaa and Tarja Kojo from Alliance. That is, a fairly comprehensive sample of representatives of various industries. The publication of LAB University of Applied Sciences Design focus area “Green Design - Solutions for Sustainable Development, Environmental Responsibility and the Circular Economy” was also published at the opening. The publication highlights the importance of design in the sustainability of product and service development as well as in environmental responsibility. The publication provides an overview of projects that develop expertise and solutions that support sustainability and environmental responsibility together with companies, residents, and partner universities. The authors of the publication are experts from LAB's Institute of Design and Fine Arts and Faculty of Technology. The layout of the publication has been designed and implemented by graphic design student Emmi Nieminen, supervised by LAB Senior Lecturer Marion Robinson. (Harjapää & al. 2021)

The LGDW opening ceremony and panel discussion are available in Vimeo (LABfinland 2021).

The seminars of the LAB University of Applied Sciences were almost entirely responsible for the implementation of the week's seminars. The projects successfully produced seminars on topics in design, urban planning, service design and the wood industry, which also reflect the top expertise in the Lahti region. The seminars gathered a variable 40-170 viewers during the events and the recordings have been viewed hundreds of times even after the events. Our partner, the Design Foundation Finland, in cooperation with the City of Lahti and LADEC, produced an “Inspiration Day for Companies” seminar. LAB's energy and environmental engineering students had bitten into energy-efficient local construction in their own expert seminar, the students did very well, reached the audience well for the actual seminar, and the seminar recording has now been viewed more than 250 times (situation at the end of May 2021). The international breeze for LGDW week was brought by the bright speakers of the Design Venture Day seminar, Alok Nandi and Christian Guellerin. The main theme of the Design Venture Day seminar is to showcase the benefits of design in business in a variety of industries. Special themes are innovation, circular economy, and responsibility. Of the seminars in the week, the most real-time listeners gathered Urban Design Day, which



Kuva 5: Photo collage of LGDW 2021 exhibitions (Photos: Kannaksen lukio, Tiirismaan koulu, Laura Montonen, Ulla Saarela).

consisted of solid expert speeches in the field of urban design.

Of the exhibitions, the virtual exhibitions of the student work of the Tiirismaa School in particular were a pleasant surprise. The "Rumakaunis roska" exhibition included garbage found in the school yard by studio art and media art students in the fall of 2020. Students also thought about the beauty of garbage - can garbage be beautiful - yes, through these students 'camera viewfinder, even the garbage looks beautiful. At the same time, the project also looked at how long it takes for the debris to decay and how the debris should actually be sorted. The students were supervised by visual arts lecturer Mirka Polojärvi. (Tipala Kuvis 2020)

Another virtual exhibition of the students of the Tiirismaa School took a bite into the new life of the book the "Valitut palat – kirjan uusi elämä" exhibition. The physical book seems to be a junk, a useless messenger and a dust collector at times, book sales have dropped - we have switched to digital library users. Antique shops and flea market are bursting with books to try to get rid of - often with poor success. In this exhibition, students reflect on the reuse of library scrapbooks. Students in grades 7-9 of the Tiirismaa School participated in the implementation of the exhibition together with Minna Lindqvist, a teacher of multi-material handicrafts. The exhibition was conducted both electronically and physically. Physically, the products were on display from the Lahti City Library. (Lindqvist 2021)

The third of the exhibitions at the Tiirisma School was a design challenge for five-grade students. The task was to design and manufacture a prototype light fixture with creativity, ingenuity and purposefulness. The product also had to embody Alvar Aalto, and a question related to Alvar Aalto was always added to the products. The products were made from recycled materials. Tiina Torvinen, a teaching intern at the University of Helsinki, was responsible for the implementation of the exhibition with the students. (Torvinen 2021)

In addition, to the exhibition, the teaching trainee implemented a guide that allows everyone to implement their own virtual exhibition with the ThinkLink application (Torvinen).

In these three exhibitions, all had managed to find different digital applications that also supported the presentation of the content of the exhibition.

Kannas Upper Secondary School participated in the LGDW event week with a few different implementations. The second- and third-year students of the Fine Arts and Design line (17) carried out a large mural, about 40 meters wide, on the shelter on the Kirkkokatu side of the Paavola campus construction site. The subject of the paintings was Green Lahti through the eyes of students. The students were supervised by teacher Antti Kallio.

The second output of Kannas Upper Secondary School was the works of the first-year students of the Fine Arts and Design Department (32) for the Poster Competition of the Regional Environmental Week. The theme of the poster competition was dialogue: “I listen - I understand - I talk”. The students were supervised by Taina Laakkonen and Leena Valtonen.

The third work was the Insect Hotel exhibition, which was designed, built and executed by the environmental and community art group members of Kannas Upper Secondary School (9 pieces). Insect hotels could be admired in the area of Pikku-Vesku and Lanu Sculturepark. The students' work was supervised by Taina Laakkonen and Leena Valtonen.

Through these works, high school students from Lahti once again demonstrated their skills not only in the field of design but also in terms of responsibility and respect for the environment.

What else would we pick up from the weeks programme - all the events deserve to be mentioned in this publication, but we also want to leave room for other articles. The students at LAB's Institute of Design and Fine Arts wonderfully implemented the Reflections thesis exhibition in a completely different environment. The exhibition of the final theses was assembled out in the park on the sidewalk. Students have also addressed in their dissertations topics that are interesting and stopping for them during this time. For graduating students, graduation is a reason to pause for a moment. Every year, the thesis exhibition touches on current topics. This year, the main theme of the exhibition is reflection, which is a vital process for all people. On that basis, we build our world, our identity,

our society and our living environment. The exhibition was also available on Instagram and on LAB's website. (Photo 6).

The students of LAB's Institute of Design and Fine Arts unleashed their creativity and set up a diverse sales exhibition, Showroom Muotsikka, in which students selected the best works from among themselves. The sales items ranged from canvas bags to postcards and from jewelry to small art objects. The products sold in the spirit of the corona period were presented on Instagram, and the products could be physically inspected in the DooRoom in the center of Lahti. The products went well in the store, some as gifts for mothers and spring graduates, and some to delight their buyers themselves. Once again, Lahti-based design has left the world many times over. (Photo 7).

LAB is a university of applied sciences that promotes and combines working life and innovation, and that trains future professionals in several different fields. The videos presenting LAB's activities brought their own additional spice to the LGDW event offering. Through the videos, e.g., Gaming Skills - Professional Games. (Gynther 2021)

LiMu Radio is the only campus radio in Finland maintained by the University of Applied Sciences, which has its headquarters on LAB's Lahti campus (Hautaniemi 2021).

We were also happy to include a video about graffiti by Finnish graffiti artist Sellekhanks. This topic was selected through the

Photo 6. Photocollage of the Reflection Exhibition (Photos: Laura Montonen/Ulla Saarela).

Picture 7. Photocollage of Showroom Muotsikka. (Photo Ulla Saarela).

public art of the opening, as graffiti is one of the most visible and controversial forms of public art. (Mustaniemi 2021)

You can get acquainted with other videos describing LAB's activities by visiting the Videoita muotoilusta ja muusta -website (Lahti Green Design Week 2021).

The upcoming Lahti Design Weeks

When creating such a significant series of events as the Lahti Design Week, it should be known at the end of the previous week when the next one will be organised, with what theme and who will coordinate the arrangements and with what resource. This would bring continuity to the event, engage actors in the development and implementation of the event, and give the public a reason to follow the development of the event more closely on provided medias and channels.

Feedback was collected from the event organisers and, where possible, from LGDW event participants. The virtuality of the events posed challenges to the systematic collection of feedback, for example regarding exhibitions. There is no information on who has visited the virtual exhibitions. According to the feedback received from the implementers, it is important that Lahti Design Week highlights the region's pioneering role as a design city in a versatile and extensive way.

During all three Lahti Design Week

events, co-operation between different educational institutions has intensified and is now eagerly awaited by teachers and students alike. In favor of virtual implementations, the feedback raised the possibility to follow events when it suits the viewers and could also return to presentations. In addition, virtual implementations allowed for wider participation. The events were attended all over Finland and there were also international participants. The content of the event was praised as diverse, topical in terms of topics and very technically implemented.

The clarification of program information as well as event schedules and speaker information in LDW communication channels were raised as areas for development.

Conclusion

The actors have a will to see the event continue. In the future, the annual coordinator of the event should be decided in good time, then the resources and funding from the co-operation networks for the implementation of the event should be agreed upon, and the theme and scope of the event should be agreed upon. This provides continuity between the event organisers and the general public. The theme of the next event could be internationality, which was also highlighted in the comments, for example, in connection with seminars and through cooperation between educational institutions.

Acknowledgements

The LAB team of Lahti Green Design Week 2021 would like to thank everyone involved in brainstorming, producing, and implementing the week's events, numerous pupils and students, several experts have enriched Lahti Green Design Week 2021 seminars, exhibitions and other events with their own competence and expertise. From this, it is good to continue planning the next Lahti Design Week.

References

Gynther, R. 2021. Pelillistäminen. [Cited 30 Nov 2021]. Available at: https://lut-my.sharepoint.com/:v:/g/personal/ria_gynther_lab_fi/EVrlUg5vsBdFqBIWTu8gpAYB7eBYPwrz-QqfHrXV-ROh5JA?e=G3vKMJ

Harjapää, A., Liski, M., Robinson, M., Ruokamo, A., Räty, V-P. & Soini-Salomaa, K. (toim.) 2021. Green Design – Ratkaisuja kestävään kehitykseen, ympäristövastuullisuuteen ja kiertotalouteen. Lahti: LAB-ammattikorkeakoulu. Lahden ammattikorkeakoulun julkaisusarjan, osa 17. [Cited 30 Nov 2021]. Available at: https://urn.fi/URN:ISBN:978-951-827-356-4

Hautaniemi, A. 2021. LGDW 2021 Limu Radio. YouTube. [Cited 30 Nov 2021]. Available at: https://www.youtube.com/watch?v=YB0uLdi0Kj0

LABfinland. 2021. Lahti Green Design Week Avajaiset. Vimeo. [Cited 30 Nov 2021]. Available at: https://vimeo.com/542079108

Lahti Green Design Week. 2021. Videoita muotoilusta ja muusta. [Cited 30 Nov 2021]. Available at: https://ldw.fi/class/videoita-muotoilusta-ja-muusta/

Lindqvist, M. 2021. Valitut palat - Kirjan uusi elämä. Tiirismaan koulun monialainen oppimiskokonaisuus MOKKI 2020. [Cited 30 Nov 2021]. Available at: https://issuu.com/minnalindqvist5/docs/valitut_palat

Mustaniemi, T. 2021. Graffitit. [Cited 30 Nov 2021]. Available at: https://lut-my.sharepoint.com/:v:/g/personal/laura_montonen_lut_fi/Ec9gT1D7LidEoimf3HMMeYABF8Wo5t8enBj5y4wAeQQUZw?e=f0Twfd

Tipala Kuvis. 2020. rumakaunisroska. Artsteps. [Cited 30 Nov 2021]. Available at: https://www.artsteps.com/view/60865bea44bf700fa1e05124

Torvinen, T. Thinglink-ohjeita mobiilisovellukselle. [Cited 30 Nov 2021]. Available at: https://read.bookcreator.com/HtsC4DXFwOcM5CrsVe0vhKIyhsD3/ioQ7doIaR2SP4MpIycOIzw

Torvinen, T. 2021. Detention space. Thinglink. [Cited 30 Nov 2021]. Available at: https://www.thinglink.com/video/1437157738013523971?fbclid=IwAR1gFKxSHp9GtuQoxghui0IcEUZRv2kLmFJaSVg-O8uOT8n7VmfI1K92ht0

Veli-Pekka Räty, Tommi Mustaniemi & Minna Tynkkynen

Fostering Enterprises with Design Venture Days

Abstract

The Design Venture Day events have been created to raise the awareness of design, both in everyday life and in companies' development processes. In the 2021 event, we showcased the benefits of design in business in a variety of industries.

Designers are in a position to come up with new ways to produce goods and services without producing waste in the first place. Also, designers have the possibility to change people's behaviour towards sustainability within everyday life.

Competition in markets is fierce, and companies' design cycles are very fast. Customers select goods and services based on their sustainability and companies' responsibility. The designer also has to adapt to this while seeing the bigger picture in which her work is included. Several original and innovative examples were presented in designer-entrepreneur cooperation.

Design has become strategic for companies, and designers will be asked to assume top strategic positions. In those positions, designers will sketch and draw the future, both for the companies and their customers and users. This means that we need to teach and prepare both young and established designers to assume these positions.

Keywords: Business economy, circular economy, design, design management, digitalisation, education, enterprises, fashion, innovation, microenterprises, new economy, responsibility, small and medium-sized enterprises, sustainability, user experience, user satisfaction

Introduction

The Design Venture Day annual event has been organised now for the third time. The event has been created to raise the awareness of design, both in everyday life and in companies' development processes. The Design Venture Day has addressed special questions and issues that enterprises typically have (Räty et al. 2020).

In the 2021 event, we showcased the benefits of design in business in a variety of industries. Special themes included inno-

vation, circular economy and responsibility. Next, we examine the five presentations and views of the Design Venture Day 2021. We first look at sustainability and responsibility, followed by the need for change in consumer behaviour. We continue with designers' strategic role in enterprises, creating and sketching the future in innovations. Finally, we view how the designer's work ends up in products and services, and how individual enterprises benefit from working together with designers.

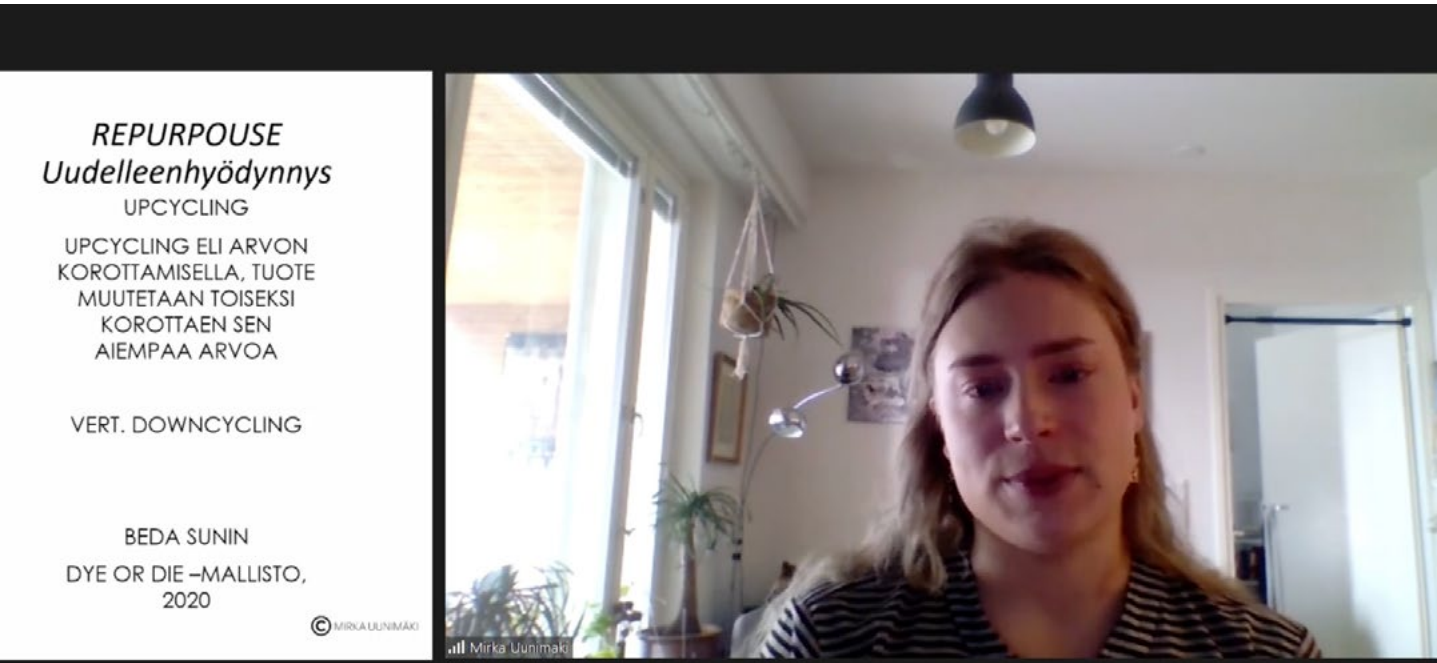
Sustainable and Responsible Design

Sustainability as a term refers to stability and the ability to maintain balance, which responsible design practises try to achieve. In the world of fashion design, this would be the never-ending balancing between trying to bring the latest and the greatest in fashion trends to the consumers, but also taking into consideration our environment and sustainability in keeping our planet running.

"It's a paradox", states Mirka Uunimäki (see photo 1), a fashion designer and wearable design student at the Institute of Design and Fine Arts. Mirka argues that even the term *fashion* dictates that the changes are rapid and fast. Therefore, it is suitable to ask if sustainable design is even possible to achieve (Ruokamo 2016; Gordon & Hill 2015).

Meeting the quickly changing require-

Photo 1. Mirka Uunimäki, Fashion designer, wearable design student, LAB University of Applied Sciences (Photo: Design Venture Day).



ments and desires of the consumers of the fast fashion industry – and the requirements of sustainable, responsible design, sure feel like a clash of two completely different ideologies. The fashion industry is taking a big stance on the subject by introducing clothing collections with recycled materials, organically grown cotton and many other ways of introducing sustainability in their garments. Are these steps enough, and are they genuine?

"First we need to understand that the concept and term of *sustainable design* is very widely used – and the conception of it can vastly differ from one company to another", Mirka continues. "Also, the definition of *sustainability* in fashion does not support the natural rhythm of fashion ageing to which we are accustomed to. Fashion and its cycles are created to age – this in itself does not support responsibility."

The Ellen Macarthur Foundation (2021) is actively talking and educating about the importance of circular economy. Their three fundamental design-driven principles are eliminating waste and pollution, circulating products and materials, and regenerating nature. Mirka is also a big advocate of the same strategies that the foundation is running in battling sustainability and responsibilities of the fashion industry – "We could also think that instead of eliminating waste, we could come up with new ways to produce fashion without producing waste in the first place. Rethinking the old ways of doing, and we could give more to the planet than what we take from it".

Photo 2. Mirja Kälviäinen, Principal lecturer of design and media LAB University of Applied Sciences (Photo: Tommi Mustaniemi).

Behaviour and knowledge in consumers leading to a change

Mirja Kälviäinen, principal lecturer at the Institute of Design and Fine Arts (see photo 2), agrees with the concept of rethinking and coming up with new solutions and tools. The root cause for negative environmental impact is our consumption, not the production.

Changing consumption behaviour is the way to change the negative systems of environmental impact in the everyday life of consumers: "Behaviour change is a process in which the end goal is to commit to environmentally responsible consumption in different situations. We need to be aware of new opportunities and possibilities of living in a sustainable way. But also, after trying, you need to get support to continue the newly learned habits. Knowing and believing leads to wanting and being able to."

When talking about the Finnish consumer and her drivers for sustainability, Mirja found that a lot of people were after keywords like local, slow, nature, recycling, health and family. What she also found was that people were tired of products breaking down and not having a long lifespan. "People are also fed up with the number of things they own in their household. The excess of products piles up really fast and current products break down easily, which leads to people having more focus on responsibility and sustainability when they are making decisions on what goods to purchase."

In the end, it's the company who has to make it clear and honest on how they are really making an impact with sustainability and that they are really committing to responsibility, but the consumer also has a strong role in calling out the greenwashing – the more the industries are moving towards a greener future and advertising this, the more well-informed the consumers are also in calling them out for false impressions of sustainability and misleading information on responsibility. What is central, is that the companies can help and support consumers in making the required consumption change by providing services for this.

Consumers and corporations compete by one-upping each other with knowledge and campaigns around sustainability on goods and products. It feels like a race between who adapts its core message first – but let's hope the winner is the planet.

New ways to think about industry and marketing

"We need to totally change our conception, and we're going to pass from an era of conception to an era of contribution. More and more we will be involved in the product and services we are going to use," emphasises Christian Guellerin, director of the French design school L'École de design Nantes Atlantique (see photo 3).

Christian gives us an example: His school works for a company in shoe making. The job of the company is to conceive, to produce and sell shoes. They came to the school asking to imagine the shoe of tomorrow. Hence, the role of the designer was to draw the shoe of tomorrow. His designers, his students, decided to draw a connected shoe. "A connected shoe, no market for that. Nobody had ever asked for a connected shoe." There has never been any need for connected shoes. "But this is the power of design, to be capable of imaging the shoe of tomorrow."

The designers imagined the uses of the shoe. Recently the company decided to create a branch with connected shoes

that can detect the balance of people who wear the shoes. “There is a huge market for ageing people if the shoe can detect the problem of balance,” Christian explains with great delight.

But how did design become strategic in this example? “Probably, tomorrow the job will be to conceive, to produce, and to sell the services. They will give the shoes to people, and they will sell the services included in the shoe. So, it’s a new economic model for this company. It’s a new strategy. It opens new markets.”

In the years to come, many companies will pass from products to services. Can you imagine the power of suggestion of the designer who can imagine the product of tomorrow? The product of tomorrow definitely will influence the strategy of a company. It will have the necessity or the possibility to change the economic model.

“Digital applications are penetrating our lives through the use of new technology, and that’s good,” asserts Christian. “This is an opportunity to reinvent our way of life. And of course, to come up with all the uses around this better.” The designer’s job is to draw the world of tomorrow. The task is to draw, describe, imagine. And he continues, “The problem is no longer to *protect* our planet, the problem is to *save* our planet.”

Christian concludes with a reflection, “Probably, it’s not the era of engineers or marketers anymore. It’s the era of designers.” Design has become strategic for companies, and designers will probably be asked to assume top strategic positions. However, Christian is not sure if designers are ready to take that position. “I’m not sure that we teach our students the ambition to rally those positions, and I’m not sure that all students want that.”

Photo 3. Christian Guellerin, Directeur général, L’École de design Nantes Atlantique (Photo: Jean-Charles Queffelec).

Would the next step be to update educational programmes for our new generation? It is a fantastic opportunity for designers to reinvent tomorrow.

Photo 4. Alok b. Nandi, Creative director, Architempo + Spread Design. (Photo: Spread Design).

How to sketch our future

How then can the designer draw the world of tomorrow? Draw, describe, imagine? Alok Nandi, creative director at Architempo and Spread Design (see photo 4), evoked the connections between innovation and design: how can design help frame approaches and decisions with an entrepreneurial mindset?

"When I'm talking about designing, it's about looking at mindsets and tool sets for exploring the future. How are we going to sketch tomorrow? What capabilities in your universities, in your companies, are we going to have?"

Alok says that his way of looking at design is quite simple and even provocative. "Design is about making interactions between *fiction, function and form*." What he means is that he would like us to go beyond the simplistic duality *'function leads to form'*, or *'form is based on function'*, which he says is a 20th-century myth. "I would like to say fiction is needed. Fiction is about looking at the future, about things which yet don't exist." Sketching the future is creating fiction. Designers are people that are imagining, as Christian Guellerin mentioned. Hence, he concludes "My proposition is that fiction, function and form are what keep us busy in terms of designing."

Sketching the future, innovation led by design. This "puts the centre of gravity out of innovation led by research and development, or techno research and development, which is end 20th century paradigm." Alok draws our attention to the need to change paradigms, and design is contributing to this change. He would be cautious to tell that design has been invented 150 years ago, which he says is a narrow view of looking at the history of design. "I think the design mindset has got many thousand years of history, and we need maybe to re-question this industrial mindset, and industrial way of looking at histories, and explore new paradigms."

Alok adds another thought for entrepreneurs and designers: how do we move from the market-centric view to the society-centric view? “How do we zoom in; how do we zoom out? How do we make sure that we get the detail, but we have the big picture?” He continues, “How do we move from the problem solution approach to the opportunity proposition?”

Following Christian Guellerin’s example of the shoe manufacturer, Alok emphasises that companies and designers need to describe things and observations in new ways. We need to sketch, and we need to draw our future. We need to diagnose connections and signals, and we need to decide to choose to move on, to prototypes, to try in practice. “Prototyping is the word I’m obsessed with. How can we prototype stuff? How come that for one year we are going through the Covid cases, and we don’t have enough prototyping of services in different European regions?” Alok wonders.

“The question to the how, how are we interacting, how are we putting connections, how are we connecting the dots, is something where we need fresh thinking always, and that is what we, in our design activity, are bringing to marketers, to engineers, to managers, and we are becoming more strategic, because we are questioning the ways to reach some state.”

“How do we make sense is the essence of strategic design, and that allows us to come back to this statement: design is about making interactions between fiction, function and form.”

To conclude: how can design help frame approaches and decisions with an entrepreneurial mindset? “Context can be seen at different scale: the scale of the city, the scale of the neighbourhood, the scale of the region, the scale of the country, European scale, the planetary scale, and we have many layers where there is porosity; things are in not only layers, they are in interconnected layers. How are we envisioning scenarios considering the zooming-out and zooming-in effect? That is where design has a fundamental role to play: to sketch the future with frames, we need to figure and frame approaches and decisions. And we need what we call fresh thinking, the entrepreneurial mindset: What if? How might we? These are the questions that keep us busy.”

How design finds the way into a company’s products and services

“Today’s business field is huge, so it is worthwhile for an entrepreneur to think about what to focus on and what services to obtain elsewhere,” says Marko Hanhisuanto, the CEO of the Federation of Finnish Enterprises, South Karelian District (see photo 5).

Everybody knows what the design of physical objects is, in, e.g., architecture, fashion and packaging design. These involve, e.g., brands, cost effectiveness and intellectual property rights (IPR). Newer topics include various processes and digital design, user experience (UX) and user interface (UI) design. In the future, their importance will increase more than we may even imagine. The new design topics involve the same

brands and cost efficiencies but are also part of global competition and the strongly growing global market.

The increase of digital tools in physical design as well means that it is time for reflection. The design needs to be delivered quickly to the customer, who gives feedback to the designer, and the design can be modified based on the feedback. Hence, the enterprise will be able to achieve fast cycles, test designs faster and launch them faster than before. All this will be involving iteration, getting user feedback, redesigning and launching a new version based on the feedback acquired.

In marketing and company visibility, you need to take advantage of digitality. Before, it was enough to have a web page, but now you can also connect to blogs, news, videos, chat or a chat bot. It is no longer enough to have a web page that is not updated. Nowadays, the work also includes search engine optimisation and search engine marketing, not to mention many different social media channels. In addition, marketing is done through video productions, vlogging, podcasts, online stores and different platforms. It is worth considering whether the company even needs web pages any more.

For the designer, it is good to remember that she is one part of a big whole. Everyone needs to know their own field of substance, but also the borders of other fields, so also the designer needs a broad vision and understanding.

The more competitive and larger the design process and challenge, the faster the designer needs to also tackle the process. The traditional designer wants to do precise and polished work. However, the corporate pace is fast – it may not be possible to refine the work all the way to the end. To work this out, there is a rule in marketing and sales that says, “Do good and talk about it as excellent”.

To finish, Marko gives a case example of a garden farm in 2020. Initially, this farm had no digital visibility, no web pages and no so-

Photo 5. Marko Hanhisuanto, CEO Federation of Finnish Enterprises, South Karelian District. (Photo: Tommi Mustaniemi).

cial media. Customers asked the entrepreneur directly on the phone about resellers, opening hours and prices. Professionals set up the farm's Facebook page, photographed their products, added information about the opening hours and retail outlets on their page, and updated the news feed as agreed. The service design provided sales advice to the entrepreneur, such as including bringing into use card swipes, setting up corona security measures and attraction of self-pickers. These resulted in a reduction in routine inquiries and an enhanced customer experience. The entrepreneur was able to focus on management and farm work.

In the future, a challenge may be in where the entrepreneur finds the experts needed. Marko trusts the power of collaborative networks to develop business. He thinks that every entrepreneur should cooperate with other entrepreneurs from different fields.

Summary

The Design Venture Day 2021 presenters suggest that designers will sketch and draw the future. For this work, we need fiction to supplement function and form. Fiction to imagine all new ideas, products and services.

The designer is required to see the whole entity in which they work. This includes understanding the needs of the users and how designers will be creating meaningful products and services for them. Being agile in working together with entrepreneurs, creating and testing prototypes and constantly improving designs, and getting feedback from users – adopting the entrepreneurial lean approaches. All this while considering the product life regarding sustainability and responsibility.
Instead of eliminating waste, the designers need to come up with new ways to produce goods and services without producing waste in the first place. Also, changing user behaviour is a way to reach sustainability. The goal is to commit to environmentally responsible consumption in different situations.

Design has become strategic for companies. Therefore, we can say that we are living in the era of designers. Designers will be asked to assume top strategic positions. This means that we need to teach and prepare both young and established designers to assume these positions.

Acknowledgements

The Design Venture Day 2021 was produced in collaboration with the Lahti Green Design Week 2021 and the Cumulus International Association of Universities and Colleges of Art, Design and Media. Design Venture Days have been created in Design Venture Programme projects of the LAB University of Applied Sciences. The 'Design Venture Programme – Design to Speed up Businesses in South Karelia' has received funding from the European Regional Development Fund (ERDF).

References

The Ellen Macarthur Foundation. 2021. Circular economy introduction. [Cited 15 Sept 2021]. Available at: https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview.

Gordon, J. F. & Hill, C. 2015. Sustainable Fashion – Past, Present and Future. London & New York: Bloomsbury Academic.

Ruokamo, A. 2016. Matka kohti vastuullisuutta – Kokonaisvaltainen vastuullisuus vaatetusalan yrityksessä, Case: Voglia. Master's thesis. Rovaniemi: University of Lapland, Faculty of art and design. [Cited 3 May 2021] Available at: https://lauda.ulapland.fi/handle/10024/62657

Räty, V-P.; Kyle, M.; Montonen, L. & Mustaniemi, T. 2020. Design Venture Programme – Design to Speed Up Businesses. In: Soini-Salomaa, K. (ed.) LAB Design Annual Review 2020. Lahti: LAB University of Applied Sciences, 21–30. [Cited 14 Sept 2021]. Available at: http://urn.fi/URN:ISBN:978-951-827-348-9

Katariina Pakarinen & Marjut Suokas

Developing new models for lifelong education with customer-oriented mindset and methods

The way how we approach and do work is changing, as the labour market is undergoing a vast transformation. Behind the change are megatrends such as urbanisation, globalisation, digitalisation, demographic change and climate change. Working is no longer bound to a specific place, and it is done more often in different global networks via digital platforms. Work tasks no longer remain unchanged, and the problems to be solved are increasingly more complex because of the growing amount of information, multi-layered processes and the need to solve global challenges. A constantly reforming labour market has a direct impact on individual employees, whose responsibility for their own work, self-management and competence increases. This leads to a need for new, efficient and effective additional educational service models, which can be studied flexibly. This article discusses how continuing education is developed in LAB University of Applied Sciences as part of a two-year project, “Continuation - Lifelong education and competence building” funded by the European Social Fund.

Keywords: continuous education, competence development, design thinking, resilience

It is anticipated that future forms of work will differ significantly from today, as the distinction between employer and employee will blur or even disappear (Opetus- ja kulttuuriministeriö 2018, 14-15). Work is no longer considered as one linear process, and it can be done experimentally from many different roles, while moving beyond traditional occupational boundaries (Sitra 2011). Livelihoods come from multiple streams, as organisations are temporary and changing (Opetus- ja kulttuuriministeriö 2018, 14-15). Employees need to take more responsibility for their own careers, as companies and organisations no longer offer continuous and pre-defined careers until retirement age (Toivola 2020).

Digitalisation and technological change are expected to lead to a wider disappear-

ance of traditional work tasks, as many of our jobs can be automated, and workers can be replaced with robots and artificial intelligence (Lehti et al. 2012, 6). Machines are often considered faster, more secure and more stable than human brain capacity. While work as a routine activity is outsourced to machines, people focus on utilising machines to solve problems (Opetus- ja kulttuuriministeriö 2018, 14-15). At the same time, we will have completely new range of human-centred job types, relying on imagination and creativity. These are the work types that the machines are not yet able to do.

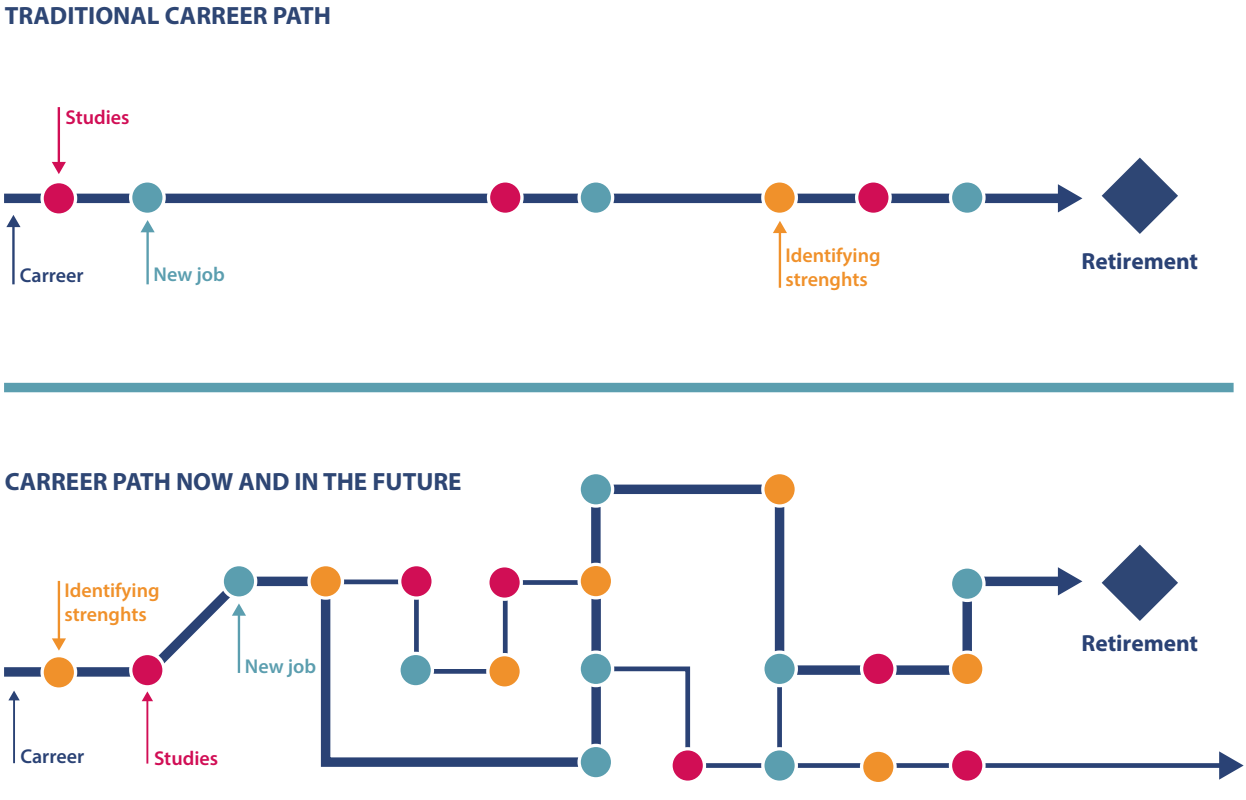


Figure 1: How traditional, straightforward career paths differ from career paths of the future (Image: Marjut Suokas & Katariina Pakarinen).

Changing work changes employees' roles and responsibilities

The transformation of work is not a rapid change from one way of working to another, but a long-lasting movement towards a more diverse world of work (Opetus- ja kulttuuriministeriö 2018, 14-15). It can be said that work was previously a condition of life, and now it is more of a factor that strengthens relevance. Belief in one's own possibilities and abilities, the goal-oriented continuous ability to renew knowledge and the courage to throw away the old and the unnecessary are becoming highly relevant (Työterveyslaitos 2018).

In the future, an employee's own responsibility for updating and upgrading their own skills increases, while they need to be actively looking for new, different ways to work instead of relying on old and outdated ways of doing things. The employee must also be aware of how they manage their own work, as information work requires time to deepen the work, organise and plan, and manage oneself (Toivola 2020). The challenges of job change can be seen in the increase in the mental load of work, as the role of the employee changes. Fragmentation of work and part-time work affect employees' resilience (Hannikainen 2013).

As the individuals have more power (and responsibility) to guide their own careers, based on their potential, it is essential for the learners to identify and describe their own skills. Employees need to expand their own potential with continuous growth and self-development. They also need to adapt their entrepreneurial attitude, problem-solving skills and a new mindset, which helps to perceive large entities. Employees also need to have a wider range of multidisciplinary expertise and networks, while they must also learn flexible adaptation to new professional requirements, like the ability to co-operate and the ability to co-develop.

At the same time, companies are competing for qualified and capable employees, as international competition in various industries intensifies. Employees are no longer seen as mere tools for a company's economic growth, but more as enablers. (Korkiakoski 2019.) The company that encourages the strengthening of know-how, gains a competitive advantage. A company that encourages development and treats employees as inner clients attracts result-oriented, change-friendly and resilient employees.

Towards life-long learning

The study path of Finns has mainly consisted of formal education acquired in childhood and adolescence, and then studies are deepened practically on the job. Today, as the requirements of working life change at a rapid pace, the need for constant learning will increasingly affect all workers, regardless of their job title or educational background. That is why the development of competence must be brought even stronger to the work, so that it is continuous and part of the work. (Sitra 2019, 2.)

Continuous learning helps employees stay on a journey of change as an active participant instead of statisticians who are struggling against the movement. Continuous

learning responds to the need to develop and renew skills and professional competence at different stages of life and career (Opetus- ja kulttuuriministeriö 2018, 14-15). Continuing education focuses on increasing the expertise of professionals operating in the field and amplifying competitiveness of companies in the market (LAB-ammattikorkeakoulu 2021). At its best, continuous education provides up-to-date information, while opening and widening participants' thinking. Continuous education introduces new tools, methods and new ways of working.

The starting point for continuous learning in Finland is good. Finns have a high level of education, the skills of primary school students are among the best in an international survey, and it is estimated that every second working-age person participates in adult education once in a year. It is vital for lifelong learning that the foundations of learning remain strong. However, the halting rise in the educational level of the population and shortcomings in the knowledge and skills of those completing primary school, combined with the fact that a significant proportion of adults have insufficient basic skills, need to be taken seriously. (Opetus- ja kulttuuriministeriö 2018, 25).

Finnish adults also consider lifelong learning as a fundamental right, and learning and competence building are perceived to increase well-being. Finns want to develop their skills because they feel that it helps them cope in a changing world, increases well-being, and supports growth as a person. According to the study, common reasons for developing skills were coping in a changing world, improving one's own well-being and growing as a person. Also, almost 80 % answered that they enjoy learning new things and learning new things with interest. Only just over 40% thought that skills need to be developed primarily for the needs of working life. (Arola et al. 2020.)

Competence building on multiple levels

The continuous development of professional skills and strengthening competence is one of the most important prerequisites for both employees and companies to succeed in rapidly changing operating environments. A dynamic job market requires flexibility and adaptation.

Actively planning one's own path and future leaves room for flexibility and justifies experimentation, while reinforcing purposefulness. Developing, maintaining and updating one's own competence shows active involvement and orientation towards the future. It also helps to move the workload towards empowerment. A dedicated and enthusiastic staff enhances the company's financial success (Tyni 2016).

Learning and dynamic reinforcement of competence with future skills needs to be done in three different levels generically, on a substance-by-substance basis and also in the field of working life skills. (Martela 2021.)

A. Generic competence requires the identification of strengths, the articulation and development of competence. The

generalist of the future will be able to combine things with muscles, brain and heart. The needs of customers and future working life can be met with a coaching approach, relying on interaction and networking.

B. Increasing, renewing and supplementing substance knowledge is important. The latest studies, experiments and pilots provide significant additional information. Old beliefs have had to give way to new scientifically researched and practically tested practices.

C. Working life skills are an important part of future work. The most important are human interaction of high quality and creative critical thinking.

It is important to combine all three elements mentioned above to the continuous learning for developing holistic competence. After this, the know-how can be supported and produced on a much broader basis by bringing together training providers, employers, technology developers and other providers of knowledge services in profitable and meaningful ways (Sitra 2019, 2.)

In the higher educational institutes, continuing education is often based on theory, mentoring and guidance, and doing things together. It can be tailored to the needs of working life and is not tied to the educational responsibility of higher educational institutes or universities. Continuing education may consist of, for example, lectures, short courses, different competence modules or courses. (Miettinen & Kosonen 2019.) Peer learning provides participants with new networks and insight to the best practices.

Developing continuous education with a design thinking mindset

Developing and evolving are more often seen as rewarding and engaging, but at the same time, they are demanding and time consuming. Studying isn't always easy in the midst of a hectic life. Employees might have difficulties identifying what they should be studying, and companies might struggle to predict the skills they need in the future.

The capacity of companies and employees to innovate and manage change can be helped and promoted through design thinking. Learning and mastering design tools, as well as understanding the benefits they bring, creates strong conditions for coping in a rapidly changing national and global operating environment. The design thinking process puts particular emphasis on a mindset aimed at finding new, open-minded approaches and ways to find and delineate the problems (Brown 2008). Design thinking combines empathy into creative thinking and experimental development. It works as a way of thinking, as a collection of user-centred design tools, and combines a people-centred approach with a curious approach to research, while thinking and using concrete visualisation as a way of thinking. Design thinking also helps employees reflect their own work and competence.

The Continuation - Lifelong education and competence building -project creates a mod-

el of modular training packages that can be used to update the skills of employees in companies and organisations, as well as entrepreneurs and professionals outside of work, to meet the challenges of future working life. The aim is to create effective future and customer-oriented educational service packages based on real customer needs. The aim is to formulate completely new types of competence-reinforced training concepts with design thinking tools and methods. The training offer is developed together with the business field through research, foresight and competence assessment. Training packages are tested in different areas of product and service development through rapid experiments.

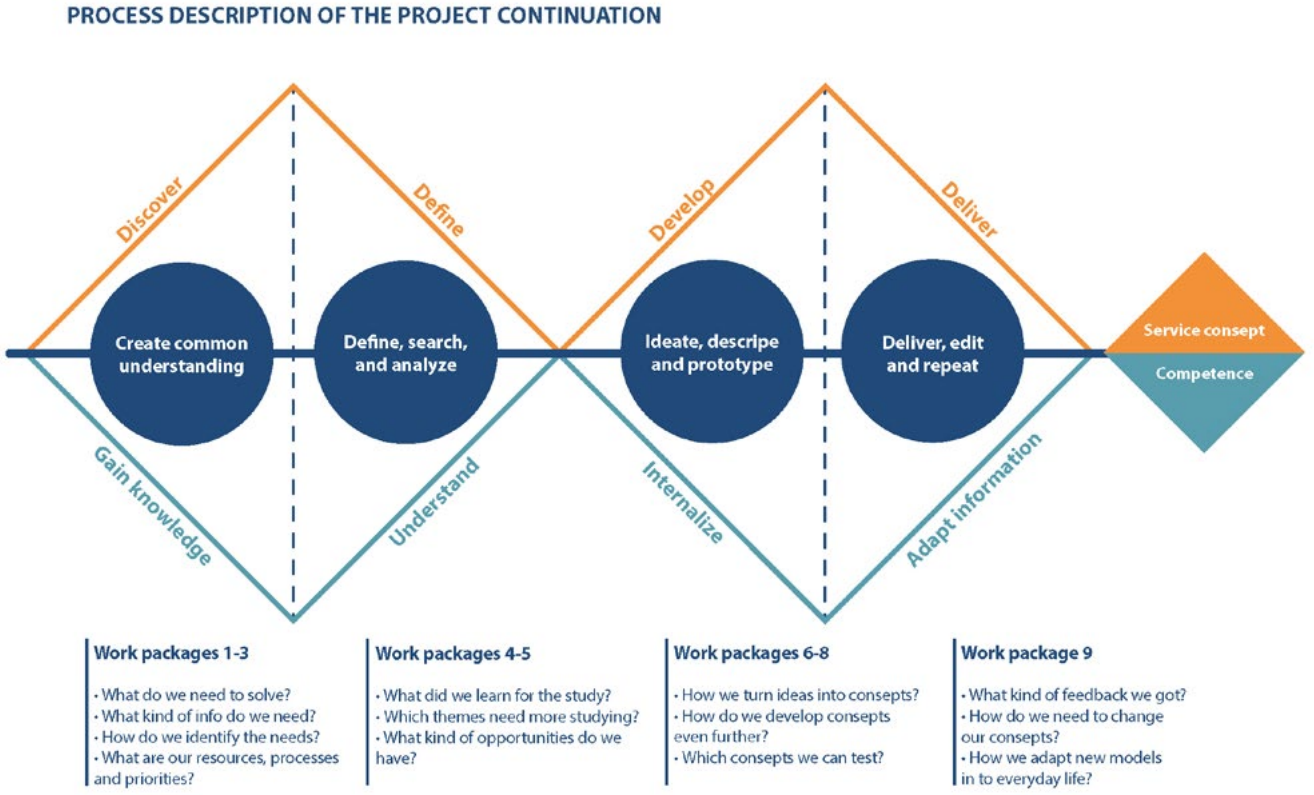


Figure 2. Process description of the project Continuation (Image: Marjut Suokas & Katariina Pakarinen).

The Continuation project focuses on creating educational packages and a model that responds to the needs of employees and companies. The aim of the project is to produce a learner-centred, agile, work and future-oriented educational concept that is effective, productive, attractive and goal-oriented from the perspectives of both users and service providers. In the future, the goal is to offer customers relevant, impressive, clear and flexible entities in a multi-channel manner.

The Continuation project has a total of nine (9) work packages that follow a process from a familiar service design. (Figure 2) Work packages 1-3 comprehensively focus on obtaining background information on benchmarking current educational themes and as well as the needs, aspirations and goals of learners, prospective customers and users. Work packages 4 and 5 focus on creating something new and the first experiments. The analysis takes place inside work package 6. Work packages 7 and 8, on the other hand, allow for re-development and conceptualisation, without forgetting reflection and analysis. It is also important to remember the content of the last work package 9 as a safeguard for the future. The main goal of the Continuation project is that the service concepts produced during the project will be put into practice at the end of the development project.

Future thinking is strongly present in the implementation of the project, and especially in work package number three; future skills needs are anticipated through technological, knowledge and skills, as well as social requirements. The aim of the work package is to create the widest possible picture of the future competence requirements of working life. The methods used are, for example, future thinking, the wheel of the future, scenario work and trend analysis methods. The result is a description of the requirements of the professions, which is utilised in the design and implementation of the course offered.

References:

Arola, M., Jämsén, P. & Ryky, P. 2020. Mahdollisuus oppia auttaa pärjäämään elämässä. Sitra. [Cited 1 Sept 2021]. Available at: https://www.sitra.fi/artikkelit/mahdollisuus-oppia-auttaa-parjaamaan-elamassa/

Brown, T. 2008. Design Thinking. Harvard Business Review. [Cited 18 Aug 2021]. Available at: https://hbr.org/2008/06/design-thinking

Hannikainen, M. 2013. Aikamatka arkeen: Työ. YLE. [Cited 18 Aug 2021]. Available at: https://yle.fi/aihe/artikkeli/2013/01/18/aikamatka-arkeen-tyo

Korkiakoski, K. 2019: 35. Asiakaskokemus ja henkilöstökokemus. Uusi aika, uudenlainen johtaminen. Helsinki. Alma Talent Oy.

LAB-ammattikorkeakoulu. 2021. Täydennyskoulutus. [Cited: 21 Sept 2021]. Available at: https://www.lab.fi/fi/koulutus/taydennyskoulutus

Lehti, M., Rouvinen, P. & Ylä-Anttila, P. 2012, 6. Suuri Hämmennys: Työ ja tuotanto digitaalisessa murroksessa. Helsinki: Taloustieto Oy. ETLA B254. [Cited 18 Aug 2021]. Available at: https://www.etla.fi/wp-content/uploads/2012/09/B254.pdf

Martela, F. 2021. Työelämän kutkuttava tulevaisuus – tekoälyä, digikohtaamisia ja luovuushaasteita? SuomiAreena 2021. [Cited 1 Sept 2021]. Available at: https://www.mtv.fi/sarja/suomiareena-10003191/tyoelaman-kutkuttava-tulevaisuus-tekoalya-digikohtaamisia-ja-luovuushaasteita-1444166

Miettinen, T & Kosonen, J. 2019. Korkeakoulut työuran aikaisen oppimisen edistäjinä. Sitra -muistio. [Cited 1 Sept 2021]. Available at: https://media.sitra.fi/2019/02/28154613/korkeakoulut-tyouran-aikaisen-oppimisen-edistajina.pdf

Opetus- ja kulttuuriministeriö. 2018. Työn murros ja elinikäinen oppiminen. Elinikäisen oppimisen kehittämistarpeita selvittävän työryhmän raportti. Helsinki: Opetus- ja kulttuuriministeriö. Opetus- ja kulttuuriministeriön julkaisuja 2018:8. [Cited 1 Sept 2021]. Available at: http://urn.fi/URN:ISBN:978-952-263-552-5

Sitra. 2011. Uusi työ. Millainen on uusi elinvoimainen työelämä? [Cited 10 Aug 2021]. Available at: https://www.sitra.fi/aiheet/uusi-tyo/#mista-on-kyse

Sitra. 2019. Kohti osaamisen aikaa. Sitran selvityksiä 146. Helsinki: Sitra. [Cited 1 Sept 2021]. Available at: https://media.sitra.fi/2019/02/06165242/kohti-osaamisen-aikaa.pdf

Toivola 2020. Työelämän trendit. Yksi hyvinvointi -podcast. [Cited 10 Aug 2021]. Available at: https://radioplay.fi/podcast/yksi-hyvinvointi/listen/2028418/

Tyni, T. 2016. Motivoitunut henkilöstö luo kilpailuetua. Directors' Institute Finland. [Cited 1 Sept 2021]. Available at: https://dif.fi/teema-artikkelit/motivoitunut-henkilosto-luo-kilpailuetua/

Työterveyslaitos. 2018. Uudistumiskyky on taito, joka auttaa pärjäämään muuttuvassa maailmassa. Työpiste-verkkolehti. [Cited: 10 Aug 2021] Available: https://www.ttl.fi/tyopiste/uudistumiskyky-on-taito-joka-auttaa-parjaamaan-muuttuvassa-maailmassa/

Annariina Ruokamo & Paula Nurminen

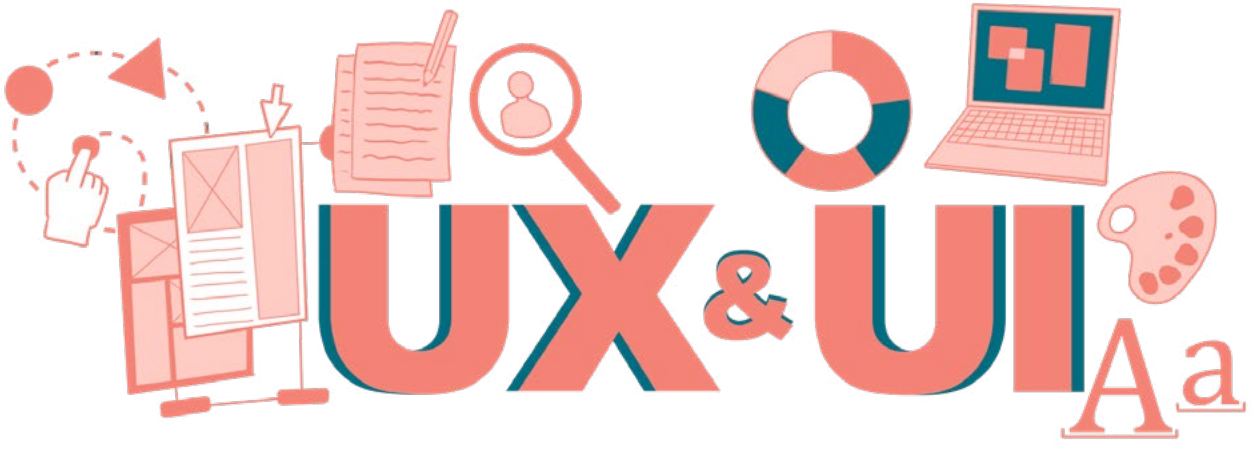
UOMA project on the trail of future design

Abstract

UOMA — Renewing the Expertise of Design and Visual Communication Professionals, is a two-year project, funded by the ESF, which ended in September 2021; the main objective of which has been to find solutions for updating the continuing education and increasing the competence level in design and visual communication. During the project, training models and new training content on the following topics have been developed and piloted: IoT (Internet of Things), AI (Artificial Intelligence), AR (Augmented Reality) VR (Virtual Reality), UI (User Interface) and UX (User Experience). During the project, **Tehtävänä tulevaisuus —Tulevaisuuden muotoilijan työkirja** (Available only in Finnish. English translation: Mission Future — a Workbook for Future Designers) was also created for the changing competence needs. The workbook was published in autumn 2021, and it can be read and downloaded from the LAB University of Applied Sciences publication platform in Theseus.

Keywords: Continuing education, renewing expertise, design, visual communication

Graphic Design: Eppu Wikström



Active from autumn 2019 to autumn 2021, UOMA — Renewing the Expertise of Design and Visual Communication Professionals, was a continuing education project with ESF funding in the LAB University of Applied Sciences, aimed at professional designers and visual communications experts. For two years, the UOMA project has renewed and supplemented training content for the competence needs of the world of work identified in the project. Based on this, flexible training methods and learning environments have been developed for designers working in the world of work.

In 2020, further training trials were implemented in connection with UOMA on the following recognised learning needs and themes: IoT (Internet of Things), AI (Artificial Intelligence), AR (Augmented Reality) VR (Virtual Reality), UI (User Interface) and UX (User Experience). Piloting educations has resulted in workplaceoriented training content and continuing education pilots based on individual competence needs. These new training contents and models enable designers and visual communications experts to anticipate future professional competence needs and develop their competences to meet the requirements of the changing world of work. In addition, a workbook for the future designers was created. The “Tehtävänä tulevaisuus” (Nurminen & Ruokamo 2021) workbook clarifies the future competence needs for designers and visual communications experts working professionally or studying for a profession.

What is UOMA and why?

The competences of professionals working in design and visual communications requires renewal and supplementing. In addition to the existing competences in design and visual communication, competence requirements have already been identified in the preparation phase of the UOMA project, that were not previously identified in the training. There has been a clear need to update competences. The main objective of the UOMA project has been to find solutions for updating continuing education in the field of design and increasing competences in the fields of design and visual communication. Consequently, multidisci-

plinary training models and new training contents have been developed and tested in the project to ensure that the competences of designers and visual communications experts already working meet the requirements of the changing world of work. The key measures of the project included planning, piloting, evaluation and modelling of training modules built for the needs of experts in the field of design and visual communication.

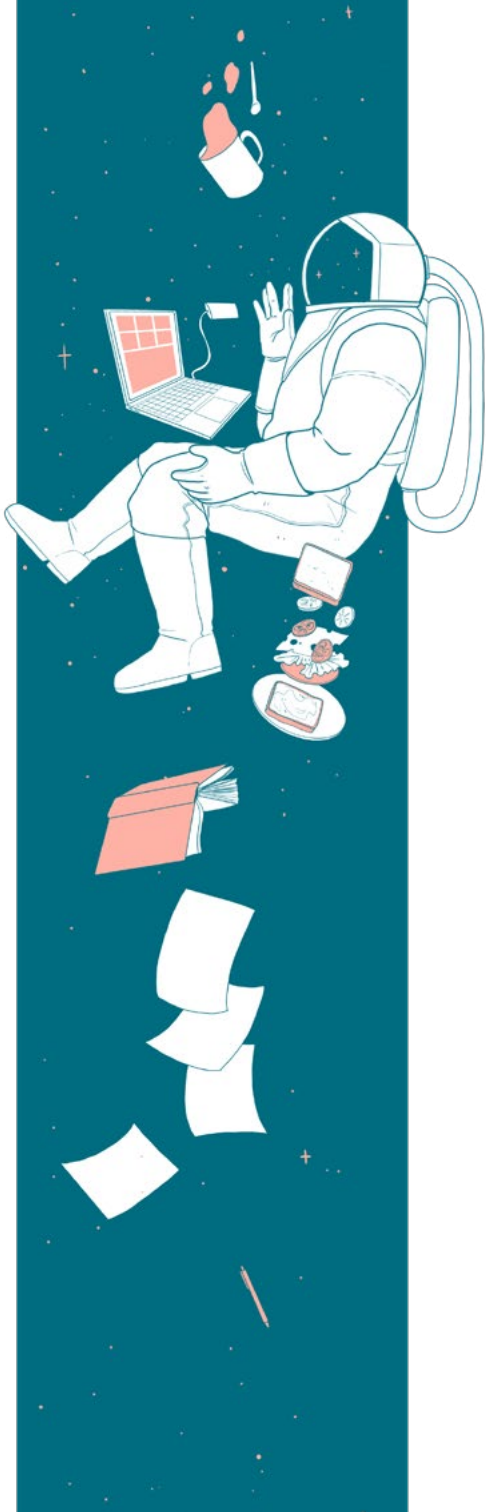
The project has resulted in workplace-oriented training content and continuing education pilots based on individual competence needs. The new training contents and models enable designers and visual communications experts to anticipate future professional competence needs and develop their competences to meet the requirements of the changing world of work. Based on the feedback collected from the training sessions, it has been concluded that the competences of those participating in the training have expanded regarding IoT, UX, UI, AR, VR and AI competence themes, and that anticipation of changes in the world of work and identifying competences have been strengthened among those participating in the training. In addition, companies' opportunities to utilise expertise related to new technology as a part of business development have expanded.

Future competence needs

In the project, future competence needs have been mapped by an extensive review from the general competence needs in the world of work to the specific competence needs of professionals in design and visual fields. Research on the future competence needs conducted by other parties has been part of this review. The UOMA project has utilised national general mapping of future competence needs as well as the definitions in the field of design and visual communication on what kind of competences will be needed in the future.

In the Finnish National Board of Education report, Osaaminen 2035, they have mapped future competence needs in the world of work at the national level, both generic and general competence needs in the world of work, and citizens' digital skills. During the anticipation process of the competence anticipation forum, alternative future scenarios have been built about the trends in the labour market. Several workshops have been used to identify factors and phenomena of change in the future, the future of the world of work, anticipation of competence and educational needs and proposals for the development of education and competences. In the report, they also considered the challenges of continuous learning. (Opetushallitus 2019)

One of the core tasks of the Finnish Design Academy development project (FDA) has been to find an answer to the competence needs of designers, both today and in the future. The FDA has focused on the development needs of design education through several work packages. Professionals, teachers and managers in the field of design from around the country were interviewed for



the project. In spring 2019, the University of Lapland and Metropolia organised a series of future workshops with the theme Future of Industrial Design 2035. Professionals in teaching and many different fields of design encountered each other in the various workshops. Based on these data, the FDA formed its own definition and research on a designer's current and future competence needs. The final report of the project states that there is a need for lifelong learning and active self-development in the field of design. Not all competences can be obtained during education. (Känkänen & Putkonen 2021)

In addition to the aforementioned background materials, the UOMA project has benefited from several theses in the field of design and visual communications, which address the current and future competence needs. The competence needs of design and visual professionals are diverse. Different fields have their own specialised, sector-specific competence areas. Everyone has in common the basics of design, understanding its history, visual competences, understanding the future and issues related to general competences in the world of work, such as interaction skills. One must also be able to manage strategic design, circular economy competences and technology competences in several different fields of design.

Development of continuing education for identified competence needs

In the UOMA project, experts in the field of design have been interviewed, expert workshops have been held and workshops have

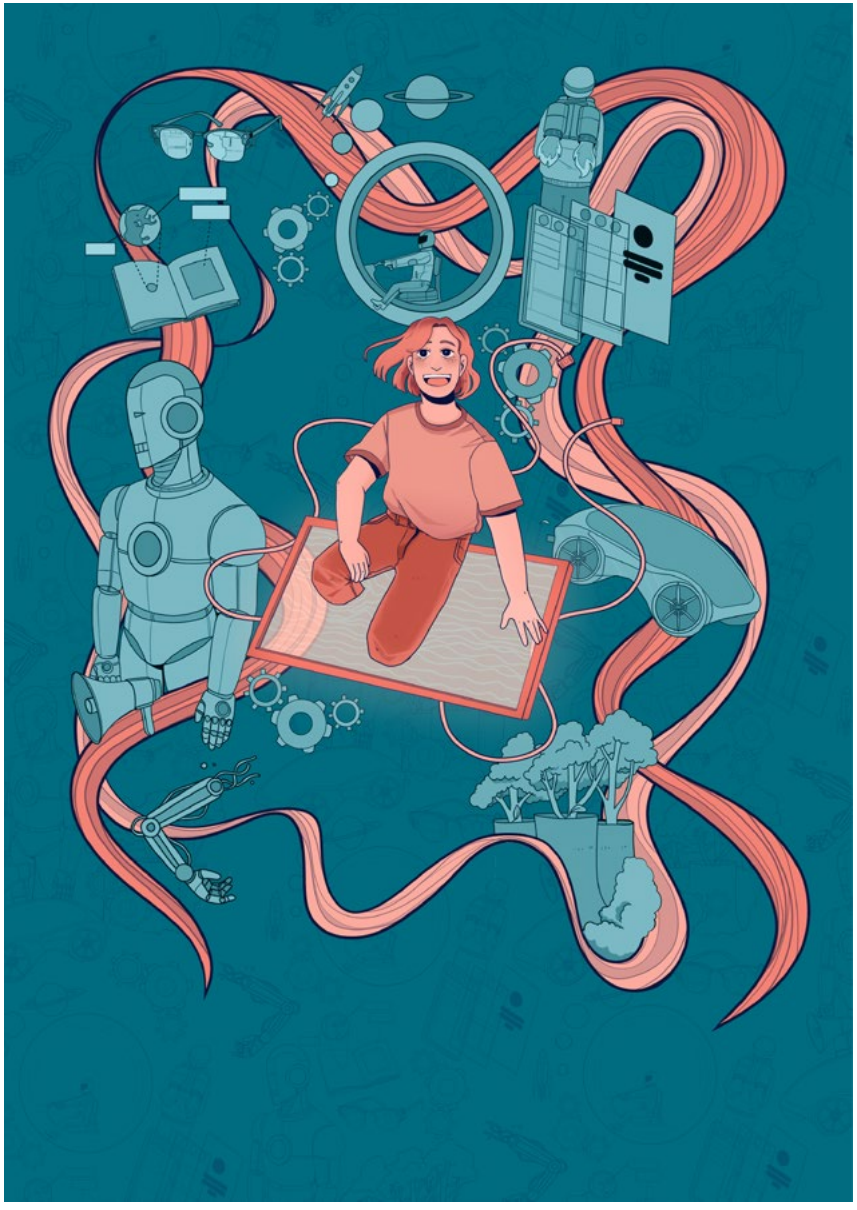
been held to examine future skills. In addition to experts, the participants included professionals in the design and visual fields. As a result of the project, new training content and models have been created, which enable designers and visual communications experts to anticipate future professional competence needs and develop their competences to meet the requirements of the changing world of work.

Experts in visual communications and design have been observed to have a clear need to increase their competences in the themes selected for the project. The project has succeeded in responding to the need for development by creating training modules tailored to the newly identified competence themes. The training trials have offered very important lessons about the practical organisation of continuing education, the necessary course modules, the competences of the participants, the course platforms and the required programmes. Based on this, it has been possible to create a continuing education package, which can also be used to increase competence in these themes in the future. The training pilots carried out during the project have received good feedback precisely because of the selection of important new areas of expertise needed by a designer and a visual professional today and in the future.

Multidisciplinary training was also considered important among the participants. The feedback received from participants in the UI/UX training experiment highlighted an increase in multidisciplinary understanding. Students of design and technology, as well as design and visual professionals, participated in this course. Through the implementation of the complete continuing education model created in the project, the activities can be continued in accordance with the project's themes. The project has provided valuable information and experience in organising continuing education, and the project results have the potential to form the basis for, for example, a further project to expand the competences gained from the project. The training models piloted during the project have been productised so that in the future, LAB can offer them as continuing training for entrepreneurs and for public and third-sector actors in the region.

The Tulevaisuuden muotoilijan työkirja workbook

During spring and summer 2021, UOMA has worked on the Tehtävänä tulevaisuus — Tulevaisuuden muotoilijan työkirja (Available only in Finnish. English translation: Mission Future — a Workbook for Future Designers). The workbook contains articles on competence needs and future design in the fields of design and visual communications, written by experts in the fields of design. Extracts from the world of work are presented in the articles about work requirements in design and the designer's ever-expanding competence repertoire. The purpose of the book is to clarify these phenomena of the world of work in design and, based on these phenomena, to act as a tool for self-reflection for designers already working in the profession or future professionals.



Picture: LAB Institute of Design and Fine Arts student Eppu Wikström created the graphic design and visuals for The Mission Future workbook.

The Tehtävänä tulevaisuus workbook was created around the themes of the competence needs mapping, carried out at the beginning of the project. The Tulevaisuuden muotoilija workbook is based on the Design Management Institute's internationally researched competence list for the future designer, as well as the competence needs identified in other projects. In 2020, two Tulevaisuuden ennakointi (Anticipating future) workshops were also carried out in the UOMA project as an introduction to the designer's workbook. Perttu Pölönen's book Tulevaisuuden lukujärjestys (English translation: Timetable of the Future) and its future-oriented material have served as an introduction to the workshops (Tulevaisuuden lukujärjestys 2019). Perttu Pölönen also spoke at the final seminar of the UOMA project on 14 September 2021, providing inspiring insights on future skills.

One of the starting points of the Tulevaisuuden työkirja workbook has been that anticipating the future of visual communications and design, with all its threats and opportunities, is topical right now as the pace of change accelerates. Futurist Elina Hiltunen graced us as a visiting writer from outside the LAB, and her article Muotoilija on tulevaisuudentekijä (English translation: A Designer is a Future Maker) opens the workbook by presenting perspectives for anticipating the future.

The workbook is divided into several chapters, of which the first chapter, Muotoilijan taidot ja muotoiluajattelu (English translation: Designer's Skills and Design Thinking), elaborates on ideas on how the history of design inspires future competencies and how, like a child, a designer observes, conducts tests and makes mistakes, examines and resolves problems. In this section, the significance of research is examined in the work of future designers and in the relationship between environment-centred and human-centred design. The chapter clarifies the concept of subtle guidance, or Shikake, and the meanings of behavioural design. At the end of the chapter, views are presented on how service design can be used to reform organisational activities and what role design competences play in the public sector.

The section Muotoilija ja Teknologiset mahdollisuudet (English translation: Design-

er and Technological Opportunities) of the workbook examines what questions technology solves, suggests data analytics and artificial intelligence as building blocks for design solutions and elaborates on themes developed in the UOMA project, such as the Internet of Things (IoT), the significance and opportunities of extended reality (XR) and introduces UX/UI as a new training unit for LAB. The final chapter of the workbook focuses on Muotoilija muuttuvassa työelämässä (English translation: Designer in the Changing World of Work). This section begins with a topical theme on the challenges of remote work from the perspective of new operating methods. At the end of the workbook, a stand is be taken on wise self-management, and navigation skills will be presented to designers to help them cope in an obscure future.

Each article in the workbook deals with its own topic, and there is a task at the end of the article related to its theme that allows the reader to reflect on their own competences in relation to the ideas and phenomena presented in the article. The workbook serves as a discussion opener for future competences and the world of work in design and visual communications. The workbook can be read and downloaded from LAB's publication platform, Theseus, and borrowed from LAB's library.

References:

Känkänen A. & Putkonen, E. (toim.). 2021. Finnish Design Academy: Kooste hankkeen toimenpiteistä. Lahti: LAB-ammattikorkeakoulu. LAB-ammattikorkeakoulun julkaisusarja, osa 20. [Cited 27 Sept 2021]. Available at: https://www.theseus.fi/handle/10024/501861

Nurminen P. & Ruokamo A. (toim.) 2021. Tehtävänä tulevaisuus. Tulevaisuuden muotoilijan työkirja. Lahti: LAB-ammattikorkeakoulu. LAB-ammattikorkeakoulun julkaisusarja, osa 22.

Opetushallitus. 2019. Osaaminen 2035. Osaamisen ennakointifoorumin ensimmäisiä ennakointituloksia. Helsinki: Opetushallitus. Raportit ja selvitykset 2019:3. [Cited 27 Sept 2021]. Available at: [Cited 27 September 2021]. Available at: https://www.oph.fi/sites/default/files/documents/osaaminen_2035.pdf

Pölönen P. 2019. Tulevaisuuden lukujärjestys. Helsinki: Otava.

Sara Ikävalko, Kati Kumpulainen & Anna Palokangas

Fluent City Services and Experience for Businesses through Service Design

Abstract

Competition over prosperous businesses and the positive impacts they can bring to the area is tense. Even more so now, when a multibillion business can be set up in just about any office space, no need for vast nature resources or plant areas. The City of Lahti is taking part in this competition. Lahti wants to be a bold, internationally successful environmental city and the most business-friendly city in Finland. Excellent location or good facilities are not enough. To be more appealing, Lahti is developing itself as a customer-experience city to provide for businesses.

The City as a Service project (2019-2021) addressed the issue of customer experience, or as could be said, the city experience. The project was carried out by the City of Lahti and the local LAB University of Applied Sciences Design Institute. The focus was making city services more efficient and fluent using a co-creative service design approach. The project supported city officials in taking steps towards more user-driven services, bringing together companies, city officials and other stakeholders. Along the project, concrete service experiments were conducted, and many of those were already taken into practice during the project. Modes for interaction and co-creation were developed for the city to use with businesses and stakeholders. To provide a long-term effect, a hands-on service design training was launched in order for city officials to gain a better understanding of ways to influence the customer experience by developing their work to be more user driven. The pilot convinced the city to proceed with the service design training throughout the organisation. Implementing design into daily operations is not far at all. In the City as a Service project, some steps were small and some made a bigger impact. Nevertheless, it is justified to say that all steps took Lahti closer to becoming successful as the most business-friendly city in Finland.

Keywords: service design, urban design, city experience, experience design, public sector development, system-oriented design, user-driven service development, co-creation, SMEs, enterprises, city of Lahti

Figure 1. Lahti as a city is a diverse city of design, sports and environmental awareness (Photo: Huotari 2021).

Introduction to Lahti and the project

The City of Lahti is situated in Southern Finland, located in an excellent place at the junction of waterways, railway and roads from south to north and west to east. It has 120,000 inhabitants and 13,650 companies, from the self-employed to international corporations; and all of these are wrapped together within a beautiful forest landscape, moulded in the ice age. Lahti is beginning to live true to its vision of being internationally successful as a bold environmental city for people and businesses. In the year 2021, Lahti is proud to hold the title of European Green Capital. The year is celebrated in many ways and aspects. When it comes to design, the legacy of the industrial years and decades of co-operations with the city, businesses and local design education has kept up the level of local design know-how. With green being the latest colour, sustainability has taken on an even more prominent role in design too.

In the City as a Service project, the objective was to develop and pilot better city ser-

vices for businesses by using design methods. Co-creating services with the customer, as in this case the local companies, more successful and sustainable services are developed. A survey, which was conducted by the city of Lahti in 2018, for local companies was the origin of this project. Based on the survey, the permit processes of the geography and event organising became the main target for development.

To be an internationally successful and business-friendly city for existing businesses, and to attract new ones, the city's services must be fluent and efficient from the customer point of view. The processes must be clear and understandable. The shift from a bureaucratic public organisation and its rigid policies into a city serving people and businesses, must be made. That change is a long process and the City as a Service project helped to take new steps on that journey.

The significance and history of urban design in Lahti

Throughout history, Finnish architects and designers have been inclined to influence society. The principle of Scandinavian design is to enable a good, functional and beautiful everyday life to everyone. This value is still prevalent.

Why is design utilised in urban development? Design and co-design methods can help cities to better focus on the end-user. Participation is the key in making any topic personal. The possibility to participate in designing new services or build an environment can lower the barrier to using new services and accept change. Urban design has a long tradition in the Finnish society. Over the past ten years, design competence has become a permanent part of urban development.

In the City of Lahti, design has been an integral part of urban development and the city identity for over 20 years. Lahti was the first city in Finland to boldly integrate design expertise into the city's organisation. In 2012, Lahti became the first Finnish city to recruit an urban designer in its City Planning Unit, after which similar competence and operating models have been scaled to other Finnish cities. By nature, Lahti is an open-minded and experimental city. It has resolutely strived to become the leading city in sustainable development and design. The City of Lahti has considered design a communal force and a good model for bringing together various professional groups and creating practical solutions.

The consensus is to keep the city functional and under constant development, whether it comes to services or entire structures. Perpetual improvement of the urban experience is considered essential. Urban design focuses on the city's end-users and understanding their needs and objectives. Urban design addresses meaningful, complex challenges that affect a wide range of people and various administrative sectors. Planning the urban experience provides a cross-section of urban structures as a whole. Cities need to strengthen their future expertise and capacity to anticipate. Urban design aims to meet these challenges.

The most essential element in applying design competence in the public sector is, above all, a change of cultural mindset at the level of both organisations and individuals. Urban design often examines the meaning of the transition from organisation-orientation to customer-orientation. Urban design is an excellent tool for creating shared visions and alternative solutions to changes in organisational operating methods and ways of thinking.

The City of Lahti has a long tradition of higher education in design and sustainable development. Educational institutes and city authorities have long engaged in close collaboration focusing on urban and regional development in the area. In the development of the compact city, interaction and collaboration between the LAB University of Applied Sciences, the LUT University and the City of Lahti are continuous and daily. The model applied in the development work is quite unique. In Lahti, the responsibility for design competence has been built on collaboration between the city authorities and the Institute of Design and Fine Arts which is

Figure 2. A positive urban experience is created when local residents are consulted and they can influence what happens in the city (Photo: Huotari 2021).

Figure 3. Co-creation is the core of service design. (Photo: Huotari 2019).

part of the LAB University of Applied Sciences. Higher education and applied research are based on concrete business-oriented activities in which the city and the region's business sector are important partners. The work is carried out at very different levels. The daily work comprises highly practical and concrete planning and development activities. In addition to planning, more extensive research and development projects are implemented and strategic development and international cooperation engaged in. The aim is to lead the way in sustainable and smart solutions through research, experimentation and development.

Utilising the culture of experimentation, design and pilots in urban development

One of urban design's key contributions lies in process competence based on the design thinking approach. The development work encourages giving up the operating model based on pre-planning and integrates the public sector with experiment-driven development competence and approaches. A design process starts by examining what should be done and with whom. Deeper insights are gathered on the actual root causes of the situation. The next stage is to apply joint and multidisciplinary expertise in iden-

tifying and testing solutions to the desired objectives. Even small-scale trials provide information on suitable developmental approaches quickly and cost-effectively.

Strengthening participation and cross-sectoral collaboration that engage residents and the business sector reinforces the principles of an open and democratic society. The ultimate purpose of interactive design is to create a planning and decision-making culture where residents' experiences of participation are meaningful and decision-makers can rely on the designers to make the right decisions that take account of the needs of the residents, business sector and other actors in the municipality. Creating such a design culture requires persevering effort.

Culture of experimentation involves experimental development. The idea of the culture of experimentation is not test final product or service ideas. Instead, it provides a new approach to development utilising real end-users in an authentic operating environment. Trials can be of a small-scale and short-term nature or involve years of development processes. Even small-scale trials may enable both private and public sectors to achieve remarkable resource savings or increases in revenue. Trials can also be built on incipient ideas. During the development process, it is considerably more cost-effective to carry out small-scale trials than make plans in a closed office and realise at the deployment phase that the plan does not meet the needs.

Systematic development is vital. The success of a trial is based on thorough planning. This increases the likelihood that the trial yields usable information. The insights of a trial and the management of trial-based projects are relevant. The special characteristics of the culture of experimentation include a curious approach to work and tolerance to uncertainty. The culture of experimentation allows failure. What is important is hands-on learning and identifying the right direction. Operating in an authentic environment is one of the special features of the culture of experimentation. Real end-users are a resource for experimental development.

Design competence makes intangible and abstract entities visible. This facilitates the achievement of a multidisciplinary and shared understanding and discovery through experimentation. Experimentation is development, and the methods of design act as tools for learning. Typical methods include digital prototypes, user interface prototypes, drama, role games, simulations and visualisation in the form of scenarios, for example. These methods allow testing alternative operating methods for processes, facilities, services, systems or even organisations. Experimentation makes it possible to think big and, at the same time, develop entities in small batches. The aim of trials is to regularise novel activities and to reform practices.

The following chapters provide concrete examples of experiments and pilots that have been carried out during the City as a Service project.

Visualisation of information

Information visualisation helps to present data more clearly and understandably than using

text alone. Using images, descriptors, composition and colours, the message is communicated to the recipient more effectively.

First, it is important to identify the goals of visualisation. What needs does it respond to? For whom is it intended? What message does it convey and what story is it telling? Not all information is necessary to the users. The challenge is to identify what is relevant. Knowledge and understanding of the users are important when planning a message and a goal. It requires background research and understanding the needs of the users. Context and culture must also be taken into account. In creating a visualisation, the principles and methods of the design process can be used.

Visualisation often plays an important role in multi-level problem solving and finding new solutions. During the City as a Service project, pre-service of the geography and event organising permits were developed to be clearer and smoother. Visualisation and co-creation played important roles in the project. The stages of the processes were clarified with city officials, entrepreneurs and other stakeholders.

Figure 4. Making a list of event-organising permits took almost one year, because It involved research, interaction with different entities and user testing (Photo: Enna Eloranta).

According to the user research, the process of licensing requires considerable prior knowledge of the permits themselves, and the information is scattered across a variety of sources. The fluidity of the application process is influenced by many different factors that may be unclear to the applicant. It is often not a matter of individual permits; the applicant has difficulty outlining entire processes.

Depending on the size and nature of the event, one event may require up to 30 permits. In addition to the city, permits are also applied from other entities, such as the police. The importance of communication in the first stages of service, during the pre-service is, significant.

From interviews with city officials, it was interesting to identify the complexity of licensing processes, also from the perspective of staff. So, it was essential to clarify the whole permit application process. Based on this information, points which needed supporting visual materials were found.

In autumn 2020, the Lahti City website was redesigned and published. The City as a Service project took part in the development of websites by bringing into content visualised process descriptions and other materials to support permit applications and event organising. For example, a check list of important things includes things that, by ignoring, could cause delays in the process or other problems. All necessary links can be found on the same page.

Overall, it took almost one year to renew the list of event-organising permits and publish it on the new website. It involved research, interaction with different entities and user testing. Also, accessibility needed to be considered. The visualisation of processes made the complex process understandable.

Piloting digital services layer

Lahti is not the only city that wants to develop services, related to permits, to become easier and more user-driven. There are also similar goals in other cities in Finland and at the national level.

The Ministry of Economic Affairs and Employment in Finland is responsible for the project “Licencing and supervision” (2016-2023). The project reforms operating models and practices related to licencing and supervision by harnessing the benefits of digitalisation. The objective is to develop practices in a user-oriented way and offer licencing services that meet client needs. Another objective is to integrate the service and handling processes in a user-oriented way across administrative and organisational boundaries. There is a project to build a national digital services layer, which makes the licence application process faster and easier, from both the clients` and authorities` perspectives. (The Ministry of Economic Affairs and Employment in Finland, 2021)

The City as a Service team contacted the Licencing and supervision project team in spring 2020. They began a co-operation between these two projects, and the local perspective expanded to a national scope. In the various meetings and workshops, topics related to, for example, digital-service lay-

Figure 5. Lahti is a versatile event city, which aims to be a pioneer in organising events. (Photo: Huotari 2019).

er functionalities and suitability for the City of Lahti, and plans for the experiments and piloting licence application through digital service layer, were discussed.

Licensing involves many different entities, information systems and operation modes. To grow a common understanding, information was visualised in the City as a Service project from processes, system interfaces, stakeholders and customer service paths.

During spring 2021, the City as a Service project organised experiments in which permits for events were applied for according to the national digital platform process. The experiment and user testing was attended by event organisers and city licencing officials. During the permit application process, users were observed and results were carefully analysed. Feedback and suggestions for improvement were also collected.

The results of the experiment were important, both for the Licencing and supervision project, as well as for the City of Lahti, to show the benefits of a new way to apply for permits and to involve the officials and entrepreneurs in the process. It is an extensive and long-term process to reform operating models and practices related to licencing and supervision in a user-oriented way and to create the national digital services layer.

It is significant that the city of Lahti has been among the first to join the co-operation. Officials from different departments involved in the process have been able to discuss and observe the concrete benefits of a new mode of operation. It is important to ensure that, in the future, the city of Lahti has the resources to implement national digital services layer for licence applications. This means changes in ways of thinking and attitudes as well as in modes of action. The focus should be on the user-driven service experience. The various stakeholders must be involved in making, implementing and change by working together.

Experimenting in design sprint method – creating an entrepreneurial game

As entrepreneurs are known to be busy, time efficiency is one of the main considerations when they are asked to take part in service development with the city. Design Sprint gave an opportunity to make real progress in a short time and was, therefore, an interesting method to test. Design sprint's origin is from the 2010s, when Google's pioneers created a structured way of making a working model in just five days, from scratch to testing with real customers. No back and forward meetings for months, just an effective five days and a leap in development is taken.

A good opportunity to test Design Sprint came when LAB University of Applied Sciences' service design students had developed new, future-oriented service concepts to create a multichannel experience for entrepreneurs and businesses in Lahti. The most appealing idea to test was the creation of an online game for the early stage of interaction between the city and someone interested in entrepreneurship. The game was seen as a great addition to the current digital-service offering. It was also considered to attract younger people for being a playful but informative way to explore entrepreneurship.

Before the game development started, local officials from the City and Lahti Regional Development Company LADEC realised that this kind of game might have a nationwide interest too. And so it was, The Finnish Enterprise Agencies came about; local went national. At the same time, a team of young students from design, business and IT was formed. To support the team experts from the City, LAB, LADEC and FEA were signed to join whenever needed. The game development was scheduled for summer 2021. A remote design sprint was decided to be the project kick-off.

Design sprint as a kick-off turned out to be the perfect method, and remote work was surprisingly fluent. The team had done some research before the sprint, and experts were called to join on Monday, the first sprint day, for the interviews, to give their viewpoint on the subject. On the following days, the team ideated, sketched, planned and created a demo, and on Friday they tested that demo with real users.

The structure of the design sprint provides several ways to participate in the development at hand. To take part in the whole

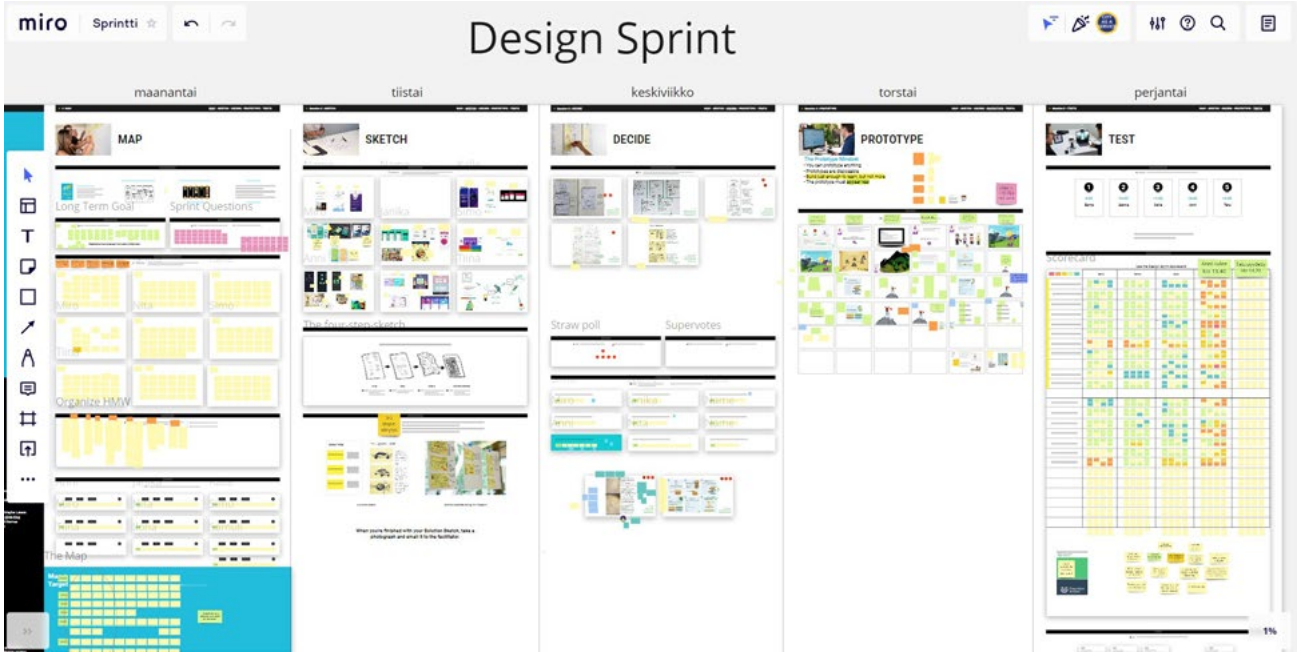


Figure 6. Design Sprint was successfully completed in five days on the online platform (Photo: Anna Palokangas).

Monday-to-Friday sprint is probably impossible for an entrepreneur, but to take an expert role and give an interview beforehand, or on the first day, would be relatively easy to organise. Particularly if the sprint is done remotely, experts can join from wherever suits them best. The second point to join is on Wednesday, when sketches of the demos are evaluated, and the one for testing is chosen. To have a say on that point could give valuable insight for the testing. In this case, supporting experts did just that, they participated beforehand, on Monday and on Wednesday. That input, together with the collected user insights, gave the development team a strong base to proceed.

Sometimes, the sprint days are divided for three-week periods or even longer. That might be easier from a scheduling point of view, but the intensity and, therefore, efficiency of the sprint then suffers. Participation for the first three days would be ideal if one isn't able to participate for the whole week, but still wanted to take part for more than an expert role. For those first three days, the entrepreneur would be in an equal position

with the rest of the team when studying the challenge and ideating the outcome. That way, the process would be more of a co-creation than just giving an expert interview. And as the development always continues after a design sprint, the participants are more on the same level to take the next steps. Especially if the entrepreneurs are using more time than just an interview for the development, it would be appropriate to consider some sort of compensation for the participation. That eases the willingness to take part and maybe later join in some other cases too.

In the City as a Service project, the design sprint was found to be an effective and inspirational way to work together. The experts and development team felt that starting with the sprint was crucial to ensure a quick and effective start for the project. Hearing all the experts in the beginning, and developing the game demo intensively, gave a strong common understanding of what should be done in the project. By having the sprint data on an online platform during the whole project, everybody could check on what is going on. As hoped for, during the intense sprint week, productive group dynamics were built. Everyone found their role and place in the team. The project was a success in all aspects, and the game came out to be more detailed than expected. It was launched on the 15th of September, and within the first weeks, there had been more than 800 players, which is a good number. This experimentation clearly showed that design sprint is a beneficial method in co-developing city services.

Piloting Service Design for Public Sector – education

The strategic goal of the city of Lahti is to be a business-friendly city. It wants to attract new businesses and nourish the ones already here and provide a better customer experience. (Kumpulainen & Palokangas 2020, 32) A very important success factor for the Lahti area is that services for businesses operate smoothly. The customer experience of the services consists of various encounters and touchpoints with the city. Individual employees play an important role in making business friendliness a reality. Attitude is important.

One of the aims of The City as a Service project was to improve the understanding and capabilities of the City of Lahti employees regarding customer service processes. Education is one way to raise awareness of the importance of the customer understanding and customer experience in the city services.

In the spring of 2021, the LAB University of Applied Sciences department organised a “Service Design for Public Sector” education for the City of Lahti employees. This was one of the pilots that was implemented during the project. The studies corresponded to 5 credits and lasted 3 months. A total of 14 employees from the urban environment department and event management department participated.

During the studies, the principles of design thinking and creative problem solving were reviewed. The participants were also introduced to the service design process and methods, which help to develop user-driven and profitable services. Practical examples

Figure 7. In the service design training, there was the opportunity to settle directly into the role of the customer and look at the service from that perspective. A summary of the study states that "the work of a bus driver is much more than just driving and financing". (Figure: Service Design for Public Sector -education materials).

made things easier to understand. An essential way of practice was learning by doing. The participants carried out an exercise in small groups, in which they developed a topic related to their own work. For example, they interviewed and observed the customers, organised small workshops with them and did user testing for one of the city digital services. They gathered user understanding and suggested ideas for development. They also presented the results at their workplace.

The participants were satisfied with the studies. In their comments, students mentioned that service design broadened the perspective of doing work. Education increased understanding of the importance of the customer experience and the customer-driven ways of doing it. During the group assignments, the participants gained a better understanding of the work of their colleagues. The feedback mentioned that the studies would benefit anyone working

in the city. Participants also mentioned the following in their comments:

> **"The principles of service design and the importance of customer experience will certainly continue to flow along with my own work."**

> **"I gained a new perspective in my work to look at things. My work is driven very strongly by legislation, but I would think that more modes of action could be modified by service design to make it more customer driven."**

This was a pilot education, and the aim is to continue training for the employees of the city of Lahti.

Lahti at your service!

Throughout the project, basic needs and issues came through. From interviews with entrepreneurs, one could hear the need to be recognised by the city. In relation to the development of permit issues, the discoverability and comprehensibility of information were key aspects of the customer experience. The smoothness of the interaction, both remotely and in close contact, was a significant determinant of success in the project's service pilots. It was a relief to find that many of the issues that emerged can be tackled by simple actions. In order to reach out, the entrepreneurs' "Entrepreneur Forum" was piloted and launched. It is a casual monthly meeting, where topical issues are covered and concerns and ideas are openly discussed. On Entrepreneurs' Day, the 5th of September, Lahti flew the Finnish flag at the City Hall. To clarify which permits, and from where, should be applied for event organising, a messy spreadsheet was transformed into a clear and informative A4 document for both digital and printed use. On an existing map service, local venues with their basic info to ease the event organising were added.

A customer-oriented mindset makes a fruitful foundation for co-development and interaction. In the service design training, participants were encouraged to interact with entrepreneurs, and they got practical guidance for various tools for customer-oriented development.

These relatively small but significant actions and gestures are examples in the Lahti @ Your Service model. One of the aims of the City as a Service project was to create a service model to support the city of Lahti's business friendliness and the production of smoother service processes for companies. The smooth city experience is an important success factor for the Lahti region. The Lahti @ Your Service model strengthens the City of Lahti's business friendliness through a co-development operating model, in which companies and the City develop and pilot the services together. The service model visually and concretely describes how a business-friendly city can be co-developed. The model shows the City of Lahti's services for businesses in an overview, the city's offerings and the ways and places of interaction and co-development. The small and bigger actions are opened up in the model. This description supports a

common understanding of the actors in the area, the service offering and the role of the City of Lahti in the operations of companies. The model is intended for use by the City of Lahti, companies and stakeholders and to support practical activities and interaction.

The City as a Service project strengthened Lahti's position as a design city. It also strengthened the already-active innovation cooperation between the City of Lahti and LAB University of Applied Sciences in urban planning. During the project, a new kind of more user-oriented thinking was awakened, different ways of co-developing practices have been explored and good ideas have been put into practice. Piloted services and operating methods are ready to be scaled and utilised more widely throughout the city services. The city is a big organisation, and the change from organisation-oriented to more customer-oriented processes will not happen overnight. Small things and examples matter when making change happen. The Lahti of the Future is a city using design with its full potential, and where citizens and businesses live well and prosper!

References

Kumpulainen, K & Palokangas, A. 2020. The City as a Service. In Soini-Salomaa, K. (ed.). Lahti Design Annual Review 2020. Lahti: LAB University of Applied Sciences. The publication series of LAB University of Applied Sciences, part 12. 32-42. [Cited 14 Sept 2021]. Available at: http://urn.fi/URN:ISBN:978-951-827-348-9

The Ministry of Economic Affairs and Employment in Finland. 2021. Projects and legislations. Project: Licensing and supervision. [Cited 14 Sept 2021] Available at: https://tem.fi/en/key-project-licensing-and-supervision

Figure 1. Huotari, J-P. 2021. Aerial view of Lahti from Radiomäki. City of Lahti. [Cited 20.9.2021] Available at: https://lahdenkaupunki.kuvat.fi/kuvat/

Figure 2. Huotari, J-P. 2021. Flea market front of Malski. City of Lahti. [Cited 20.9.2021] Available at: https://lahdenkaupunki.kuvat.fi/kuvat/

Figure 3. Huotari, J-P. 2019. Citizens at workshop. City of Lahti. [Cited 20.9.2021] Available at: https://lahdenkaupunki.kuvat.fi/kuvat/

Figure 5. Huotari, J-P. 2019. Kaupungin äänet -festival. City of Lahti. [Cited 20.9.2021] Available at: https://lahdenkaupunki.kuvat.fi/kuvat/

Mirja Kälviäinen

Residential participation for sustainable service provision

Abstract

The Developing Sustainable Housing Services Together -project designs and tests service models for the circular and sharing economy, with two diverse residential area associations and three companies. The development is carried out by following an iterative service design process and tools. Based on the interviews with residents of one residential area, suitable companies were sought to offer residents' interests, information acquisition, use needs and social interactions based on low-carbon services. Customer-based service paths with pre-service, core service and post-service stages were drafted and further developed in a workshop held with residents of the primary residential area. The workshop results collected service guidelines to consider in optimising the customer journeys for the services. The customer journeys also considered behaviour change, psychology-based aspects of motivation, opportunities and capabilities in the created journeys. The developed service paths enable the prototyping and testing of services in the daily lives of residents in the initial residential area and scaling by modifying the services to be suitable in the other, different type of residential area. The prototyping, testing and evaluation need to be applied to the specific, contextual nature of each service and the differing residential areas.

Keywords: sustainable living, service design, user-driven design, user participation, customer journey, prototype testing

Introduction

Around 70% of Western CO2 emissions are caused by the daily consumption of residential households. Consumption can be directed to the low-carbon direction, for example, by reducing the use of living space, heating energy, electricity and water, switching to more ecological energy solutions, avoiding high-carbon food choices and food waste and reducing the purchase of goods (Salo & Nissinen 2017, 14-22). Significant findings in consumer research are the positive attitudes

of consumers to act in an environmentally responsible manner, but the lack of real responsible actions (White & Habib 2018, 9). The qualitative user research of Kälviäinen (2019) showed how it is necessary to support low-carbon lifestyle choices through user-oriented services that mitigate climate change and facilitate residents' environmentally responsible activities. Asking or expecting the consumers to make changes on their own is not reasonable in market societies, where the market is saturated with non-environmentally conscious consumption choices.

Low-carbon service solutions also enable companies to develop new business. The Developing Sustainable Housing Services Together -project has co-developed and tested circular economy service models since 2020, with the Anttilanmäki-Kittelä Residents' Association in Lahti and the three companies selected for the project. The goal of the project with sustainable housing services is to improve the knowledge and capacity of companies to provide low-carbon, user-oriented services and to facilitate the transition of residents to use these services with low-carbon lifestyle purposes.

Materials and Methods

The basic approach in the project is user-driven and evidence-based service design, with a strong emphasis on customer insight. In service design principles, human-centred development, collaboration, iteration, real-life research and testing are central. In addition, the idea of designing sequential outcome, presentations and service orchestrations are the tools to realise the process-based services. Customer research, customer journey types of presentations, co-design and prototype testing were chosen as the iterative, improvement-based service design means for choosing and designing the relevant services. The customer journey map presents the service as a sequential path with service moments and activities, interactive touchpoints, different service channels, physical evidence and as a holistic experience over time (Stickdorn et al. 2018, 28-44).

In the development of low-carbon service solutions, the primary residential area partner was the Anttilanmäki-Kittelä Residents' Association from Lahti. The Anttilanmäki-Kittelä residential area is mainly based on old, wooden one-family-house type of accommodation solutions, from the beginning of the 20th century. In addition, the functionality of the services is tested and modified during the year 2021 in another resident community, the Asunto Oy Jalkaranta-Metsä housing company, which is an apartment building.

The Anttilanmäki-Kittelä Residents' Association represents a lead user aspect with an embedded interest in sustainable housing and thus commitment to the co-development of related services. In the first phase of the project, qualitative, theme-based resident interviews were conducted as user research to map the Anttilanmäki-Kittelä residents' current activities with environmentally responsible aims and their related challenges and aspirations. In the spring of 2020, 15 residents from different households and representing different age groups par-

ticipated in these interviews. The interviews lasted from half an hour to an hour.

Due to the COVID-19 situation, the interviews were conducted digitally and with distance precautions and were video- or voice-recorded. The recorded material was not transcribed, but three project experts listened to the recordings and analysed the material with a thematic type of content analysis in order to ensure insight. It was also possible to transfer the Anttilanmäki-Kittelä residents' analysis results to Kälviäinen's (2019, 109) analysis chart for typical design drivers in environmentally responsible solutions.

The interviews highlighted the residents' environmentally conscious measures and activities that were already under execution or that they were aspiring to conduct. (shown in the upper left corner of Figure 1). These included ideals of self-subsistence, such as growing one's own vegetables, repairing one's own house, producing one's own energy or travelling by bike or walking. Different types of sharing, recycling and tradition preservation ideals were also evident.

One important aspect of the drivers with the Anttilanmäki residents was getting information. The ways and challenges related to residents' information acquisition are presented in Figure 1 (in the lower left corner). On this issue, the residents suffered from difficulties finding suitable information and the problems of it being contradictory. The specified information was found on the Internet. However, edited, certified, condensed

Figure 1. Anttilanmäki-Kittelä residents' interests, information acquisition, activity supporters and social drivers in relation to sustainable consumption measures (Figure: Mirja Kälviäinen).

or peer-based neighbour information was appreciated and hoped for more than findings from the wide searches.

The issues that support and cross the barriers of doing things are present in Figure 1 (in the upper right corner). For the residents, environmentally responsible deeds required easy and careless ways to find the services and implement them into use. They hoped for the necessary instructions for use and stated that the use of technology should even be unnoticeable, so as not to interfere with your homely experience. Time and effort were something they only wanted to invest if the activity was a hobby.

Furthermore, social support and environment was vital for these activities. These are accounted for in Figure 1 (in the lower right corner). The influence of the social community was emphasised in the notion that communality with a positive feel was important to the residents. Sharing was a desirable activity but also raised doubts with responsibility issues and workload division or timidity to bother other people. Environmental care was learnt from the neighbours and relatives and shared as education for the children.

Based on the results of the interviews, companies with desired service suggestions were sought and three resident needs-based businesses committed to the co-development project. The vegetable and recipe bag to be transported to the residents by Market Shop Pupu (Bunny Rabbit) was one of the services. Switching to plant-based food is an important step, both in mitigating climate change and in preserving biodiversity, but the residents both complained about the difficulties in collecting local vegetables form the shops and of not being skilful in preparing vegetarian meals. The Reiot building condition measurement service by Lahti Energy aims for different types of measurements inside the houses, which help the residents study such issues as the amounts of heating energy used or the water used in order to reduce its use. The CoReorient company had an open access peer-to-peer lending platform, and the idea was to develop a locally restricted version of this. Borrowing unused goods for other people reduces the amount of goods consumed, but the residential needs also included knowledge sharing with a restricted group of people, where high levels of trust could be ensured for borrowing things and sharing knowledge and skills.

The development research continued through co-design with the residents. In September 2020, a workshop was organised for the residents of Anttilanmäki-Kittelä, designed and facilitated by a group of MA students in design and media. The aim and starting point for the workshop was the development of resident-oriented customer journeys for the services in question. The customer journey presents the sequential progress of the service from the customer perspective, including the moments, steps, touchpoints and interaction points that are necessary and convenient for the customer to initiate and proceed with regular use of the service. It helps to determine the appropriate service process from the customer point of view. From the customer, in our

Figure 2. Residents participating in commenting on a customer journey of the peer-to-peer lending platform (Picture: Elina Köngäs).

case, the resident point of view, this perspective refers to the pre-service of becoming aware, finding, considering and entering the service before the core service part, where the customer needs to understand how to initiate its use and how to keep it up. (Stickdorn et al. 2018, 26-27, 44-47,112). Even the postal service needs to be considered with sharing the experience and continuing to listen to the service possibilities.

According to qualitative user research and psychological research on behavioural change, a process that supports change is needed to bring about behavioural change in the midst of busy everyday life. Following the qualitative user research on what helps people to start using and continue to use a sustainable service, it should be a service process with the touchpoints to find, access and easily use the service and the means to support acceptability, enthusiasm, learning, competence and reward (Kälviäinen 2019,

110). These emphasise the aspects of motivation, opportunity and competence that behaviour change psychology suggests should all be cherished, even simultaneously, in order to support a change in behaviour (Michie et al. 2014, 60-62).

The workshop was attended by 15 Anttilanmäki-Kittelä residents and company representatives, either on site or remotely due to the challenges brought about by COVID-19. The MA students had worked out a company-specific service journey draft for the workshop, as in Figure 2. Each service had three of these journey drafts as a starting point. The co-design activities supported the participating residents to give suggestions and state challenges for these service journeys to build up journeys that would be suitable and supportive for the residents to use.

In the one-day workshop, three resident groups toured the presentation rooms, commenting on the different services and their

Figure 3. Market Shop Pupu's solution analysis for a service journey transporting the vegetable and recipe bag to the residents (Picture: Riikka Flink).

various suggestions. The residents were sharing wishes, challenges and feedback on the pre-made service journey drafts. Representatives of the companies presented and shared their service idea with the participant groups, listened to the user experiences of the residents and answered all of the questions that came up. The workshop facilitators either wrote or helped the resident participants to write down the desired aspects of service, steps and touchpoints in the residents' commenting discussions. The students collected conclusions for the improved and more detailed customer journeys, as seen in picture 2. They also analysed the service guidelines, customer requirements (including motivation), opportunities and capabilities from the discussions and comments made by the participating residents.

Results

The residents' needs, challenges and service journey material produced in the workshop were analysed and compiled by the MA students into three more precise service journeys and design guidelines for each of the companies. These results were transferred for the use of the project team to build an archetype service journey for each of the participating companies. Together with the

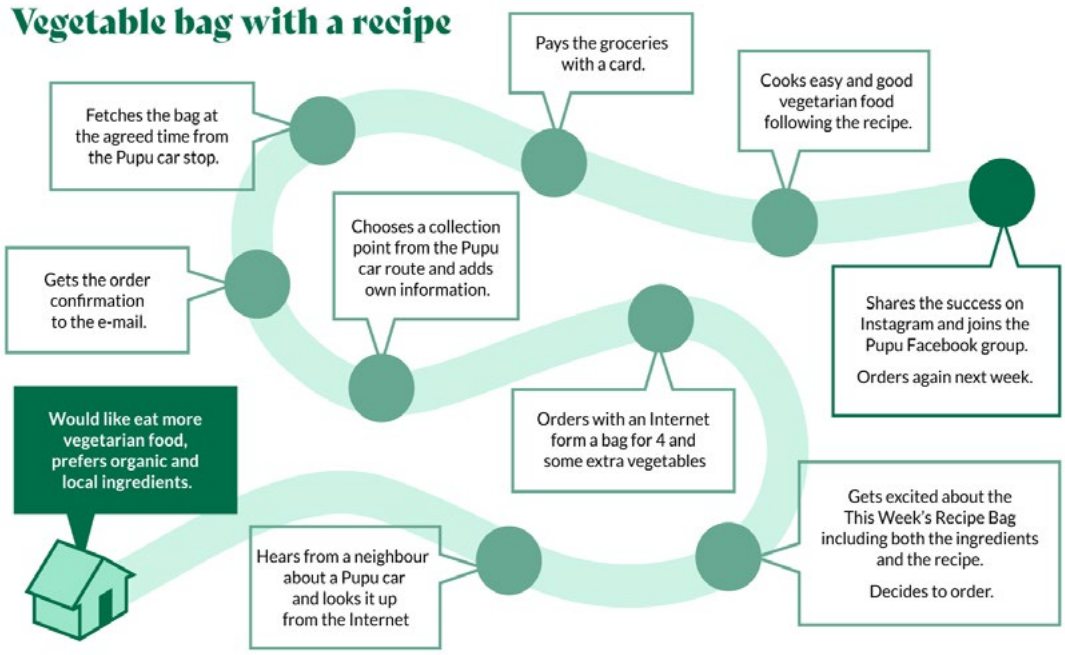


Figure 4. Outline of a resident-driven service journey for a service transporting a pre-ordered, customisable vegetable bag with a recipe for the residential area (Figure: Mervi Koistinen).

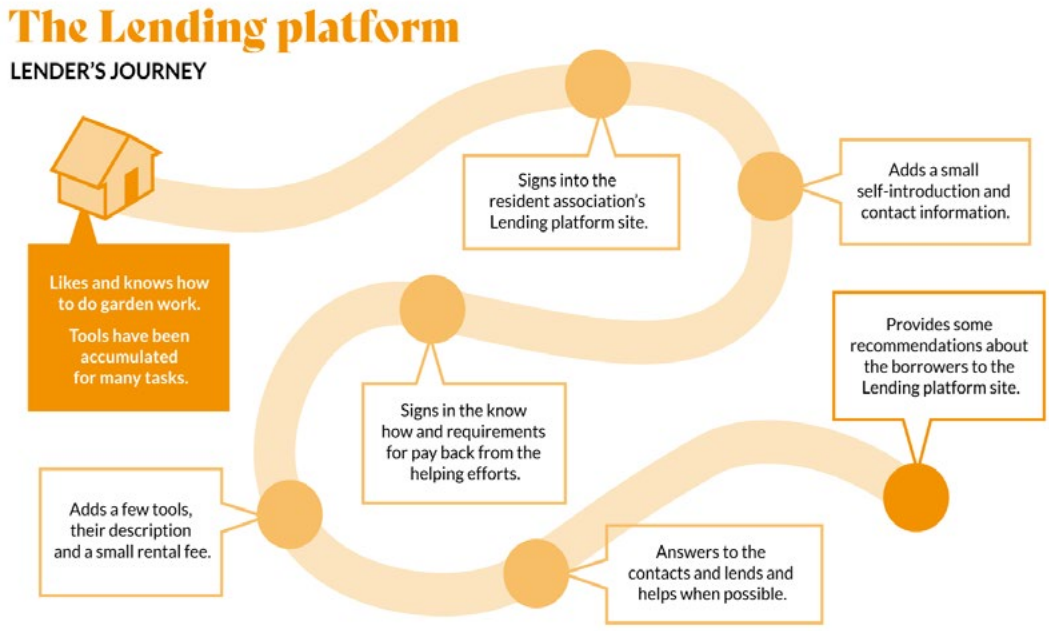


Figure 5. The service journey from the perspective of the borrower and the person in need of assistance (Figure: Mervi Koistinen).

company representatives, the project team outlined and specified the service journeys further for purposes of the practical pilots' prototype. These solution journeys sought to solve customer challenges regarding the use of the service and to implement the services in a manageable and profitable manner for the companies.

The path describing the Market Shop Pupu's vegetable bag and recipe (Figure 4) shows how, in order to increase the use of vegetarian food, a resident can start using the ordering service for the recipe and vegetable bag, which is tailored to the size of the household and other possible customer requirements. The service design was influenced by the residents' needs for learning how to cook healthy meals by using local vegetables. The easy availability of vegetables and the customisability of the contents of the bag were important user guidelines in the solution. This was due to the variety of the family sizes in the residential area and the fact that some of the residents also grew some vegetables in their own gardens.

CoReorient's borrowing platform provides an opportunity for the residents to borrow each other's goods and facilities as well as to share know-how and skills. The user guideline requirements emphasised the ease of use and affordability of the digital platform, ensuring the operational use

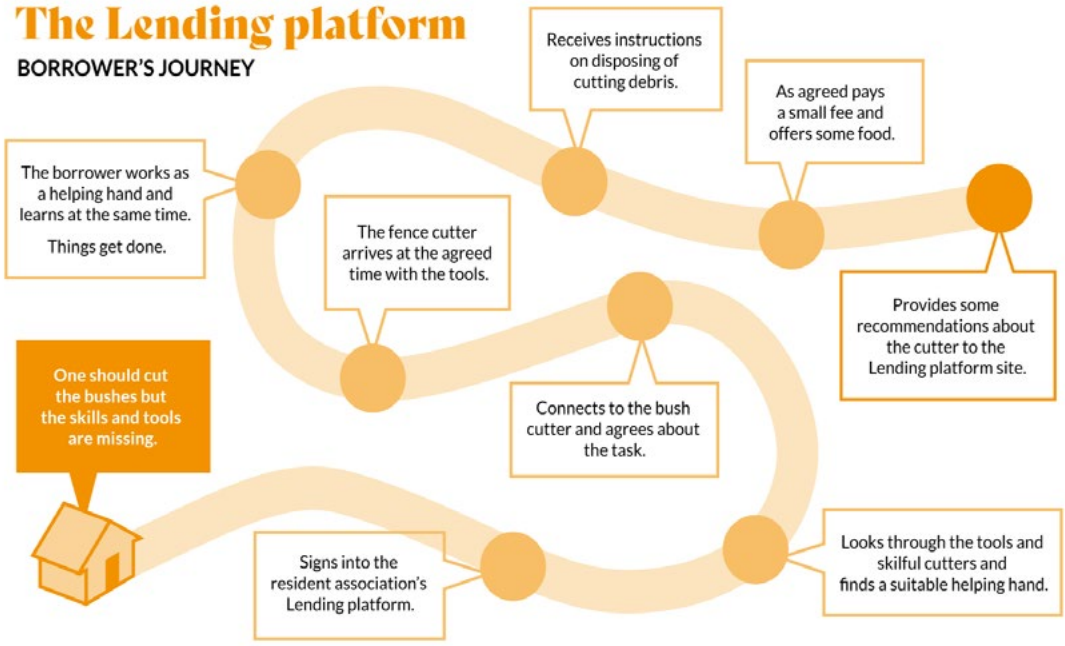


Figure 6. The service journey from the perspective of the product owner and the know-how provider (Figure: Mervi Koistinen).

and care of products borrowed, agreed rules for any damage done and a fair distribution of the workload for the operations. The aim of the solution was to promote community spirit. In principle, the borrowing service had to be made into two different service journeys, one for the borrower and the person in need of assistance with know-how (Figure 5) and the other for the resident owning and lending out the product and providing know-how and skills (Figure 6).

The homeowner's service journey of the Reiot building condition measurement service is shown in Figure 7. The conclusion of the customer information and comments was that the benefit of the service becomes concrete for the detached house owners, for example, in the sale or renovation phase, when they need more information about their home. This means that they would not be so interested in a permanent measurement service, but they would require an option for a temporary instalment of the measuring devices and the service. As important user guidelines, the service should be easy to install, the measurement results are easily comparable to something understandable and familiar, the service must be reliable in terms of data security and the measurement results must make it possible for the homeowner to understand how to initiate the related saving or repair activities. The re-

sults from the workshop also suggested that the best way to make this service concrete and understandable for the residents was to seek out a pilot house in the residential area where the sensors could be customised and placed, and through which the typical measurements and functions of the system could also be demonstrated to the other residents of the area.

Discussion

As the purpose of service design is to design services in a real-user context, the discussions and further activities around the real-life validity and sensible implementation of the research results are central. The customer journeys at the beginning of the year 2021 are being transferred into concrete service prototypes in order to test them with the Anttilanmäki-Kittelä residents and, with necessary modification, with another type of housing unit's residents, and an apartment house's residents. The aim of the apartment house testing is to further help companies scale their environmentally responsible services for a wider customer basis and, with this, to increase the positive environmental impact.

The Service Blueprint style of organisational analysis representing the service frontstage with the customer interaction and the

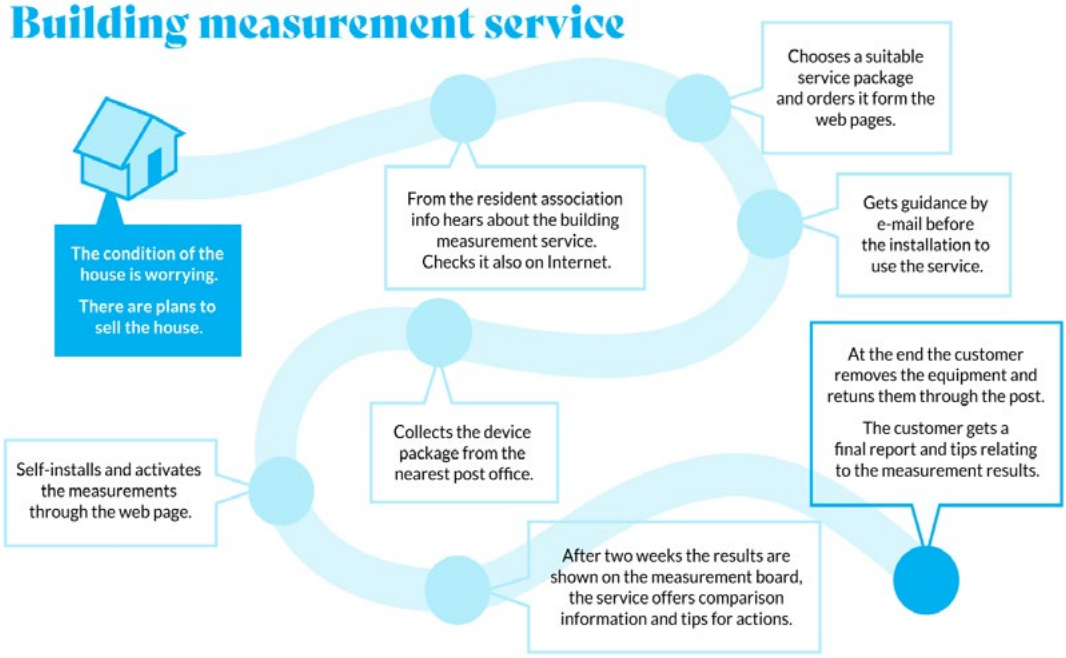


Figure 7. The Reiot building measurement service as a detached house service journey (Figure: Mervi Koistinen).

backstage of producing an invisible component of the service for the customer often precedes the prototyping stage as the orchestration for producing the service needs to be considered in addition to the customer journey. The Service Blueprint exercise tries to answer the following questions: What are the resources of the company to produce the customer journey? Does the customer journey require extra producer-stakeholders or other extra resources? Is the initial customer journey feasible to produce from a business revenue point of view? All of these realistic execution points of view need to be considered with the service design. If there are problems with the execution or with the business sense, the customer journey should be optimised into a form where the execution is realistic and profitable.

The prototyping and testing of a service is a real-life exercise to further iteratively specify how the service would function. The prototyping and testing can and should be conducted in ways that are suitable, that promote the nature of the service in question and that are feasible to execute as a quick rehearsal in real-life practice. Service prototypes can be seen as staged experiences that somehow replicate the service from the frontstage to the backstage and the interaction process in between them in order for the service to be realised. (Stickdorn et al. 2018, 64-65).

The case of the three services in this project exemplify the diversity of how to achieve fidelity in prototyping and testing. The Pupu vegetables and recipe bag is dependent on the yearly conditions to grow local vegetables and can be tested only at the point where the growth season is on its way. An easy way to organise the ordering simulation can be managed through Facebook. The service can then be rather easily prototyped in a very realistic manner, where the families participating in the test can order the personified bag, and the delivery can be made accordingly.

The CoReorient peer-to-peer lending platform requires coding and redesign of a digital beta version and the user interface, where restricted local use and the introduction of knowledge sharing is taken into account, in addition to the previous solution's open product lending. Both the Pupu and CoReorient services can be easily tested with several test residents, as the services can be rather easily scaled for testing purposes.

The Reiot house condition measurement service can only be prototyped in selected pilot houses, as the sensor systems need to be planned and installed into the pilot houses. In addition to the house environment, the signing-in and measurement-result user interfaces are tested for improvement and for opportunities to show to a wider audience on how the system works.

From the resident user point of view, at this stage, the residential associations are still important co-design partners to interact with the service optimisation decisions, recruiting the test residents and giving feedback from the real-life test processes and situations. The service test situations will be video-recorded, both for analysis and service improvement purposes. The project will

also use the video material for the purpose of communicating to the other interested companies about the residents' driven sustainable service design process.

The test situations will be evaluated from the perspective of the hypotheses made in the customer journeys as details of the service moments and touchpoints. In the CoReorient lending platform, and with the Reiot measurement information, the basic usability testing of the user interfaces is relevant. The typical service evaluation targets, such as the Servqual, consist of tangibility, reliability, responsiveness, assurance and empathy with the service interactions and evidence for interactions (Parasuraman et al. 1988, 12-40).

The service quality assessment should also turn from mere service-dominant logic to experience-dominant logic by emphasising the emotional nature of touchpoints that bring customer experience to a live, customer-empowering exchange and personalising extensions (Batat 2019, 15-18, 23-25, 39-40, 134). From a value standpoint, it is important to see how the services serve the users' personalisation requirements, mental images and feelings, and the possibility to overcome their environmental destruction anxieties. Many of the social-cultural evaluation perspectives, but also the usability points of view, relate to the factors presented in a SHIFT (Social, Habit, Individual self, Feelings and Cognition and Tangibility) framework, analysed as encouraging ecologically sustainable consumer behaviour (White & Habib 2018, 11,19,39,47,51). The user requirements collected in the co-design stage already highlighted these factors in each of the specific services. The real-life service pilots with the engaged test residents can also be assessed, together with residents, against a consumer-encouraging experience type of understandability, acceptability, desirability and actionability factors that seem to be vital in crossing the attitude-behaviour gap.

From a business point of view, the companies are supported to evaluate the results of the tests on the basis of the service blueprints carried out. The service blueprint analysis can be improved through the service piloting results from the customer journey point of view, as well as on whether the prerequisites and resources for the implementation of the service are realistic and which are the most important development targets. The business feasibility of the designed service is also mirrored against the expected revenue in delivering the service. This reveals if the service is sustainable from the business point of view and how the service system operation should be transformed in order to make business sense.

References

Batat, W. 2019. Experiential Marketing: Consumer Behavior, Customer Experience and the 7Es. Abingdon: Routledge.

Kälviäinen, M. 2019. Green Design as Service Design. In Miettinen, S., Sarantou, M. (Eds.) Managing Complexity and Creating Innovation through Design. Abingdon: Routledge. 100-113.

Michie, S., Atkins, L. & West, R. 2014. The Behaviour Change Wheel. A Guide to Designing Interventions. London: Silverback Publishing.

Parasuraman, A., Zeithaml, V. A. & Berry, L. 1988. SERVQUAL: A multiple item scale for measuring consumer perceptions of service quality. Journal of Retailing 64(1), 12-40.

Salo, M. & Nissinen, A. 2017. Consumption choices to decrease personal carbon footprints of Finns. Reports of the Finnish Environment Institute 30/2017. Helsinki: Finnish Environment Institute.

Stickdorn, M., Lawrence, A, Hormess, M. & Schneider, J. 2018. This is Service Design Doing. Applying Service Design Thinking in the Real World. A Practioner's Handbook. Sebastopol: O'Reilly Media.

White, K. & Habib, R. 2018. SHIFT - A review and framework for encouraging ecologically sustainable consumer behaviour. Helsinki: Sitra. Sitra Studies 132.

Kati Kumpulainen & Noora Nylander

User-driven packaging design (case: KUPARI)

Abstract:

User-driven design methods are an important part of design thinking. In this kind of process, product development, as well as packaging development, can embrace diversity, and find new markets and future opportunities. The important target is to involve human approach into the development process. Through the “KUPARI-Integration of Fibre-based Packaging Solutions for the Needs of SME's” - project, this article presents examples of how user-driven design methods can be utilised in packaging design. The article also describes how generally user-driven thinking is included into the design process. In the KUPARI-project, user orientation was done by interviews, visits to companies and familiarisation with packaging and the operating environment, visualisations and experiments / prototyping. Additionally, the project team created user profiles and trend cards for fibre-based packaging. The new packaging gathered positive user feedback in tests.

Keywords: User-driven design, packaging design, fiber based packaging, small and medium size enterprises

How to add user-driven design into the design process:

Embracing user-driven methods in the design process affects wider appeal for products and services. Consumers are not stereotypes, and additionally, lifestyles are changing. A new context of use gives new opportunities to new markets. Value Structures are changing as well, and for this reason, designers need to map new trends and strengthen brand values. In addition, people should not be excluded by design because of their age, race, abilities, gender, finance and geography. The double diamond design process describes how designers proceed with their task. In following, there are listed activities that the designer should do in a user-driven design process. (Gheerawo & Eikhaug 2010)

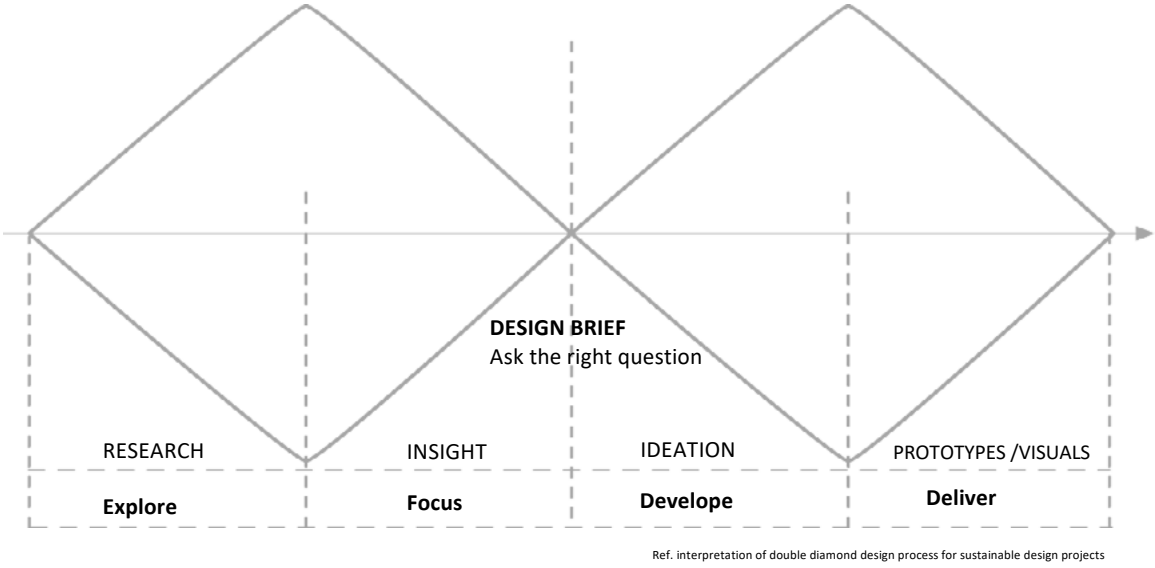


Figure 1. Double diamond process interpreted with user-driven focus. Nylander 2021.

Explore:

Activity 1. Understand context

market research, competitor audit, initial user visits and observation

Activity 2. Design research

ask the questions, find the focus, create framework, pick your users

Focus:

Activity 3. Discover needs

Going and doing – questionnaires, web forums, observation (both natural and controlled) interviews, research kits and workshops

- **Research focus:** Keep primary question in mind, but allow yourself to look beyond it
- **Tune method:** Do not be afraid to change your plan or review the primary question if you are not finding information you need or new exciting routes are opening

Activity 4. Map insights

review data, organise data, visualise data (search patterns and themes), rank data

Develop:

Activity 5. Translate briefs

- success criteria – build list of criteria for the brief
- write briefs
- define goals and challenges to overcome
- choose briefs - select what you are developing

Activity 6. Scenario building

- user profiles, personas, storyboarding and role-play
- revisit insight data-bank
- create checklist for your design task to keep your study and insights in mind and come back to them frequently

Deliver:

Activity 7. User feedback

- test onsite and offsite
- research methods – reuse your research methods but with new focus
- mass market – test outside your lead user group with wider audience

Activity 8. Resource building

Collect and keep all the information you have gathered, even if you are not using all of it.

Consideration of the consumer and customer in the design

In user-centric and user-oriented packaging design, customers or end users are set as the starting point for the design process. In this case, user segmentation, lifestyles and needs are strongly taken into account in the design. The packaging designer searches for user information in various ways, for example through surveys and interviews. Deeper user information is obtained by observing the lives of users as it is. In co-design, packaging development is carried out in cooperation with users, for example in workshops. Good packaging design helps the user to intuitively work with the packaging correctly. Successful packaging design creates a natural and pleasant user experience and can increase product and packaging sales. (Nylander 2021, 24-25)

The customer's experience in using packaging arises from many different things. Packaging design is an entity that takes into account the industrial design of packaging, sustainable design, graphic design and commercialism. Perspectives include packaging functionality, practicality, attractiveness, informativeness, interactivity and responsibility. Responsibility means that the packaging is responsibly supported and that the user can act responsibly with it. The user experience is studied using various methods, for example by means of surveys and observation. For example, the designer examines how easy it is for the user to recycle the package, how the user opens the package or how the user understands the message of the package and

whether it evokes unwanted images. The commercial success of brand packaging is related to the success of both industrial and graphic design as well as ecological production solution and consumer experience. In addition, the user needs can be considered through special design: in this case, e.g., functional, motor, cognitive, dexterity, and visual impairments. The operating situation itself can change the user's needs to suit the specific situation. For example, stress, hurry, fatigue, or illness can momentarily affect how we work with packaging in everyday life. Consumers also have functional and ergonomic differences. Forces and hand size, as well as dexterity, affect how an individual is able to open packages, for example. (Nylander 2021, 24-25)

User-driven student project for KUPARI-Integration of Fibre-based Packaging Solutions for the Needs of SME's

In a user-driven design project, students learn to identify the changes that society and the environment bring to customers, users and consumption, and the implications for design work. The student team selects or is given a project that aims to make changes to an existing product / package through user understanding and test the proposed changes on users. The aim is to create an understanding of how the user and his needs and the changes that take place in them should be taken into account in the design work. The user-oriented method always includes the design, implementation and conclusions of the research as a presentation entity.

The design work may optionally include the following steps:

1. **Analysing and understanding the context affecting the user and its impact on users and purchasing**

A. Trend Canvas and future trends affecting the task
B. Visits to places where the packaging is used
C. Benchmark - product / packaging concept modified to conform to the circular economy model, use.

The second year's packaging and brand design students at the Institute of Design participated in the development of the fibre-based packaging lid.

The KUPARI- project is an example how user-driven design methods can be utilised in packaging design. In the KUPARI -project, the research team visited berry farms, as well as did interviews for small and medium-sized enterprises about requirements for future packaging. At the same time, the willingness to pilot fibre-based products with companies` products was explored. The tray packaging was, in addition, tested at the Poikela farm to see how suitable the solution was for berries. In addition, the project team researched future packaging trends, interviews and workshops involving packaging-industry representatives to find what they see are the development goals of future packaging. (Kumpulainen & Palmgren 2021b)

Figure 2. Testing on site with interview (Khelli Palmgren).

Figure 3: The plastic lid used in place of Poikela fits firmly in both traditional plastic and fibre-based packaging (Khelli Palmgren).

During the visit, the berry growing, processing and packaging conditions were examined and the currently used packaging was determined. It was really helpful to see how the cultivation, collection and packaging of a tunnel raspberry or organic strawberry, for example, is handled. Currently, most berries sold in stores are packaged in plastic boxes. Farmers would prefer to use fibre-based packaging if it were available on the market at a competitive price. (Kumpulainen & Palmgren 2021b)

2. Understanding the user's experience world - understanding the current situation in one's own project

A. Value Proposition Canvas "current situation"
B. Gaining user understanding by the chosen method (interview, survey or observation).
C. Creating an imaginary user personality
D. Customer empathy map
E. Creating empathy through one's own experiments and testing.

3. Personas, storyboards and rapid prototypes

A. Experiments are made into models that are tested by users and customers
B. Models can test both visual and functional perspective use.

With the corona pandemic in mind, food purity and integrity have become even more important. Fresh berry boxes typically use a plastic lid to protect the berries. One of the advantages of the plastic cover is that the contents are visible through it and it is durable in use. During the KUPARI-project, fibre-based berry box lids were also designed and tested. (Kumpulainen & Palmgren 2021a)

The second year's packaging and brand design students at the Institute of Design participated in the development of the fibre-based packaging lid. Deck solutions were implemented with three different structures: sliding, handle and clickable lid. The students worked in groups and made prototypes of cardboard from the covers they designed. The end results were stylish prototypes suitable for different needs. The lids were also on display during the berry box pilots on berry farms, and feedback was collected from customers and berry growers. (Kumpulainen & Palmgren 2021a)

In the sketching phase of the berry tray, several berry patterns were created from vector graphics to watercolours. A watercolour pattern, consisting of raspberries, blueberries, lingonberries and strawberries, was chosen for the production. Several types of berries in the patterns allows for the box to have a wide range of uses. The colourful pattern is also a safe choice for packaging and the final overall look: if marks caused by the berry have appeared during transport or packaging, they will blend into the graphic surface. (Kumpulainen & Palmgren 2021a)

The packaging also stands out clearly on the store shelf: the white cardboard box arouses interest due to both its colour and material. The competitor survey showed that the cardboard box is a rarity in the fruit and vegetable store department anyway. During

Figure 4. Student prototypes for the lid (Packaging and Brand Design 2nd year students 2019).

the pilots, the packaging graphics received a lot of positive comments. According to the feedback, users said they would want to reuse the packaging or leave it visible on a table, for example. Additionally, users thought they may take photos of the boxes and share them on social media, which would give the company more visibility and silent advertising. (Kumpulainen & Palmgren 2021a)

According to interviews on the farms and with customers, the project assistant also created user personas for the KUPARI berry tray. The User Persona - tool is a visual description of the target user / customer. While making this, it is important to understand who the user of the product / service is being designed for. Understanding the real needs and aspirations of the end user / customer is an important element of critical design thinking. Thus, here, the human factor is more important than socio-economic profiles, which are often used by marketing departments to define the user segment.

During the summer of 2019, a fibre-based berry tray was piloted at the berry farms in Päijät-Häme and South-Karelia. The project assis-

Figure 5. Mood boards and visualisation for trays with the lid (Packaging and Brand Design 2nd year students 2019).

Figure 6. Finalised lid options (Khelli Palmgren).

Figure 7: The colourful berry pattern brings visibility to the fresh berries and evokes positive emotions (Khelli Palmgren).

tant visited berry farms and market squares, where berries were sold and observed and interviewed both farmers and consumers. Packaging was developed according to feedback from berry farms and consumers. LUT produced, for example, a new size for mould, which better suits the logistics and use.

The driver behind the project "KUPARI-Integration of Fibre-based Packaging Solutions for the Needs of SME's" was the growing demand for packaging solutions made from renewable resources. Changes in consumer behaviour, digitalisation and stricter environmental demands of packaging materials bring new demands for packaging manufacturers and companies using packaging. Moving to ecological packaging solutions opens new business opportunities for both packers and packaging machinery manufacturers. The main object of the project was to develop and pilot low-carbon, fibre- and bio-based packaging solutions in the area of South-Karelia and Päijät-Häme, taking into account the special needs of small and medium-sized enterprises (SME's). The project brought the information about the newest ecological packaging solutions for the companies, and made the piloting and integration of the solutions possible. The project was funded by the European Regional Development Fund. It was a co-operation project between Lappeenranta University of Technology and LAB University of Applied Sciences/Institute of Design and Fine Arts (2018-2021).

References:

Gheerawo, R. & Eikhaug, O. 2010 (eds). Innovating With People - The Business of Inclusive Design. Norsk Designråd. ISBN: 978-82-991852-2-6

Nylander, N. 2021. Pakkaus kuluttajan silmin. In: Lehtinen, L (toim.) Kestävä pakkaus. Forssa: Suomen pakkausyhdistys ry. 23-25.

Kumpulainen, K. & Palmgren, K. 2021a. Hyvin suunniteltu pakkaus tukee brändiä ja tuotetta. In: Kumpulainen, K. & Nylander, N. (eds.). Kokemuksia ympäristöystävällisten pakkausten kehittämistyöstä. Lahti. The Publication Series of LAB University of Applied Sciences, Vol. 31. 16-22. [Cited 30 Oct 2021]. Available at: https://www.theseus.fi/bitstream/handle/10024/507922/LAB_2021_31_fi.pdf?sequence=2&isAllowed=y.

Kumpulainen, K. & Palmgren, K. 2021b. Tilavierailut ja pilotoinnit tärkeänä osana pakkausten kehittämistä. In: Kumpulainen, K. & Nylander, N. (eds.). Kokemuksia ympäristöystävällisten pakkausten kehittämistyöstä. Lahti. The Publication Series of LAB University of Applied Sciences, Vol. 31. 23-30. [Cited 30 Oct 2021]. Available at: https://www.theseus.fi/bitstream/handle/10024/507922/LAB_2021_31_fi.pdf?sequence=2&isAllowed=y.

Sini Roine

ECOtronics – sustainable electronics and optics

The amount of electronic waste will challenge designers and researchers to work together to find sustainable user-driven solutions. The ECOtronics project has combined the strengths of both disciplines, the design and the research, to create a smart package. The ECOtronics project has been studying and developing materials and components of sustainable electronics and optics. Design has created future scenarios, visualised the project journey, designed visual appearance and created a smart package concept that will be the prototype introduced at the end of the project.

Keywords: sustainability, sustainable electronics, product design, package design, visualisation, visual identity

The main objective of the ECOtronics project is to support the renewal of the Finnish electronics and optics industry. The ECOtronics sees sustainable electronics and optics as being part of the future of electronics and believes that now is the perfect time for the Finnish industry to be on the crest of the wave in the field of sustainable electronics.

Tens of millions of kilos of electronic waste is being produced in the world at the moment. It is predicted that the amount of electronics waste will increase rapidly. Only a small part of electronic waste is recycled, and hazardous materials of electronics are causing health hazards to employees working in the electronic industry. (Forti et al. 2020) The main purpose of the ECOtronics project has been to reduce and replace toxic or hazardous materials by replacing component materials with biobased materials and develop printing processes of electronics. It has been proven that the printing process is more environmentally friendly than the traditional manufacturing process of electronics, for example, the printing process reduces waste (Hakola 2020).

Whether a company is creating a new service or product, design has a central role in developing new innovations. At its best, design takes into account the holistic ap-

proach to a product from the needs of the target users and customer groups to marketing. The Institute of Design and Fine Arts of LAB University of Applied Sciences has worked in close collaboration with other research partners, VTT, Tampere University and LUT University, to create product concepts and in the development of prototypes and visualisations for the project.

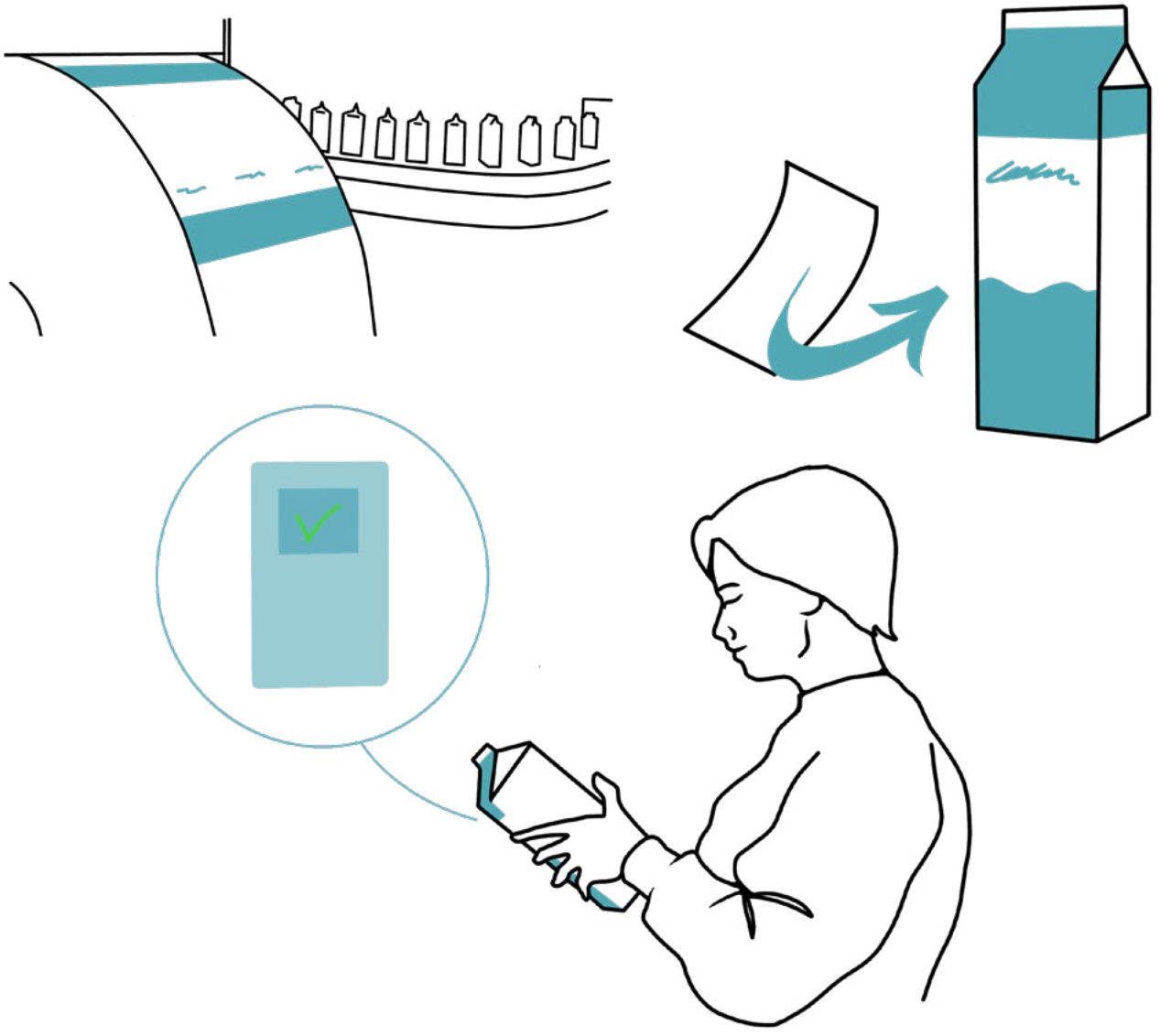
LAB has had multiple student trainees working in different stages of the project. The information has been handed to the next trainees who have continued the same task or used the information as an orientation material. The design team in this article refers to teams with different combinations of people who have worked at different stages in the project.

It is predicted that smart packaging is one of the promising fields for printed electronics and optics. (Das and Harrop 2013, cited in Hakola et al. 2019) This future vision set the objective for prototype development and manufacturing in the project. It is crucial to study and create scenarios of the needs for electronics in packages and what brings extra value for consumers, users, manufacturers and even for producers and merchants. The Institute of Design and Fine Arts (later the design team) studied possibilities for sustainable and biobased electronics. New scenarios were created and presented to the project team. The scenarios included ideas for home delivery of food, a smart store, and new features for smart packages. These scenarios were utilised during the product design process of the smart package.

Collaboration is crucial to reach the goals

Product design walked hand in hand with the component development. At the beginning of the project, the research team had a vision and background information, but tests have given specified results of materials, components, and other features. These results have affected the product design; for example, the size of the components have affected the size of the package. The most important questions have been regarding what to measure with the sensors in smart packages and what sensors are possible to produce at this stage? Sensing chemicals and physical properties, for example temperature, humidity and specific gases or toxic materials, can improve safety and efficiency (ECOtronics. 2021). Some of the wildest ideas had to be left aside from the scenarios that the design team produced, but a few of them were added to the prototype to show what could be the next steps of the development. After benchmark and studies, it was confirmed that the smart package prototype is best to create for groceries. Groceries are familiar to everyone, which makes it easier to introduce new technology to customers and in general the sensing temperature, humidity, gases and toxics give validated use for electronics in groceries.

The ECOtronics team had to take into account all the technical features of the electronics and optics that will affect the manufacturing processes, users etc. One of the biggest challenges has been how to add printed electronics to the package. The



Picture 1 & 1.1. Smart package demonstrators were created for groceries (Määttänen. 2020).

printed electronics have multiple layers, and it is necessary to design how manufacturing processes will stretch to this innovation. The simplest and most cost-effective solution, in our case, is to print electronics and optics onto a label. In this label-scenario, there are two possibilities. One, the printing industry will broaden their knowledge to include printing electronics; or two, both the electronics and the packaging will be manufactured in their own facilities, and the label will be added to the finished package. The second scenario is visualised into the smart tag story by design trainees.

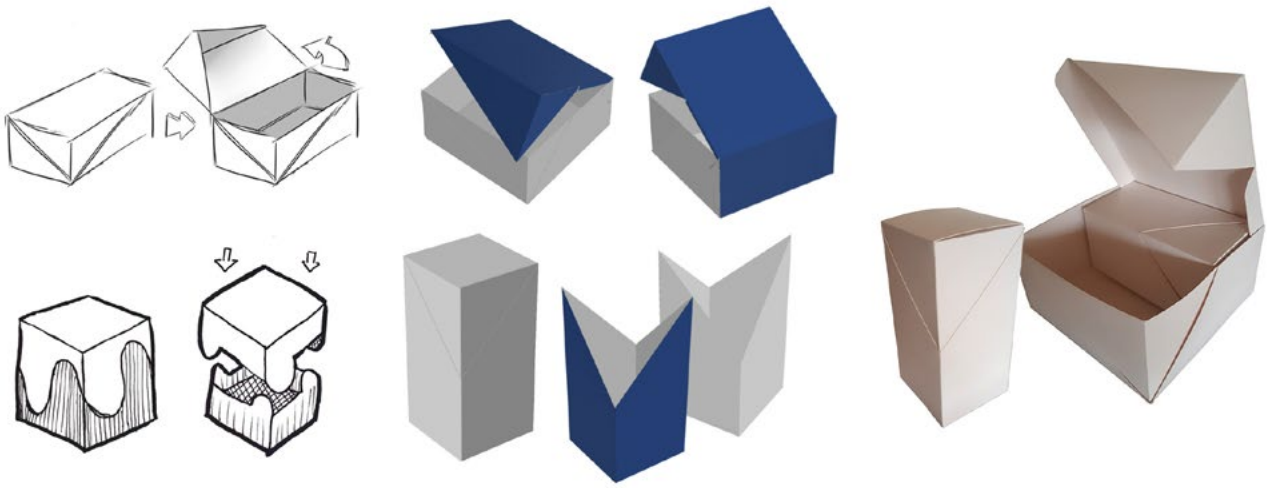
The package design with a wow-effect

The design team continued to design the package when the technical goals were achieved in the label development. The research team gave a brief that included objectives that the package should represent general food packaging, meaning that it can-not be perceived as a package of a specific food, for example meat or ice cream. The researchers also wanted the package to have some wow-effect. The smart package should stand out even without the new technology. The wow-effect will attach attention at fairs where the prototype will be presented. The design team started to benchmark different packages and choose the most interesting ones to be an example. They modified the ideas and created new packaging structures according to the brief. While working with the packages, an idea of a set of packages came up. The design team continued with two structures and a couple of different sizes. The main package can be presented as a primary package for food, but it is big enough to contain two smaller packages.

The graphics of the packages were designed to represent the general food packaging. The design team created a geometrical pattern and icon pattern. The geometrical pattern was especially designed to have a three-dimensional effect, which gives the wow-effect. The design team also did the graphic design for the label with the technical aspects in mind. The graphics are designed according to the visual identity that was designed at the beginning of the project by a design student of the Institute of Design and Fine Arts.

The importance of user experience

The design team had to keep the user experience in mind: how users interact with the package. User experience starts from the brand. The brand is strong if the customer has one particular brand in mind when going shopping and doesn't even consider purchasing another product from a different brand. This shows that the customer has had good experiences previously with the brand. After choosing the product, for example a coffee package, the customer will make a cup of coffee at home or at the office, and after a while, the user has had multiple cups of coffees and will recycle the package. How was the journey with the product? All of the steps, from seeing the brand at the store to disposal of the package, are part of the user experience journey. The designer needs to



Picture 2. From sketches to reality, smart packages concepts as sketches, 3d-models and prototypes (Palojärvi, Ahola, Roine 2021).

understand this journey in order to design a product (Interaction design foundation 2021). The smart package has multiple functions that will interact with the user. The package itself is part of the experience with the graphics, opening mechanism, material etc.

Now that the package is a smart package with new technology, it brings features that need to be considered during the design process. The design team had to consider how to make the information, that is collected with the sensors, visible for the user. This task was as big as the package design task with structures and graphics. The design began with the question of where and how the user can receive the information. It was obvious that the package should show some of the features, but more specific information should also be available. The design process of the user interface began with a brainstorm about who the package users are and what information do they need to receive from the package. The design team created mind maps that helped them to see the holistic picture of the system behind the smart package. The mind map included the needs of the consumer, merchant, and manufacturer. A more specific, user-driven research was not possible to execute in this project. The design team came to the conclusion that the consumers and merchants need different information from the smart package. The merchant needs to have access to more specific information about

the product and its condition, for example if the temperature has gone too high and the product is spoiled. This helps to track at which stage of the product's journey from the manufacturer to the store the temperature change has occurred. The condition of the product, whether the product is edible or not, is enough for the consumer.

The power of visualisation

Visualisation has the power to show the process of the project in an interesting and fun way. During the ECOtronics project, researchers have done a lot of work to get the needed results. Their long hours in laboratories are difficult to make visible. The design team suggested that all the work packages with the tasks should be visualised. The work packages include material tests, component and product development, lifecycle assessment and dissemination. The question was how to show the whole journey of the project to a lay man. The visualisation process started with understanding what has been done during the project, what are the most important aspects that need to be shown

Picture 3. The beginning of the project visualised. Part of the process path (Picture: Jonna Palojärvi, Kaisla Tiitinen. 2021).

and ideating different concepts to visualise it all. The finished process path picture starts from the first steps of the collaboration and divides into paths that takes the viewer to work packages, and finally to the joint goal of finalised prototypes and the future vision. The design team thought about the different platforms where the ECOtronics team might present the picture. It was clear that the visualisation will be presented in both web pages without anyone presenting it and in live presentations with a presenter. The design team made couple of versions of the visualisation, one with the whole picture and another that is divided into sections with explanatory texts.

The main purpose for the visualisations has been to show the common knowledge of what is being done during the project. Being part of this consortium, which has multiple work packages and tasks, has indicated the need for a visualised road map. This is one of the interesting research topics for the Institute of Design and Fine Arts. During the ECOtronics project, visualisations have helped to keep everyone on the same page of what others are talking about. For example, the technical aspects of the label were considered difficult to understand, but when the label was visualised it was easier to communicate about it and its technical features: in which layer the components are printed, what are the dimensions etc.

The Institute of Design has taken dissemination efforts as part of its work. The visual identity was one of the tasks of the dissemination, because the visual appearance is the one that will get people's attention. The website and its content were created for the project and the blog has posted news during the project. The design team is planning a prototype publishing seminar for January 2022. This is one of the biggest tasks in dissemination for the Institute of Design. This will be a hybrid event, held in the Lahti campus of LAB University of Applied Sciences and streamed for everyone at home offices around the world.

References

ECOtronics. 2021. ECOtronics project. [Cited 26 Oct 2021] Available at: https://www.ecotronics.fi/project

Forti V., Baldé C.P., Kuehr R. & Bel G. 2020. The Global E-waste Monitor 2020: Quantities, flows and the circular economy potential. Bonn/Geneva/Rotterdam: United Nations University/ United Nations Institute for Training and Research, International Telecommunication Union, and International Solid Waste Association. [Cited 29 Sep 2021]. Available at: https://globale-waste.org/publications/

Interaction Design Foundation. 2020. User Experience (UX) Design. [Cited 29 Sep 2021]. Available at: https://www.interaction-design.org/literature/topics/ux-design

Hakola, L., Deviatkin, I., Mäntysalo, M. 2019. ECOtronics research project plan. [Cited 26 Oct 2021]

Hakola, L. 2020. Five ways towards sustainable electronics. VTT. [Cited 29 Sep 2021]. Available at: https://www.vttresearch.com/en/news-and-ideas/five-ways-towards-sustainable-electronics

Mirka Uunimäki

Can the environment be the new center of the fashion design?

Abstract

We humans have been impatient with our needs and our economy has evolved unnaturally fast and has become harmful. This has resulted in a global crisis of the environment and icebergs melting, just mentioning a few aspects. Everything is designed to be manufactured and consumed as fast and cost-effectively as possible. In other words, every design is human-centred. In the future design itself needs to be on the front of change, towards more environmentally centred solutions. Environmentally centred thinking benefits us humans too, but the effect is not always fast and that is why it can be ignored as too expensive by the modern economy. Fast fashion can never be fully sustainable in the way it is produced today. Still, it can be marketed as sustainable and that has led to the common misunderstanding to many that by changing some small detail from an otherwise harmful product, it can be made into something sustainable. To be even partially sustainable, the job is to have the environment as one main stakeholder, right there beside our human needs and preferences.

Keywords: design, sustainability, fashion design, design thinking, sustainable design

80 % of the product impacts are decided from designers' desks

Design is everywhere. And where there is design, there is someone who has planned and structured it first: the designer. The designer can be seen as a professional multitasker of the workplace as one can work in multiple positions in different fields while managing a massive amount of information ranging from livestock to code, for example. The need for companies to have someone with a creative mind and the tools to evolve their product or services has grown as competition has become more intense. In the fashion industry, designers are part of an enormous machine which produces goods for ever faster to fulfil the needs of people to express themselves. Fashion designers can be their brand or part of a large company (sometimes both). Either way, they play

a crucial role as one of the wheels to keep the machine going. The position needs to be knowledgeable when we look at the downside of the fashion industry. The fashion industry is acknowledged to be one of the largest polluters in the world, creating the same amount of gas emissions as shipping and air trafficking combined (FAB 2019). It has been said, that as much as 80% of all environmental impacts are decided from designers' desks. (Ellen Mac Arthur Foundation, 2019). Even though the reality is not so straightforward, it places this large and complex issue in one place. Of course, we need to notice the wide criticism this statement has received for its narrowness of understanding how minor the real solutions are for the designer to design things to be more sustainable and ecological. In my opinion, there is truth on both sides. While understanding the limited possibilities, we can still demand change by tackling that 80% with an idealistic switch.

Same system, worse outcome

The industrial system which supports our way of consuming today is way older than we think. The models we use in the clothing industry are really from the mid-19th century. (Ruokamo 2016, 32). The clothing from that era is appreciated to be more long-lasting and better quality than the ones we have today, which is ironic as while technology has evolved beyond measure, the system has stayed the same. This progress has made the clothing and fashion industry faster and more cost-effective but, sadly, not much more sustainable or durable. This has resulted in clothing being cheaper than it really should be because the destructive effect on the fabric's place of origin is in no way compensated for, and most workers in the industry are usually underpaid or working for practically nothing. Fashion cycles have become faster, and today we can see that there are no longer two seasons, while it is more like pre-season to season to pre-season in an endless loop.

A commonly associated word with the fashion and textile industry is: fast. Fast fashion means quickly made, mass-produced clothes, which are sold globally in large volumes. (Ruokamo 2016: Fletcher 2014, 190.) Its opposite is sustainable fashion, which has unfortunately become a trending phrase to use by the twenty-tens fashion industry and has been carelessly distributed by fashion companies as part of advertising. This has obscured a common understanding of how hard it is to be an honestly sustainable fashion company. According to Ruokamo (2016, 26): Sass Brown (2010) notes that sustainability means a balance between humans, animals, ecosystems, and the planet. The system should not use nature more than it can give. Nothing should be completely used up. A sustainable system maintains itself and nature. In its way, sustainable fashion can be seen as a paradox as the nature of fashion is to be hectically moving and constantly evolving (Ruokamo 2016). True fashion cannot be sustainable if it takes more than can be given back to nature, the origin of all its resources.

The actual cost

The Ellen Mac Arthur Foundation (2017) has pointed out that industrial wastewater causes as much as 20% of freshwater pollution because of the dyeing and treatment of textiles. Furthermore, this is only the tip of the iceberg if we take into account all the countless actions happening in the name of fashion. This includes: pollution from transporting the fabrics, using all of the water from the Ural to water cotton fields, the electricity used for polyester production, just to name a few examples. The system is designed in a way that only direct costs are taken into account. The consumption amounts of the products are the most important. But how much will it cost in a couple of years to protect the factories from natural disasters caused by climate change, if nothing changes? We, humans, love having our needs fulfilled quickly. This often affects our willingness to take action towards the bigger picture, which usually does not provide the same immediate satisfaction. Less, it might actually cost us something in the short run. Let me provide you with an example: the common painkillers used for fast pain relief. We do not like to think about how studies have proven how having a couple of those small pills a week can affect our health in the long run. We might know the risk, but that tiny instant good feeling is more tempting. The situation is the same with fashion. Consumers are used to having a lot of goods quickly and cheaply. And while most of us are fully aware of the unsustainability of those actions, we still find ourselves consuming more and more of those designed treasures.

Picture 1: Human Centred Design (Mirka Uunimäki).

One to blame

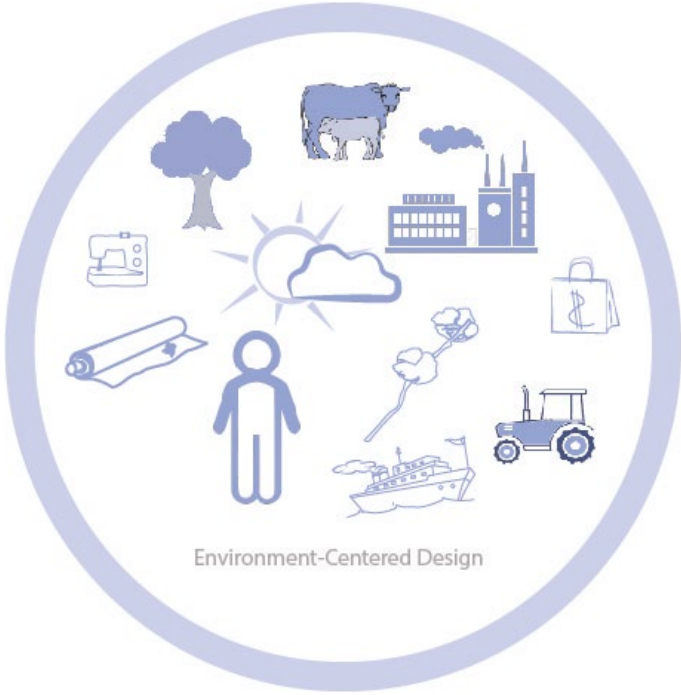
So, is the fashion designer the one to blame for being the creator of all those products manufactured in an unsustainable way? This article gives the designer a large role of being the major part of that production process with immeasurable powers over all its aspects. Still, it needs to be taken into account that designers in companies cannot always impact very much how sustainable

the whole process is. Designers cannot understandably be aware of all the issues as the fashion industry is complex and structured with many steps (Karell & Niinimäki 2019, p. 1005). As earlier mentioned, the industrial system today is based on the industrial revolution, which in fact, was born partly from the need for cheap clothes (Ruokamo 2016, pp. 31–32). The understanding of the environment's capacity to offer us resources and the information about its ability to handle the pollutions we give as an exchange is massively different than in the mid-19th Century. That is why there is no reason to rely on that old structure anymore. The reality is that by going on like this, we will pollute our water and make it undrinkable, we will make the air unbreathable, and the soil unprofitable. The biggest impact comes with our consuming habits, as we produce too much of everything compared to the earth's carrying capacity. That is usually something we like to forget as it means that change needs to start from us. The way designers do their job can affect a lot on the impacts of one product, but on a wider scale, the global production volume must decrease if the goal is to save the earth. Changing the thinking of how to design things can be one of the keys in the keychain but not the only master key.

User-centred design

We as humans have all been designers from day one. For many hundreds of years people have evolved their surroundings to be beneficial to them and their community. For example, the inventor of the wheel did not necessarily see themselves as a designer, an invention was made because it produced a benefit. While designing moved on to become a profession unto itself, the thinking has not changed that much. Designers need to find the real needs of the potential customers so they will purchase the product. Another way to describe this is human- or user-centred design, which is still going strong and evolving.

User-centred thinking has become a standard tool to teach young designers the beginnings of how to find real needs and problems. By solving them with testing and ideating, they find new ways to meet the user's needs. We are programmed to think of change as a norm, as everything has always grown bigger and better. Nature is based on balance. It has evolved over billions of years to work in perfect stability. However, then it evolved us. In a couple of hundreds of thousands of years, we invented (read: designed) an unbalance to benefit ourselves, like soil cultivation for agriculture. One way to think about this problem is brought to us by anthropologist Monica Sznel (2020), who sees the users as a wider concept by also the natural environment. This is an interesting way of seeing the environment, usually seen as a fountain of the sources used, but now one of the stakeholders. Sznel also takes a step further by placing nature and the environment as the most important stakeholders. She puts the environment at the center of the design process, the position previously reserved for humans, and calls this environment-centred design (Sznel 2020).



Picture 2: Environment-Centred Design (Mirka Uunimäki).

The wellbeing of all

By stakeholders are meant all "the internal, external, direct, indirect, paying, non-paying, strategic or critical sectors who affect your company, project or product/service" (Sznel 2020). To help the process, a designer or company can use stakeholder mapping, which shows all the primary and secondary stakeholders on a cycle around the design. Sznel points out that from an environmental point of view, we have a problem. It is hard or more or less impossible to find a map that has at least one non-human stakeholder. Many non-human (meaning nature, air, water, etc.) aspects play a massive role in the process of developing products and services. Non-human stakeholders often suffer more from the process than receiving anything of benefit. Sznell notes: "Although we leave non-human stakeholders outside our design exercises, it does not mean that they are not inextricably linked to the stability of our companies, projects, products, and services,"(Sznel 2020). The health and wellbeing of customers or users are heavily connected to companies' actions.

The main problem is that even if the design itself would be made to be as sustainable as possible, which we have already pointed out can be problematic itself, we will still think of the environment as a resource rather than a party that should benefit partly from the result. It is forgotten constantly how fragile the natural system is and how dependent we are on it. Sznel (2020) points out cleverly that companies forget too often that their precious customers need clean air more than a new fashionable dress. Maslow's hierarchy of needs can be an excellent example to showcase that by noticing its obvious problematics, we can still see that our human needs are grounded on basic needs. We need air to breathe, water to drink, and shelter from danger. And when those needs are met, we can focus on higher needs. Although in today's consumer society we can see how the need to collect property can be more important than filling other needs (Mielen ihmeet 2018). Still the fact is that people cannot consume if they do not have conditions around them to support them staying alive. This also needs to be noticed by big companies. If they do not care about their factory workers or local people's lives where the impact of producing their products happens directly, they should at least care how the company will survive in the future if there are no people to consume their designs. This is a harsh way to see it, but a truly a possible future scenario.

The final goal is empathy

So, what is the goal? Can it be to help companies and designers to recognize problems in their thinking and lead them towards seeing the environment as the centre of their processes? In the end, it would benefit us all. By acknowledging that when our planet is taken to be a part of our economic thinking, being more like a partner than a resource, it makes the survival of the economy more likely. The goal is to give more than we take. Including circularity in our economy would in many ways be truly sustainable. For designers that would mean being taught to practice more sustainable designing strategies with the environment at the centre. Information about materials and production conditions should be freely distributed, which would lead to innovations much faster. And of course, the whole idea of using the environment as an endless source needs to be put down. It is a charming image but hard to achieve, naturally.

In the end, the main idea is to remember that great design arises from empathy. The main idea of designing (creating structures for new things) remains the same. While we now empathize with human needs, we should do the same for the environment. The idea is not to make our needs secondary, but more to raise the environment to the same pedestal. As Monica Sznel (2020) said, "At the end of the day, great design comes from great empathy. The more empathy we exercise towards humans and non-humans, the better we design for the environments we all live in".

References:

Ellen MacArthur Foundation. 2017. A new textiles economy: Redesigning fashion's future. [Cited 9 April 2021] Available at: https://ellenmacarthurfoundation.org/a-new-textiles-economy

Ellen McArthur Foundation. 2019. Designing for Reuse and Circulation of Products and Materials. [Cited 8 April 2021] Available at: https://emf.thirdlight.com/link/sfk6sxxc5wl2-ppj1qb/@/preview/1?o

Fab. 2019. Näin ilmastonmuutos vaikuttaa tekstiilialaan. Fablehti.fi 8/19. [Cited 23 April 2021] Available at: https://www.fablehti.fi/ilmastonmuutos/.

Fletcher, K. 2014. Sustainable Fashion and Textiles: Design Journeys. 2nd ed. Milton Park, Abingdon, Oxon: Routledge.

Karell, E. & Niinimäki, K. 2019. Addressing the Dialogue between Design, Sorting and Recycling in a Circular Economy. The Design Journal. Vol. 22 (sup1), 997-1013. [Cited 17.3.2021] Available at: https://doi.org/10.1080/14606925.2019.1595413

Mielen Ihmeet. 2018. Maslow'n tarvehierarkia. [Cited 22 Apr. 2021]. Available at: https://mielenihmeet.fi/maslown-tarvehierarkia/

Ruokamo, A. 2016. Matka kohti vastuullisuutta: kokonaisvaltainen vastuullisuus yrityksessä. Case Voglia. Pro Gradu- tutkielma. Lapin Yliopisto, Taiteiden tiedekunta. [Cited 8 April 2021] Available at: https://lauda.ulapland.fi/bitstream/handle/10024/62657/AnnariinaRuokamo.gradu.pdf.pdf?sequence=2&isAllowed=y

Sznel, M. 2020 Tools for environment-centred designers. UX Collective. [Cited 26 March 2021] Available at: https://uxdesign.cc/tools-for-environment-centered-designers-actant-mapping-canvas-a495df19750e

This is the second review of the publication series named the LAB Design Annual Review. This publication presents the latest research, development and innovation activities in the field of design. The aim of this review is also to introduce multidisciplinary development work and cooperation with companies and stakeholders. It contains twelve articles written by experts from LAB University of Applied Sciences.

The Publication Series of LAB University of Applied Sciences, part 35
ISSN 2670-1928 (PDF)
ISSN 2670-1235 (print)
ISBN 978-951-827-390-8 (PDF)
ISBN 978-951-827-391-5 (print)

LAB University of Applied Sciences
BUSINESS FINLAND
THE REGIONAL COUNCIL OF PÄIJÄT-HÄME
Leverage from the EU 2014–2020
EUROPEAN UNION
European Social Fund
European Regional Development Fund
The European Agricultural Fund for Rural Development: Europe investing in rural areas