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Kristiina Soini-Salomaa

Foreword

This is the third review of the publication series named the Lahti Design Annual Review, which presents the latest research, development and innovation activities in the context of design written by experts from Lahti University of Applied Sciences (Lahti UAS). This review presents some of the significant actions that have been carried out as part of our projects to reach the set development goals.

In the first article Design for Sustainability Transitions in the regional ecosystems Kristiina Soini-Salomaa opens up the strategic background for design RDI work at LAB university of Applied Sciences. Strategic planning for design focus area is underway, and roadmap for Päijät-Häme region are under construction. The background, some insights from sustainable design research, strategic approaches and practical implementations are described.

The article by Mirja Kälviäinen describes how the change towards sustainable consumption requires new systems and solutions for satisfying people's needs in the consumption areas of housing, energy and water use, mobility, food, products and services. The paper presents a variety of tools that help designers to come up with general themes and processes to create and promote sustainable lifestyle offerings. As an example of why and how to apply the tools is a case involving the communication challenges faced by Lahti Energy district heating.

Lappeenranta University of technology, Packaging Technology research group and Lahti University of Applied Sciences are engaged in a joint research project called KUPARI which is seeking answers towards sustainable packaging. A lot of technology has been invested in smart packaging but the development of new technologies has not been fast, because it is difficult for fibre-based packaging to compete with traditional plastics. In the third article Noora Nylander discusses future technologies for packaging and shows some solutions appearing now on markets.

The article by Ari Känkänen examines competence needs from the perspective of the skills and expertise produced by the Lahti UAS, Institute of Design, both in the context of its degree programmes and its students' collaborative projects with the professional world. It outlines some of the measures taken to develop design education at the national level. The article references the ongoing Finnish Design Academy project funded by the Ministry of Education and Culture.

A challenge in rural area service and tourism companies is that services and activities are available, but companies do not know how to produce, market or sell them effectively enough. The PALMA - Developing New Business in the Rural Areas through Service Design -project has helped rural entrepreneurs to comprehend the

role of service design and the importance of understanding consumer behavior in service development. In Kati Kumpulainen's article the advantages of service design for service development and SME companies are discussed. The PALMA model and best practices which were learned during the project are introduced.

The next article continues exploring the current changes of museums as institutes as well as the current changes of the operations in museums. Museums worldwide are dealing with similar issues: how to involve customers and understand their needs, how to handle the good aspects and evils of digitalisation, and how to use the social influence that museums have. This article by Antti Heinonen, Katariina Mäenpää and Kaisu Tullinen presents development processes that are currently being carried out in two design projects where several forms of design expertise have been utilised along the way: interior and furniture design, visual communication and media content design as well as experience and service design. The article will address selected scans of these design processes and their outcomes.

Katariina Pakarinen and Ulla Saarela portray the project called The Culture Tourism for City Breakers which brings together cultural production, tourism management and business agents to build a multidisciplinary co-development forum for cultural tourism actors. As a result, there will be a piloted co-development model and study programme that brings together culture and tourism practitioners, students and professionals.

Based on research studies, investing in design increases customer satisfaction, product usability, communication, and profit. Companies that are design-mature may see over double returns compared to the remaining companies. Also creating effective company communications is required to carry the basic purpose of the company. All these belong to the domain of designers. The Design Venture Programme concentrates on coaching small and medium-sized enterprises and microenterprises to be more design-mature for their growth and internationalisation. In the article by Veli-Pekka Räty the coaching programme for SMEs and microenterprises to use design is presented.

Businesses needs for visual communications professions is increasingly focusing on user experience design and as a platform for designs on touchscreen devices. Harri Heikkilä portrays how the MILAB-project answer this call by developing visual communication education. Institute of Design aims to diversify and update visual communication education to meet better current and future proven needs through educational measures, resulting in improved job placement and increased attraction of visual communication studies.

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 in multidisciplinary and interdisciplinary design education, research and development.

Lahti, 4 December, 2019

Dr. Kristiina Soini-Salomaa
RDI Director, Design

Kristiina Soini-Salomaa

Design for Sustainability Transitions in the Regional Ecosystems

Abstract

Design and the circular economy are smart specialisation areas in the region of Päijät-Häme and focus areas at the LAB University of Applied Sciences. The strong regional design profile is based on the region's industrial history. Design education was established to meet the needs of companies in training designers and product development experts. Regional specialisation in the circular economy has seen investment in environmental technology, cleantech, material and resource efficiency, new solutions and circular economy services.

Addressing climate change is frequently considered a technical and behavioural challenge, but there is a need for a transformation of systems and structures, beliefs, values, worldviews, behaviours and practices. In this paper, the background, some insights from sustainable design research, strategic approaches and practical implementations are described. Current research and development activities in the fields of design and the circular economy are illustrated with some case examples. Some insights for the future are also explored.

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

Background

Design, the circular economy, and sports and experiences are the three smart specialisation areas in the Päijät-Häme region (Päijät-Hämeen liitto 2017, European Commission 2019). Specialisation in the circular economy requires strong investment in environmental technology, cleantech, material and resource efficiency, new solutions and services for the bio circular economy, and circular economy education.

The strong regional design profile is based on the region's industrial history. The Lahti area is famous for its furniture, textiles, mechanical

engineering and wood processing industries. The region's companies have utilised local design skills in their product development, which has given them a market advantage. The region specialises in industrial design and immaterial design in its various forms, including service, information and brand design.

The Lahti Design Institute design school was established to meet the needs of companies in training designers and product development experts. Lahti University of Applied Sciences is now one of the biggest design education organisations in Finland. The university's design-driven research and development activities, and collaboration with companies and stakeholders, have increased significantly in recent years.

Design as a strategic tool for promoting sustainability and regional competitiveness

Although addressing climate change is frequently considered a technical and behavioural challenge (the practical sphere of transformation), there is a need for a transformation of the systems and structures that facilitate or constrain the practical responses to climate change (the political sphere of transformation). 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, and a need for the transformation of their behaviour and practices (the personal sphere of transformation). (O'Brien 2018, Ceschin & Gaziulusoy 2019)

Design for sustainability transitions focuses on the transformation of socio-technical systems through technological, social, organisational and institutional innovation. In this respect, it embodies design for product-service systems which aim 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. More recently, design for sustainable transitions has begun to focus on cities, which are essentially socio-technical systems. (Ryan et al. 2016, Ceschin & Gaziulusoy 2019).

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 (Manzini & Rizzo 2011, Ceschin 2014, Ceschin & Gaziulusoy 2019). Referring to previous researchers, the development work for sustainable ecosystems demands long-term planning and tools to build a common goal, which will be described later.

Following the region's strategic will to invest in design expertise, the University of Applied Sciences has played a strong coordinating role in the regional innovation ecosystem. Design and the circular economy are two of the four focus areas at Lahti University of Applied Sciences, and from next year, at the LAB University of Applied Sciences. Design plays a key role in the circular economy, which means a strong focus on research and development for sustainability transitions and design for sustainable solutions. This strategic work is supported by design studies and methodologies at our university.

In practice, this means that our university supports change processes for more sustainable choices, solutions and behaviour. We help businesses, communities and citizens by

designing ecologically, economically, socially and culturally sustainable products, services and living environments. We also challenge our partners to co-design smart and human-oriented solutions by utilising our design and artistic expertise. Solutions must therefore bring new value to businesses and other stakeholders.

The Päijät-Häme Circular Economy Roadmap is in use and will be updated. Strategic planning for design is currently underway, and roadmaps for the design focus area at the LAB University of Applied Sciences and the Päijät-Häme region are under construction. Strategy work is conducted through a roadmap process, involving local government, industry and academic stakeholders. The roadmap is a tool for the co-design of common goals, actions, and defined roles and milestones to achieve these ambitious goals together.

The strategic design development themes resonate strongly with recent design research. The top theme of designing sustainable solutions is implemented by subthemes: designing sustainable products; services and environments; design for behaviour change, smart human-driven design; and communication and arts for radical renewal. The roadmaps will be completed and introduced next spring (2020).

Design in practice in the regional innovation ecosystem

The initiating of implementations for theoretical and practical approaches will come next. Transition design projects are yet to come in practice, but it is a promising sign that designers have started to be commissioned in transition projects for strategic roles, rather than solely to work on the creation of conventional design outputs (such as visualisations and product concepts).

First, following Ceschin & Gaziulusoy (2019) and Buchanan (1998), the design outcomes generated during the transition projects may cover outcomes associated with all four orders of design: communication; construction; strategic planning; and systemic integration. They may include signs, symbols, images, physical objects, activities, services, processes, systems, environments, ideas and values. Design for sustainability transitions is supported by design approaches that focus on the creation of specific design outcomes, including product design, service, environmental, information and policy design. It contributes to the communication of high-level outcomes through visualisation, and plays a role in the identification of intervention points in systems and the design of transition experiments.

For example, in the most recent development projects in which regional circular economy solutions have been developed, information design played an essential role in visualising complex energy and material flows and systems, and increased the understanding of the organisation's choices and decisions in supporting the transition to the circular economy (i.e. Informe – promoting the potential of renewable energy through information design and the industrial symbiosis and energy ecosystem in Nastola – NETS).

The Circular Move (Kiertoliike) project has supported the regional change and the aim of sustainable economic growth by modelling the circular economy and supporting new business opportunities. The aim has been to support the transition of companies' products, processes and services towards the circular economy. The design activities have been embedded into

the various processes, showing the richness of design as a support vehicle in the shift to a sustainable society. Design activities have supported the analysis, descriptions and information visualisation of the regional circular economy roadmap and material flows. In terms of material flows, one practical outcome is a Circular Material Library, which can be used as a tool for design in promoting innovation in companies' circular material use competencies. As the move towards a circular economy does not consist only of production change but also of behaviour change among consumers, the material flow, sharing, recycling and reuse of materials and products among regional consumers has also been investigated for new service and business opportunities. (see Virtanen et al. 2018)

The driver of the KUPARI project – Integration of Fibre-based Packaging Solutions for the Needs of SMEs – is the growing demand for packaging solutions made from renewable resources. Changes in consumer behaviour, digitalisation and the stricter environmental demands on packaging materials are placing new pressure on packaging manufacturers and companies using packaging. The project's main objective is to develop and pilot low-carbon and fibre- and bio-based packaging solutions in the South Karelia and Päijät-Häme regions. Another objective of the project is to advance the use of ecological packaging solutions and reduce food waste with new packaging innovations, which are being developed through material development, production engineering and packaging design. (see Kupari 2019)

The target of the ongoing KISU – longer life and recyclability by circular design project is to raise awareness and understanding of circular design-based product design, including the reuse of regional material side flows in creating new business. The aim is also to improve the circular design expertise of designers and producers in the Päijät-Häme region and to develop their business in accordance with the principles of the circular economy.

The strong strategic will to specialise in circular design and design for sustainability is driving us to develop design methods and tools that support holistic regional development towards the circular economy. This challenges us to realise that there is a need for new design approaches and the integration of knowledge from several other fields, including business, engineering, the social sciences, urban planning and public policy.

Design making the future

The design process can specify and conceptualise the new values, technologies, social practices and lifestyles required for sustainable socio-technical systems, and assist in the democratic deliberation of transition paths and alternative futures. Ceschin and Gaziulusoy (2019) identify three main design characteristics for sustainability transitions:

- a widening of the design scope from insular to systemic design;
- a shift from technocentric to human-centric design;
- an expansion of the sustainability focus.

To achieve real changes in operating models, service systems and behaviour, a multidisciplinary and long-term approach is needed. Increasing complexity requires the innovation work to

be equipped with competencies in a wide range of areas. In this sense, it is clear that the more we move towards systemic innovations, the more interdisciplinary innovation teams need to be. This means that designers can not only operate individually at the lower innovation levels, but that from the product-service systems innovation level upwards, they must operate in synergy with experts from various disciplines and at the strategic level (Ceschin & Gaziulusoy 2019).

This is also an innovation challenge for regional innovation ecosystems and academia. To achieve real change and a competitive advantage, success depends on how well the innovation ecosystem can utilise the expertise of its members and the surrounding society. The first step is to make development activities truly multidisciplinary practices in academia to ensure design is associated with all four orders of design, i.e. communication, construction, strategic planning and systemic integration with the other disciplines. The second is to encourage academia, decision makers, stakeholders, businesses and citizens to build common goals for the future and co-design the strategy and roadmap for sustainable solutions. The third is to take care of the implementation phases, regional responsibilities and evaluation. These outcomes provide valuable references at the national and international levels.

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Mirja Kälviäinen

Design Tools for Sustainable Behaviour Change

Abstract

The urgency due to our planetary boundaries and impact of climate change calls for actions to change the consumption habits typical in the developed countries. The change towards sustainable consumption requires new systems and solutions for satisfying our needs in the consumption areas of housing, energy and water use, mobility, food, products and services. Design for sustainable behaviour change involves tools to make a difference in consumer lifestyle choices and to make it easy for consumers to notice and adopt environmentally low impact solutions. This paper presents a variety of tools that help designers to come up with general themes and processes to create and promote sustainable lifestyle offerings. In addition, it presents tools that help to design supporting interactions with the sustainable lifestyle service processes. As an example of why and how to apply the tools is a case involving the communication challenges faced by Lahti Energy district heating.

Keywords: Tuleva project, sustainability, behaviour change, user driven design

Introduction

In facing the urgent demands for taking our planetary boundaries and the impacts of climate change into consideration, the most important notion is that consumption habits which are typical in the developed countries need to change drastically. The changes needed in sustainable consumption require new systems for satisfying our needs including downsizing and dematerialisation. Simply designing environmentally sensible systems, products and services is not enough, as we also need to get people to use them instead of high environmental impact solutions. Developers need to make a change in consumer lifestyle choices and make it easy for consumers to notice and adopt environmentally more positive lifestyle solutions. Within design, consumption studies and psychology there have been efforts to create tools that would help designers or other development

teams to come up with consumer lifestyle change supporting solutions. This paper presents some of these solutions: tools that help developers to come up with general themes, service processes and supporting interactions for sustainable behaviour and lifestyle solutions.

The requirements for sustainable lifestyles

The need for lifestyle changes moving towards environmental sustainability is urgent, since 72% of global greenhouse gas emissions can be related to our normal everyday consumption habits. (Salo & Nissinen 2017, 11). A key aspect in the change to a climate target of a 1.5 degree temperature increase would mean, in Finland, reducing the lifestyle carbon footprint to around 1/10 by 2050 and not allowing developing countries to increase their own footprints at all but rather to reduce theirs also (Akenji et al. 2019, V).

So called sufficiency-based lifestyle solutions, need to fit into citizens lives, promote the required behavioural changes and require strong citizen participation to be successful (Doordan 2013; Chick & Micklethwaite 2011). The Oslo sustainable consumption declaration has stated that production research and development is not enough, but also the social mechanisms and cultural viewpoints of consumption need to be studied to find new models to fulfil human needs in a sustainable and culturally-socially fitting way (Tukker et al. 2006, 11).

General findings in consumer studies suggest that there exists an attitude/behaviour gap between environmentally conscious attitudes and real consumption habits (White & Habib 2018a, 9). There is also a gap between planned environmentally conscious solutions and customer accessibility. Furthermore, there are different strategies to enhance more desirable customer behaviour. Doordan (2013, 60) and Chick and Micklethwaite (2011, 118-137) found that design-based pursuit for environmental sustainability could occur by enhancing the performance of existing systems, mostly product related behaviour or by co-creating sustainable lifestyle solutions.

In Finland it has been calculated that 68% of the carbon dioxide emissions are caused by everyday consumer choices and behaviour (Salo & Nissinen 2017, 11). Solutions to reduce the personal carbon footprints of Finns are most urgently needed for the following targets:

- **Housing:** Lowering the impact of accommodation and energy consumption with smaller and more efficient buildings, especially concerning: heating, cooling, ventilation, electricity, equipment and water use.
- **Travel:** Getting people to change their mobility habits into low impact ones with joint or public transportation, walking, bicycling, or discarding the need to move at all.
- **Food:** Consuming food in a less wasteful manner, using less meat or dairy products, shifting to vegetarian diets, local, seasonal food and operating with less packaging and by recycling waste and packaging.
- **Products and services:** Using material products efficiently and keeping them in use by purchasing for real needs. Making eco-efficient choices, thinking about long term use and repairing, sharing, recycling and repurposing material items.

(Applied from Salo & Nissinen 2017, 14-20)

The list does not take into account the opportunities and threats of the growing number of digital services. In the best cases these could reduce or replace part of the necessary and impact causing activities, mobility or products, but they can also lead to a rise in the amount of electricity used.

Research in design for sustainable changes in behaviour

Design for behavioural change appropriates a variety of psychological mechanisms and patterns that help to support sustainable changes in behaviour. In this manner, interventions can be made with information, guidance or support for choosing low impact use which allow the user to decide how to act. Users can be further encouraged to make changes with feedback, prices, choice editing or a script. The solutions can, of course, also contain automatic low impact functions. (Lilley et al. 2018, 45.) In addition to sustainability, design tools for behavioural change can be used for various purposes, where behavioural change or steering influences might be necessary for aspects such as promoting healthy lifestyles or safety. (Niedderer et al. 2018).

Many environmentally sustainable solutions have evolved from product centred thinking due to the lifecycle analysis point of view. Reducing the impact of the use phase in existing products or use environment has appeared as an obvious target for redesign. With the urgency of climate change, loss of biodiversity and resource scarcity the whole consumer lifestyle system requires substantial changes. Tools to encourage behavioural change can also be applied to new satisfaction-based solutions such as sharing-based product service systems, downsizing, discarding or displacing certain activities with large environmental impacts. According to Doordan (2013, 60) and Chick and Micklethwaite (2011, 118-137) design based, environmentally sustainable solutions include designing the efficient performance of existing systems (weak) or designing new sustainable lifestyle solutions (strong sustainable solutions).

Theme-based consumer frameworks

In the first stage, for strong sustainable solutions it is vital to look at the environmental impact research about beneficial activities for building low impact, sustainable lifestyles. This answers the question of what to design. Guidelines for lowering the consumption impact typically consider the impact areas of housing, mobility, food and products and services (Salo & Nissinen 2017, 14-20; Akenji et al. 2019, 25-31).

Theme level cultural-social influence factors have been analysed in the SHIFT framework (White & Habib 2018a), which is a tool that designers can use to encourage ecologically sustainable consumer behaviour. In the framework the key lessons from research into behavioural, e.g. sustainable consumption literature from marketing, psychology and economics have been distilled into a tool to help companies and marketers to promote sustainable consumer alternatives. The SHIFT framework presents five theme-based factors as predictors to engage consumers in ecologically sustainable consumer behavior. These factors are: social influence, habit formation, individual self, feelings & cognition and tangibility. The content of these

factors aims at overcoming perceived barriers and highlights the benefits of desired behavioural change (White & Habib 2018a, 9-11).

Social influence is about making a behaviour seem socially approved of, desirable and visible and includes social observable commitments or competition towards sustainable action (White & Habib 2018a, 13-17). New **habit formation** requires breaking down earlier habits. This can be made easy during life context shifts or by installing mild penalties. New, sustainable habits can be further supported by making them less costly, less effortful or easy to do or offering feedback, gifts, prizes and reminders (White & Habib 2018a, 21-26). Promoting sustainable consumer behaviours through the **individual self** includes personal norms, self-expectations and self-standards as feelings of personal obligation. A new behaviour or offering should have positive and consistent associations for the self. Self-efficacy can be supported by highlighting how the desired behaviour can make a meaningful impact (White & Habib 2018a, 29-39).

Specific pro-environmental behaviour related **emotions** include pride. This holds the potential for highlighting a sense of self-efficacy while guilt should be emphasised only in subtle ways. Arousing negative emotions such as fear also pays a role, but leads easily to avoidance. Hope is a vital, positive coping resource for solving challenges. **Cognitive factors** involve understanding what sustainable consumption behaviours are possible and why the desired behaviour is helpful. Information about the sustainable properties of the product are important, and are especially effective through eco-labelling and other third-party certified forms (White & Habib 2018a, 41-47).

Tangibility is important, because ecological consumer behaviours involve putting aside proximal, immediate and individual benefits and engaging in distal, future-focused and other-oriented ones. For this reason, future benefits should be emphasised. Local impacts make things seem local and proximal, instead of global. With concrete communications it is possible to highlight specific outcomes and steps. Vivid imagery, analogies to communicate impacts and outcomes and clear graphs are powerful communication means (White & Habib 2018a, 49-51). Visual and sensual elements connect to the emotional feel of activities.

As a general framework the SHIFT framework is not applicable alone. The first step in the SHIFT user guide involve setting the stage to be able to implement the SHIFT framework. This is due to the fact, that in-depth contextual understanding of the use situation and user behaviour is required. The use of factors should make sense given the behaviour and the context, the target and the specific barriers and benefits. Furthermore, there is advice in the SHIFT framework on how to use the factors as combinations to achieve desirable impacts (White & Habib 2018b, 5, 32, 13.)

A more specific theme-based tool has been created through empirical user interviews. In a study by Kälviäinen (2019, 103-110) a set of themes and issues that are close to the SHIFT framework factors but derived from real-life user practices in Finland, were developed. The study involved interviewing respondents in Finland. The respondents were asked what prevents and creates hindrances for green consumption and what supports positive changes towards it and what makes it interesting.

The findings by Kälviäinen (2019) indicate that consumers have self-interests that are stronger than altruistic motives to save the world. These include health, wellbeing, identity, capabilities, freedom, safety, trust, family bonds, other social networks, and cultural values. Close relationships, activities and competition with others and identity building through social acceptance are also important. Consumers need quick feedback and making the results of sustainable deeds visible, concrete and local is important.

Furthermore Kälviäinen (2019) also noted that typical barriers proved to be the lack of time and knowledge, expensive prices and pressures from various non-green criteria. This calls for easy to find access and user offerings. In Kälviäinen's research the respondents reported that the knowledge offered often seemed complex and contradictory to the respondents, and they felt the search for sustainable solutions required too much cognitive load, and it produced feelings of doubt. Finally, Kälviäinen (2019) notes that the communications should be clear, transparent and comparable to known things. Green consumption is often attached to effortful and strenuous activities which would be suitable only for truly devoted, even fanatical people, excluding normal, busy and enjoyment seeking consumers. Sustainable ways of living may seem difficult and dull. The combination of easy to use issues with social acceptability is important for consumers.

Process based tools

The SHIFT factor tool and tools like it do not suggest a structure to the behaviour change solutions, and for this reason many of the psychology-based tools note that behavioural change is actually a process. Tischner & Stebbing (2015) applied this idea and produced a process type of design frame for the purpose of offering information, overcoming obstacles and co-designing sustainable behavior together with the users.

In the Kälviäinen (2019, 110) user-interview-based findings, the general outcome, in addition to the drivers and barriers, was that supporting sustainable behavioural change would require a service process to support it. The beginning of this process is especially vital and problematic because it is so difficult for the consumer to become interested and find the sustainable solutions among the pressures of everyday life, amidst confusing information and in saturated markets.

According to Kälviäinen's (2019,110) findings, the service journey for customers should involve raising interest towards sustainable solutions through customer-based interest points. Consumers are not primarily interested in saving the whole global environment. This is too big. The solutions should provide personal meaning. They should answer consumer questions such as, "Is this healthy for me and my family?" "Does this provide wellbeing for animals?" "Can I save both money and environment in this?" "Does this provide a possibility for social interaction?" "Does this offer relaxation and nostalgia?" "Is this related to my outdoor hobbies?"

The information offered should be concrete and should be comparable to customer-known things. The production and waste chains and impacts of activities should be shown in a transparent way. Even negative and threatening things can make an impression in the midst of

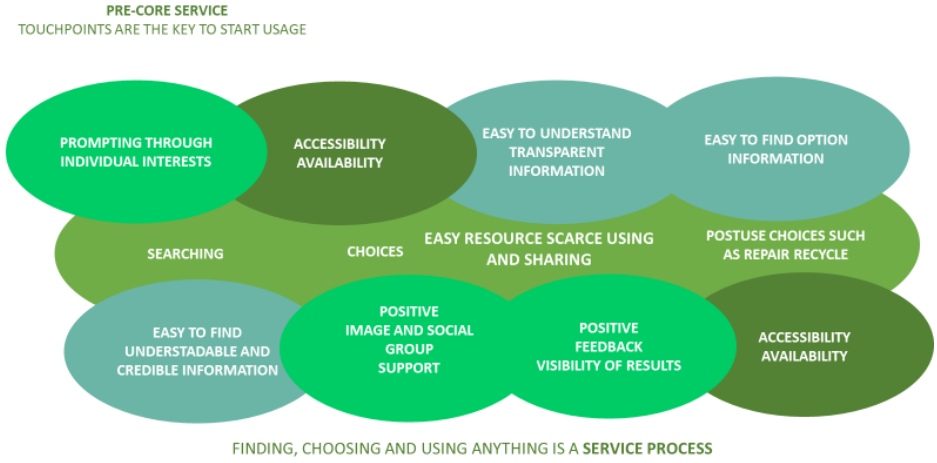

Figure 1. The sustainable solution for behavioural change should be built as an easy to follow service journey for the customer. (process applied from Kälviäinen 2019, 110)

everyday life but it should be combined with advice on what to do (Kälviäinen 2019, 109-110).

The service should be findable in the everyday context so that it can encountered and used easily in amidst other everyday pressures. In the best possible case it should be possible to find and use it in the same way as doing other necessary everyday activities. The choices and actions should be supported and rewarded. The way to use the solution should be easy or at least guided to the user (Kälviäinen 2019, 109-110). Depending on the solutions the solution process should guide the rest of the journey also so that it is easy to act in a sustainable way, such as sharing or by recycling what is left.

In the service design, the basic service journey type of structure describes the service moments of the service process flow. As an example, the design consultancy Bridgeable has combined the psychological-behavioural-change tools also with the idea of service design. For them the service journey represents an umbrella process that is required for the user and involves where to go forward as a service process. The specific behavioural psychology includes interventions which are possible to design for interaction

points which support the behavioural change process (Bridgeable 2018).The specific interactions with the service provider are built through touchpoints and physical evidence descriptions that guide the customer towards decision moments in the process.

Human behavioural psychology as touchpoint tool

The guidance tools on how to change specific human behaviour are based on findings of behavioural psychology. Choice research in behavioural economics has revealed that humans tend to display a bounded rationality in their decision-making moments through fast, intuitive thinking which is related to experience-based biases, heuristics and emotional influences (Samson 2014, 1-10). Additionally, findings on how to psychologically influence peoples' acts by softly nudging them has been a popular starting point in the psychological findings (Thaler & Sunstein 2008).

Based on behavioural psychology, tools are available such as the Behavior Change strategy cards by the Artefactgroup (2014). In addition to specific decision moments these cards point also to journey crafting by helping the user make a commitment in advance, establishing positive expectations and providing immediate and ongoing feedback. The general advice is to keep it simple so that the user is not overwhelmed and does not fall into decision fatigue by having to make too many decisions.

The advice in this set of strategy cards includes how to make the activity personal through user control, a sense of ownership, making the desired outcome align with the user's identity, highlighting emotional or personal stories and calling attention to relevant social norms. Scale tipping is advised by emphasising present, small gains to encourage desired behaviour, using surprise to increase the pleasure of gains, emphasising losses to discourage a behaviour and modifying losses to encourage other behaviour. Attention should be called to the desired option and uncertainty should be reduced by emphasising the desired outcomes (Artefactgroup 2014).

Rather similar advice can be found in the UX design advice cards called Persuasive Patterns. These cards are drawings with text-based explanations on how to influence actions. This card deck is not available as open access since it has been developed as a professional tool for UX design purposes. Although created to serve the UX design, the advice can be applied as a tool for many decision-making moments and service touchpoints (Toxboe 2018).

The Design with Intent card deck is a behavioural interaction toolbox including suggestions for user interfaces, visual communication and physical design (Lockton et al. 2012). This toolbox has been developed by experimenting in design workshops. The open access card deck includes insights and patterns for influencing behaviour from behavioural, cognitive and environmental psychology perspectives. The cards can be used for analysing existing idea spaces, making models of the user, target behaviours, random ideation and as a large set of decision making tools for long-term idea production. The Design with Intent card deck is grouped into eight 'lenses' representing different research fields to support behavioural change solutions from various perspectives (Lockton 2018, 63-66).

One of the lenses in the set of cards is the architectural lens, which contains suggestions which influence user behaviour according to forms or materials, hiding things or structures of systems. The error proofing lens treats deviations from the desired behaviour and applies typical usability rules such as confirmation, choice editing, defaults or modifying sizes. The interaction lens targets user system interactions with process feedback, guidance and personification. The ludic lens presents game-based and playful interactions such as challenges, targets, making things playful and enjoyable to spread. The perceptual lens enhances visibility, guidance, mood and understanding through meaning-based interventions, such as metaphors and compositional elements. The cognitive lens acknowledges heuristics and biases as influences by providing engagement, framing, renaming or social proof. The Machiavellian lens proposes even manipulative means to affect and control users. The security lens prevents undesired behaviour through countermeasures, both physically and online (Lockton 2018, 65).

Picture 1. Using the Persuasive Patterns cards for the Lahti Energy communication case workshop. (picture Kälviäinen 2019)

Applying the tools in practice

Students on a sustainable design course applied the tools in practice to the communication challenges faced by Lahti Energy concerning their district heating. Lahti energy is a Lahti city owned company offering diverse energy solutions including a locally distributed heating pipe. District heating is the company's main offering and the aim is to spread regionally to several nearby communities.

According to independent research results in 2019 the district heating provided by Lahti Energy produces 2/3 less CO2 emissions than the average in Finland. District heating is a sidestream of heat from local electricity production. The company had needs communicating the environmental benefits of their district heating in a more efficient way since diverse renewable energy production means might compete with their offering. They would like to invest in maintaining and establishing new long-term contracts for their district heating. The company is also developing new business models with new products and services connected to hybrid energy systems and consulting on sustainable energy combinations.

Issues with the district heating systems involve customer definitions and how they feel about the company, the brand, the products and services. A larger customer research project was about to start looking at how customers are coming to heating services, how the services answer their needs, both with already existing district heating systems and by examining the opportunities for the new systems. Efficiency and ease of use with the heating services were not enough for customers because feelings also played a role in choosing heating systems. For this reason, the company wanted to make a proper differentiation. Even with the regular customers the company had doubts as to whether they were telling them the right things. Furthermore for the companies and building managers or building owners there were no allocated services.

With the company value proposition In a wise way green the students were asked to help the company to communicate environmentally sound district heating solutions and build communicative services around these and related solutions. The identified customers were home-owners and the house care companies with building managers. The students carried out some research and ideation using the research and design tools for behaviour change.

General themes for the communication and interaction challenge could be created by using the Shift material. This helped to think about general influence factors and routes for credible and effective sustainable communication. The process-based service journey tool helped to combine the general factor ideas into a service process. Specific interaction solutions were then created by using different behavioural change cards, looking at the interaction points and decision-making moments in the service processes.

The solutions designed are not presented here in detail since they form a part of the strategic work in Lahti Energy. The solutions included making the district heating and the related benefits clear, visible, tangible, trustworthy and actionable in a variety of concrete ways and through various networks, activating the Lahti citizens in playful and socially interesting ways and organising housing specific deals, benefits,

activities, challenges and prizes. The latter also promoted feelings of ownership in people's own blocks of flats.

Insights for design purposes

Marketing has been effectively (even manipulatively) used to make consumers consume too much. It is possible to use the available means and the research on behaviour change also to make people consume less and in ways that are not so harmful to the planet. Design tools for sustainable changes in behaviour can offer possibilities to ideate means to build sustainable, systemic solutions, support information related to them, in addition to their finding, choice, use, sharing and recycling. These design tools can also be used as tools for evaluating existing sustainable solutions and how they should be communicated and how their use could be supported. The important notion in using the different types of tools on offer is that some tools are suitable for making wider activity frameworks for solutions and selecting socio-cultural themes that are interesting or important to cover. Other tools are suitable for ideating the specific interaction moments that support the user in choosing and using the solutions. It is possible to identify numerous similarities in the different tools, but each of them has also some unique approaches. The socio-cultural aspects, specific interest themes or advice on how to offer things, process-based guidance and behavioural interventions all are important in making new sustainable solutions findable, understandable, accessible, desirable, usable and sharable.

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Noora Nylander

Fiber-Based, Bio-Based and (Connected) Future of Packaging Design

Abstract

Research institutions such as Sitra and Innventia have been forecasting the future of life and packaging. For decades research and companies have been answering the requirements of climate change moving towards carbon neutrality by developing new fiber-based solutions. Lappeenranta University of technology, Packaging Technology research group and Lahti University of Applied Sciences are engaged in a joint research project called KUPARI which is also seeking answers to this same question. Additionally, a lot of technology has been invested in smart packaging either with connectivity or by making packaging more sustainably smart. The development of new technologies has not been fast, because it is difficult for fibre-based packaging to compete with traditional plastics. However, we are now at the peak and see solutions coming onto the market. For instance, solving bottleneck problems, rising consumer demand and big brands investing in research all help. This paper discusses future technologies for packaging and shows some solutions appearing now on markets.

Keywords: future, packaging, material, technology, fibre-based

The KUPARI research project is a co-operation project between Lappeenranta University of Technology, the Packaging Technology research group and Lahti University of Applied Sciences education group of Packaging Design and Branding. The aim of the project is to pilot carbon neutral fibre and bio-based packaging solutions in South Karelia and the Päijät-Häme region for small and medium-sized enterprises (SMEs). This aim is being met by creating new possibilities for the use of new materials in companies by developing ecological material and design solutions, as well as investigating the use of existing manufacturing processes with new kind of materials. Sitra, the Finnish Innovation Fund company, and

many other institutions have forecasted trends and megatrends which affect packaging research.

Megatrends and the bioeconomy affecting the future of packaging

The aim of forecasting the future is not to define it precisely, but to produce different understanding about possible future scenarios in a long term and in a dialogue.

Industry and research is looking at the forces, megatrends, that change our future. However, identifying weak signals is crucial for the future as well. Weak signal is a sign of the rising issue or first symptom of the change that may become significant in a future. Similarly, black swan, a surprising and sudden event that may radically change the way things happen, might be a weak signal of future. (Sitra 2018)

Hänninen et al. 2013 have stated that the future of Finnish well-being lies in bio-economics. Global megatrends have shaped the Finnish forestry for decades, but the demand for fibre-based products is now increasing. Climate change and the scarcity of natural resources call out for carbon neutral and resource efficient solutions. This megatrend in which society aims to replace fossil-based materials and energy with renewable options creates new possibilities for the forest industry. While demand for traditional print media and paper is decreasing due to structural changes in information technology, there is a rising need for new biobased solutions in different markets (Hänninen et al. 2013).

Innventia is a research company which operates in close collaboration with industry and research. They focus on creating innovative ideas for companies operating with wood-based materials throughout the entire value chain of biorefining, paper, board, packaging and new materials. Together with Kairos Future they created the “Packaging 2020” market scenario for packaging most of the ideas still relevant to future of packaging (Innventia 2012).

Picture 1. Future of environmentally smart and intelligent packaging. (Noora Nylander)

In the following the Sitra and Innventia megatrends concerning packaging are discussed:

Trends affecting brands and designers

Sitra Megatrends (Sitra. 2017):
Culture of experimentation

Experimental branding (Neumeir. 2016)

- New ways of marketing
- Static brands become liquid
- Brands focus more on meanings and immaterial aspects. Additionally, they create more values and experiences. Instead of brands having set customer segments, people are creating customer tribes, which help to sustain brands.

Trends affecting materials and technology

Sitra Megatrends (Sitra 2017):
Our understanding of the globe's bearing capacity is increasing. The sustainability crisis will become more and more acute and importance of circular economy is rising.

Innventia Packaging 2020 (Innventia 2012):
Lean, green and convenient: for packaging this means that the environmental and user-driven thinking are becoming key aspects in product development.

Proud packaging:
The role of packaging is changing and it is not seen simply as trash but as a valuable part of the product. Intelligence is increasing in packaging as well. Materials are costly and waste is valuable. Materials are becoming valuable resources. Old, closed junk yards will provide a future mining possibilities.

Plastic-freeness
Creative brands will create plastic-free experiences in the future. The EU strategy on plastics is to ensure that by 2030 all plastic packaging should be recycled. Eleven leading companies have set targets to manufacture and use packaging that are 100% reusable, recyclable or compostable.

Trends affecting consumers and consumption

Sitra Megatrends (Sitra 2017):

- Smart goods and services will become more and more common.
- Sufficient is enough: “Well-being is not increasing by acquiring material, but by delimiting it. The value of good living is becoming more important.” Digitalisation is rising. Urbanisation will continue and families and consumers are changing.

Innventia Packaging 2020 (Innventia 2012):

- Old, urban & middle-class increasing in population
- Personalised food and eating experiences
- New sources of nutrition
- New cultivation methods

What is rising?

- Importance of healthy products creates demand on variety in products.
- Safe society vs. insecurity creates demand for transparency and honesty by companies and politics.
- Shared consumption – cooperatives, purchase circuits, sharing
- Small households – relevant packaging sizes, where food waste is based on size and consumption of the household
- Convenience e.g. demand of easy on-the-go food but in a responsible way

Millennials
(Generations Y and Z)

Digital natives can shop through social media or in brick and mortar stores, but products need to be available for them digitally wherever they are sold. Thus, S-commerce and the e-tailing of food is increasing. New generations value more ecological products than just a low price. They accept change easily and embrace new things quickly. They are willing to share and create information, but they require dialogue and interaction with brands more than previous generations.

Technology and material development

Technological development is rarely fast. Development is typically evolutionary, takes time and happens in phases. New technologies that are developed today in laboratories, will appear on markets after years or tens of years, if they appear at all. Technology is not developed in a vacuum but is a dialogue between different factors, e.g., society, consumer attitudes, markets, legislation and politics (Hiltunen & Hiltunen 2014).

The market factors that drive the entry of technology into society include: market pull, consumer choices, values and attitudes, standardisation and rich supporters. On the other hand, market factors that slow down the adoption of new technologies include: standardisation, the wrong time to market, lack of money, the high price of technology and a lack of demand in the markets. Lately consumers have been more interested in environmental values, which creates a moral demand for companies to develop and offer more sustainable solutions (Hiltunen & Hiltunen 2014).

Solving bottlenecks, technologies act as an accelerator for development for a new technology (Hiltunen & Hiltunen 2014). Examples of bottleneck breaking technologies include new solutions for fiber-based packaging which are formed from pulp in a similar way to conventional plastics, as well as coating fibre material so that it is proof against, e.g., moisture, water, grease, oxygen and other gasses. Hence, research and industry are developing long-term solutions that are feasible compared to plastics. One key issue is to be able to use existing manufacturing methods. Thus, in the KUPARI-project, existing manufacturing machinery is being tested for paper-based solutions. Sulapac packaging and EcoXPac paper bottles, which are described more in detail later in this text, are good examples of long-term technological development. Forming, moulding and coating fibres has been discussed for over a decade, but this autumn many concepts are starting be ready or almost ready for markets and are being discussed more widely in the media. Additionally, the interest of big brands to invest in development plays a key role in the rise of these technologies.

Forecasting the penetration of new technology can go wrong. For example, Darryl Zanuck, who was a representative of 20th Century Fox stated in 1946 that "Television won't be able to hold on to any market it captures after the first six months. People will soon get tired of staring at a plywood box every night," (Hiltunen & Hiltunen 2014). Thus, understanding the value for people that new technology can create is also crucial in design. How will these new packaging solutions be appreciated by markets in the end?

Nanotechnology and biomimicry enabling future packaging materials

The general definition of nanotechnology is that the phenomena or process happens below the 100 nanometre (nm) scale. Even though nanotechnology has been a hot topic recently, it has been available already for years in industrial processes such as creating long chain molecules while manufacturing plastics. In the other hand nature has its own nanotechnologies: lizards can adhere and move on any surface due to hair like structures on their feet called setae creating an attractive force (van der Waals'-force), while

the lotus-phenomena in a lotus flower provides self-cleaning properties due to the ultra-hydrophobicity of its surface (nano)structure (Hiltunen & Hiltunen 2014).

Bioscience is an area of research that looks into living organisms, e.g., micro-organisms, plants, animals and humans (Hiltunen & Hiltunen 2014). On the other hand, biomimicry studies biotic processes that allow organisms to meet their needs and adapts these processes for human systems. Biomimicry requires research into the original and appropriate biological model and also consideration of how it could meet human needs. (Belletiere et al. 2013, 10-11).

The difference between natural nanotechnology processes compared to industrial ones is that in nature, a product such as a spider web or clam shell is made for a purpose and without wasting raw materials or energy. In addition, living nature rarely uses metals but utilises compositions of carbon structures and amino acids in its processes (Hiltunen & Hiltunen 2014).

Picture 2. Example of composting packaging by Sulapac. (Noukka 2018)

When bio-based cellulose is chopped up as into nano-cellulose components, the wooden-like properties disappear. Thus, nano-cellulose has plastic-like properties and is easier to modify for a range of applications. In addition to using nano-cellulose in packaging material applications to create bio-based and bio-degradable materials it can be used for other applications as well, e.g. in various products, food and medicines (Hiltunen & Hiltunen 2014).

Bioplastics have been under development and available on markets already for decades and demand for them is rising. The main issue in bioplastics and composites made out of them is their origin. They can be produced from food, e.g. corn and their cultivations may be unsustainable and non-ethical in many ways. Due to this, the northern forest industry holds great potential to provide raw materials for material development. One of the promising bioplastics is polylactic, which is made out of lactic acid. Another common raw material is starch. Starch-based bioplastics are common raw materials for bio-based packaging films (Hiltunen & Hiltunen 2014).

Sensors connecting people and packaging

Digital data is collected daily from humans, but in future data will be supplied from physical objects as well. Thus, by 2020, RFIDs and printed electronics connected to the Internet will be integrated more and more with objects such as groceries, clothes, cars and other household items (Innventia 2012).

Sensors measure and sense the physical or chemical environment. Hence, in packaging applications they usually sense the inside environment of the packaging and send signals about it to the outside environment (Hiltunen & Hiltunen 2014). Sensors recognise physical things: speed, acceleration, position, distance, flow and location (Hiltunen & Hiltunen 2014). Additionally, sensors recognise pressure, heat, moisture and light. Sensors also recognise the biological environment and chemical compositions. For instance, food sensors in packaging recognise degradation and metabolites, pathogens, toxins, allergens and other components such as ethanol and antioxidants. To communicate with people sensor technology requires a system that includes input (the sensor), storage (for sensed information) and output. Output can range from feedback via a display (visual), voice (audio) or vibrator (tactile). The most common system architecture in packaging applications consist of chemical sensors with a visual output.

The Innventia Packaging report (Innventia 2012, 41) states that if Swedish consumers would select intelligent packaging attributes, then 55% would prefer "packaging that could indicate when the food inside had gone bad/spoiled, regardless of what the label says". However, only 15% would like to see intelligence such as "packaging that could communicate from the refrigerator, e.g. with your cell phone, and tell you when you were running out of certain items". Time will tell whether new millennial consumers would see these kinds of solutions as necessary for them. The rise of e-commerce might shift this scenario forward.

What is happening in material development now?

Plastics are connected to the bioeconomy. This refers to all the different bio-based or fossil-based

plastics, composites and fibre-based materials. A material is a bio-based plastic if the raw material has polymer chains mainly constructed out of carbon atoms. Recently the use of raw materials from nature, such as starch, cellulose, different sugars and plant oils has risen. Polylactic acid can be used to produce bio-degradable pouches and it is made for example from corn starch. A new innovation by Welmu Oy and VTT is cellulose based foil, which works in a similar way to “Elmu-kelmu” shrink wrap. It is worth noting that not all bio-based plastics are bio-degradable. For Instance, in Brazil, sugarcane is used to produce bio-ethanol. However, its end product is similar to that produced from fossil-based ethene and is non-biodegradable (Pohjakallio 2018).

Picture 4. Example of mushroom packaging by Ecovative. (Ecovative 2019)

Löfbergs Lila states their coffee packaging is climate smart. Smartness in this case means that there are separate layers of plastic film and paper. Hence, the company answers the rising demand for the separation of different materials in packaging for the circular economy.

Sulapac (composite):
Sulapac has provided a material that is a microplastic-free and fully biodegradable alternative to traditional plastics. At the moment, its preferred recycling method is industrial composting (Sulapac 2019).

Woodly (wood-based foil):
Woodly Oy is technology company that is developing wood-based, transparent packaging foils. The company started development work in 2011 and has produced prototypes of new kinds of packaging, for example for Järvikylä Herb-packaging and salads. The innovation relies on solving climate change problem by creating cellulose-based foils (Kaminen 2019).

EcoXpac:
Carlsberg already announced a couple of years ago that they would bring the first paper-based beer bottle to the markets. However, there is no available solution on the markets yet. Meanwhile, Billerud Korsnäs and ALPLA have joined forces to develop the EcoXpac paper bottle. This new kind of paper bottle is blow moulded and folded. Teknos Oy announced in October 2019 that they are joining the Paboco paper bottle company, by developing surface coatings for paper bottles (Teknos 2019). In material development, leading brands such as Carlsberg, Coca-Cola, L'oreal and Absolut are participating in developing this revolutionary bottle (Teknos 2019).

> Teknos, 2019: "Today, the first-generation paper bottle can be produced from sustainable sourced paper material, combined with existing barrier technology. The next step is the transition to a fully circular bottle solution, including a bio-based barrier. In the long term, the paper bottle will become completely bio-based."

Mycelium (Ecovative)
The story of Ecovative and its mycelium based materials is already older. For example, companies like Dell and Ikea have been working with mushroom based materials many years. Thus, this trend of future of grown materials is new and interesting. Ecovative uses mycelium, the root structure of mushrooms, platforms to grow advanced materials. (Ecovative 2019)

Picture 3. Example of Paboco paper bottle. (Paboco 2019)

Time for totally new scenarios in packaging design

Biomimicry, looking at natures' way of growing materials and then using these ideas in the technological development of bottle necks for fiber-based packaging have risen to an interesting point today. Fibre-based, wood-based or bio-based materials are interesting solutions to help fight climate change and meet new consumer demand. They provide new packaging technology, but also future options for packaging designers to create totally new scenarios. It is sustainable to imitate nature, but it is also important to value materials and avoid waste. Thus, the image of packaging as a cause of pollution might shift and their correct importance as a part of supporting and protecting the content will remain.

Packaging connects consumers with new technologies but can also be smart for the climate. This brings opportunities to designers and brands to create clever material solutions and visions. Connectivity needs to be sustainable as well. Many bio-industry companies, and the former paper industry are developing sustainable intelligence. For instance, this can mean environmental and bio-based electronics which may be printed onto future packaging. Many of the companies mentioned in this article have also stated that the development of sustainable intelligence will be part of their future research.

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Ari Känkänen

Ready for the Professional World After a Design Education?

Abstract

Design is a field that is evolving and developing in constant interaction with the surrounding world and the changes undergone by the latter. Given that the capacity to adapt to continually evolving needs is one of its defining characteristics, it is in fact difficult to provide a precise definition of design or its various manifestations. While some design practices and processes can be repeated, a society in flux requires that the field of design constantly evolves and adapts. New opportunities for design work are constantly emerging as the number of applications to which it can add value is growing. Whether the need for design arises from environmental questions, consumer behaviour, societal processes or the possibilities afforded to us by new technologies, new challenges always call for new kinds of competence. And this, in turn, presents new challenges for education. With what kinds of skills and expertise should degree programmes provide their students with to meet tomorrow's professional needs? Moreover, is it possible or even reasonable to expect that all of these competences could be achieved in the course of a four-year degree programme at a university of applied sciences, for example?

This article examines these competence needs from the perspective of the skills and expertise produced by the Lahti University of Applied Sciences Institute of Design, both in the context of its degree programmes and its students' collaborative projects with the professional world. In addition, it outlines some of the measures taken to develop design education at the national level. The article references the ongoing Finnish Design Academy project funded by the Ministry of Education and Culture. The project is currently producing data intended to forecast which competences will be needed by the society of the future.

Keywords: design competence, design education, designer identity, professional life competences

What kinds of competences should design education produce?

Recently, there has been much discussion on the kinds of skills and expertise designers need. For example, these needs have evolved with regard to instrumental skills and the competences related to various processes and practices. Digitalisation and technological development are constantly providing new instrumental possibilities for design work.

However, taking advantage of these opportunities in an effective manner requires both a capacity for learning new skills and interest in developing working methods which are compatible with the particular needs of the design industry. XR technology and its design applications provide an illustrative example of such continually developing tools. In the current design industry environment, network-oriented approaches and collaborative planning are becoming increasingly important. In order to involve users and experts from different fields in the process, today's designers need strong interactive and communications skills. New skills are needed in service design, for example, whose processes almost always entail user participation. The need for service design and interest in service design education have translated into a significant increase in available training opportunities, offered in the form of continuing education products as well as new degree programmes. The competence profile of designers focused exclusively on the design of dematerialised content differs somewhat from that of designers working in manufacturing industries. Therefore, the content and competence outcomes of design education should always be considered with a specific field of design in mind.

The national "Design Finland" (FI: "Muotoile Suomi") programme, launched in 2013, gave the following assessment of the future of design:

> Financial success is increasingly based on a multitude of competences and dematerialised factors. Services constitute an increasing share of consumption. Many previously material goods have become dematerialised. Moreover, even material goods now derive a significant share of their value from services sold in connection to them and the know-how involved in their production. (Opetus ja kulttuuriministeriö 2013)

A mid-term review of the programme conducted in 2017 confirmed that competence needs have in fact evolved in the anticipated direction.

Most of the work on the Design Finland programme was carried out in 2013. Almost all those interviewed during the assessment process drew attention to the significant expansion of the concept of design that has since taken place. On the other hand, the stance adopted while preparing the programme sought to eschew a strict definition of design, preferring instead to work within a kind of open conceptualisation that applies the tools of design to interaction, the public environment, service provision and communications (Oosi et al. 2017).

In 2016, Ornamo, Opteam and Mediahub Helsinki carried out a project entitled "Muotoilutyön uudet muodot" ("New Forms of Design Work"), which focused on new kinds of professional skills. With the help of a test group that comprised

15 experts with degrees in design, the project examined suitable approaches to training.

Several participants saw their in-depth vertical competences as narrow and limiting (the I competence profile). Even the T competence profile, which combines vertical and horizontal expertise, is no longer sufficient on the job market, as experts are now required to possess in-depth knowledge of a number of areas in addition to comprehensive horizontal competence. Jobseekers with several areas of competence are able to stand out from the competition and enjoy a more diverse range of employment opportunities (Ornamo 2016).

Competence outcomes have always served as the starting point for the formulation of education curricula for the design field. In order to manage overall competence and its development over the course of the studies, competence is often divided into smaller components. In the most recent update to the Institute of Design's curriculum, design competences were divided into five areas. At a general level, competence needs were determined to be almost identical regardless of the specific field of design. At the level of implementation, the content could be adapted to the context of the sector in question. As an example, capabilities and means to influence environmental impacts vary from industry to industry, even if the principles of sustainable design, formulated on a more general level, are common to all sectors.

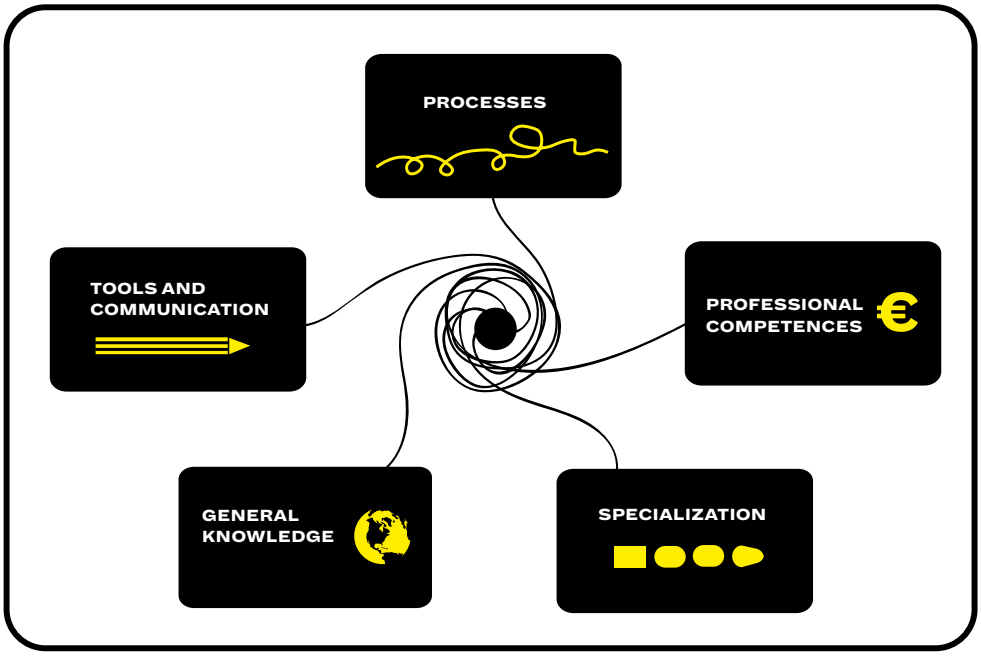
The first grouping of sub-competences is the so-called “general education” component, comprising a number of skills including those related to languages, history, and future proofing. This grouping also examines human beings, society, environmental questions and the principles of business as well as industrial processes and manufacturing methods. The goal is to allow students to form an understanding of the various factors that influence design work and of the context in which this work is carried out.

Process competences constitute the second sub-competence grouping. This grouping comprises creative methods, research and development skills as well as various design processes and user-driven design methods.

The third category focuses on tools and communication, and includes skills related to verbal and written communication, model-building, 3D and graphics, and drawing.

The fourth grouping is dedicated to professional competences, which become necessary by the time students enter the job market. This category includes skills related to entrepreneurship, business, legislation, cooperation, and marketing. Traineeships are also categorised under this sub-heading.

The fifth grouping comprises specialisation competences. These courses are intended to help students specialise in a specific field of design and its particular characteristics. This grouping includes all major-specific content, such as interior architecture or packaging design courses. Various projects, alternative learning platforms and thesis are also considered integral components of this competence grouping. When all five categories are brought together, it becomes clear that the amount of content to be learned is vast. Awareness of competence needs is only the first step, as organising courses in a way that allows students to internalise their content presents another challenge. Having mastered



Picture 1. Design competences. (Känkänen 2019)

the basics of their field, the students' capacity to learn grows as their course progresses. New competences are always built on the foundations laid by previous learning. In this light, the order in which the various components are taught also plays a crucially important role. Courses should include content from several of the five categories, and repetition should be used to ensure that intended learning outcomes are achieved.

The Design Finland programme drew the following conclusions regarding the current state of design education: As the scope of design research has expanded, design education has gained a significant amount of new content, which, in turn, has improved the degree to which designers' competences match the needs of the labour market. However, the quality of design education is inconsistent, and the skills it offers are not a perfect match with regard to labour market needs. The skills and expertise of design professionals can be maintained and updated through continuing education. On the other hand, providing the user-driven products and services that are increasingly important to businesses requires higher levels of horizontal competence (Opetus- ja kulttuuriministeriö 2013).

Lahti University of Applied Sciences is currently coordinating a design education development project known as the Finnish Design Academy. Funded by the Ministry of Education and Culture, the project seeks to respond to the challenges facing design education in Finland today by examining new opportunities for closer interaction and cooperation with the professional world. Under one of the project's work packages, an assessment is being carried out of the current state of Finnish design education and the degree to which it meets the needs of the labour market. It also analyses future designers' competence needs and formulates policy recommendations for meeting these needs through education. One of the measures taken under the package has entailed interviews with design experts working across a number of sectors. Interviewees have included design managers and industrial designers as well as design agency designers and owners. The interviews have sought to explore these experts' views regarding a designer's core attributes and competences. Not all of the interviews have yet been carried out and the collected data remains to be comprehensively analysed, but a number of points have already been raised that corroborate the observations of those in the field of education.

Design tool and process management was seen as crucially important. Many among those interviewed stressed the role of designers as conveyors and visualisers. In their experience, recent graduates exhibit a relatively high degree of proficiency with the tools related to these roles. They also pointed to personality traits such as extroversion and a capacity for cooperation as beneficial from this perspective. With regard to processes, attention was drawn to the methods of user-driven design, which were often mentioned as an indispensable skill. According to the interviewees, designers of material products benefit particularly from an understanding of material and manufacturing technology, while business skills were seen as important for both product and service designers. A solid general education and a comprehensive understanding of the context for which the designed product or service is intended were similarly seen as crucial. When asked whether competence should be vertical or horizontal, most respondents answered that designers should have a command of basic skills and expertise, and ideally complement these with an excellent understanding of a specific field. An active attitude and burning passion for design work was seen as particularly important for recent graduates. In some cases, a good attitude was considered even more important than actual design skills. When interviewees were asked whether their education had adequately prepared them for their current positions, there was significant variation in their responses. Most respondents said that the competences they had acquired were mostly sufficient for basic work as a designer, but the skills required of entrepreneurs, for example, had to be learned after graduation. Similarly, familiarity with practices specific to a particular sector or company was achieved only after entering the real working environment.

Competence assessment in the design industry

While degree programmes have set learning objectives, competence in the design industry is not as easy to define as that in the healthcare industry, for example, as the skills required

in certain positions in the latter are specified in legislation. Furthermore, while certain conclusions can be drawn about a person's competences based on achieved qualifications or the profile of the design school that conferred them, it is established practice in the design industry to assess competence on the basis of personal work samples. A solid portfolio is therefore one of a designer's main assets when entering the professional world. For this reason, design education includes courses that have a particular focus on planning and putting together a portfolio. Other courses entail carrying out practice work whose products and processes are presented in the portfolios. Unfortunately, employer feedback often describes portfolios as visually high-quality but lacking in information regarding the personality, working methods, processes or thinking of the designer in question. If the presented work includes group projects, it is not always possible to identify the contribution and skills of the portfolio's author. Another problem relates to the difficulty graduate designers often have putting their competence into words. A report based on a training pilot carried out by Ornamo found that working designers also experience such problems. A majority of the coached designers had difficulty verbalising their skills and the services they offer (Ornamo 2016).

Picture 2. Portfolio. (Seppälä 2015, 9)

Picture 3. Designer card. (Räisänen 2015)

Identifying competences

Identifying competences, building a solid designer identity, and communicating these during studies and beyond are crucial elements for success on the labour market. Identity-building naturally takes place in a gradual manner as a designer gains experience and works on projects, but it is nevertheless worth discussing with students from time to time.

Over a period of several years I taught a course entitled “The Identity of a Designer” to students of industrial design and vehicle design. The aim of the course was to invite fourth-year students to reflect on their future and analyse how their current competences correspond to the requirements of their professional goals following their graduation. The course also included a component in which students, with the help of a set of questions supplied in advance, told their stories starting with why they first chose an education in design. These stories were recorded on video. In addition, students were asked to analyse their

competence level and the aspects they saw as needing improvement and to describe their post-graduation plans. Next, the students presented their portfolios to me. I assessed them through the lens of a fictional employer who was in the process of recruiting the students but had no other information on them or the content of their video interviews. In a third assignment, the students created so-called designer cards in which they had to summarise their designer profiles in three elements. The elements were a self-portrait, a one-sentence statement of the student's design philosophy, and pictures of three projects the student chose to present. The purpose of the card was to practise presenting as much information as possible in a concise format whose contents could be absorbed quickly by readers. The three assignments were designed to help students understand how and what to communicate, and to emphasise the importance of a coherent message, regardless of the chosen communication channel.

The individually recorded videos were viewed together and assessed with regard to body language, speaking skills, and other aspects. By watching the videos, the students also learned a lot about each other. They gained a deeper understanding of the factors that made their fellow students the designers they were. On the other hand, the presentations could also confirm opinions students already had of each other. The portfolios I assessed had been produced prior to the course in question. In my feedback I compared the impression given of the student by the portfolio with the self-assessment he or she had provided in the video. The students' maturity, determination, and communication skills were clearly on display in these two documents. In some cases, there were substantial discrepancies between the content of the portfolio and the design competences or interests expressed in the video, with the former lacking the ideas communicated by the latter. In other cases, the students' conceptions of their own designer`s identity and the ways in which it should be presented were clearly and coherently conveyed by both the portfolio and the video. These students were determined to acquire new skills and had focused their energy on the kinds of projects that were pertinent to their chosen career path. When this had been discussed, the designer cards produced during the course were of a higher quality, demonstrating that a substantial amount of information can be conveyed by only a few simple elements in this case, a concise worded message, the context provided by the self-portrait, and projects presented in a certain way. The purpose of the simplification exercise was also to show that even portfolios do not always need to be a comprehensive showcase of a designer's skills, as employers who hire students have pointed out that the time they have to review portfolios is limited. Portfolios should therefore be seen as a means of securing an interview, during which it is then possible to convince a potential employer.

Faster and better prepared for professional life

It would no doubt be to everyone's benefit if students' transition into employment took place faster than it currently does. If the time spent studying is excessively long, there are issues of cost for both students and educational institutions. In recent years, the financing indicators of Finland's universities of applied sciences have incentivised the rapid integration of students into the labour

market. The previous indicator of 55 credits per year or the future indicator related to the number of students graduating within a set target time have a direct impact on the funding higher education institutions receive. The limited time students spend at university does not allow them to endlessly polish their skills during their studies. However, experience has shown that acquiring a command of the diverse set of tools designers need takes time. Competences such as those related to visual presentation require rigorous practice, personalised feedback and guidance, and a sufficient number of repetitions. Some competences can only be developed through practice and guidance from colleagues in an authentic professional environment. Prior to their graduation, students are given opportunities to acquaint themselves with the professional world in the form of various work projects or traineeships. In this vein, the Institute of Design has created a learning environment that simulates a design agency, in which students can complete part of their programme. All professional contacts serve as reliable indicators of a student's current level of competence. When assessing the preparedness of Institute of Design graduates for professional life, former students and employers alike have shared positive feedback regarding the impact of work projects.

Students' pre-existing skills take on particular importance when the goal is to achieve solid professional competences and a timely graduation. Such skills may have been acquired in the context of earlier studies or work experience. Pre-existing skills can be accepted as part of a student's degree, or they may allow him or her to focus more intensively on learning new things. Recognition of experience gained in other fields is not always possible, however. In such cases prior knowledge and skills often enable students to adopt an innovative and unique approach to design. A degree from another field also makes it possible for a student to combine different skills and expertise, which can be a valuable asset when attempting to stand out in the labour market. Differences in students' backgrounds also mean that completing their programme quickly is not a suitable option for everyone. Students come to the Institute at different stages of their lives, and some require more time to reach a certain level of maturity and find their own path. At its best, the four-year design degree programme is a major project, which begins with a wide range of options that then gradually gives way to a determined effort towards a single interim objective, the degree itself. After a few years in the professional world, many rediscover their desire to develop themselves and pursue master's degrees at universities or universities of applied sciences.

On a final note, it must be pointed out that as the field of design is extremely wide-ranging and multidimensional, a designer's professional development and identity-building is always ongoing regardless of background and education. Designers are constantly confronted with new problems to solve, and every task is a challenge whose completion requires that they gain an understanding of the issues at hand, which, in turn, means that they must constantly challenge and update their expertise. Design is, in itself, an exercise in lifelong learning. Creating something meaningful very often also entails learning something new. Even those who receive a high-quality design education no doubt have a lot left to learn in the professional world.

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Picture 1. Känkänen. 2019. Design competences.

Picture 2. Seppälä. 2015. 9, Portfolio.

Picture 3. Räisänen. 2015. Designer card.

Kati Kumpulainen

Developing New Business in the Rural Areas through Service Design

Abstract

A challenge in rural area service and tourism companies is that services and activities are available, but companies do not know how to produce, market or sell them effectively enough. Companies should understand better what their customers value and use the knowledge systematically to develop services and improve the customer experience.

The PALMA - Developing New Business in the Rural Areas through Service Design - project (funded by the European Agricultural Fund for Rural Development) has helped rural entrepreneurs to comprehend the role of service design and the importance of understanding consumer behavior in service development. This understanding will improve service quality in companies, and it helps companies to develop products and services, which are based on real needs of customers.

During the project, rural tourism entrepreneurs participated in a series of workshops and benchmarking journeys. They learned about the benefits of service design and how to utilise it in their own businesses. The key of the project was interaction and sharing good practices between the more experienced reference companies and the developing companies.

Based on the workshops, meetings and interviews with entrepreneurs, the PALMA model was created. This will help entrepreneurs to understand how to think in a user-driven way while developing services. The model is visualised in the form of a circle, which emphasises an iterative development cycle. It is divided into four themes: 1) user understanding, 2) productization 3) branding and 4) marketing communications. All these themes are presented from a user centric point of few.

In this article the advantages of service design for service development and SME companies are discussed. Additionally, the PALMA model

and best practices which were learned during the project are introduced.

Keywords: service design, rural tourism, user- driven product and service development, SME company

Service design and user-driven service development

Products are often divided into goods and services, no matter if they are tangible or not. Customers do not care about terminology, they just want organisations to co-create value with them by realising their goals and by taking away their problems. Customers expect an experience that reaches or exceeds their expectations, meets their emotional needs and fits into their lives (Stickdorn 2018, 2-5).

Many larger organisations have utilised service design for many years already, because it is silo-breaking and hands-on innovation that starts with experience. Now also smaller companies are starting to understand the benefits it can bring to their customers, business and culture.

Service design applies design thinking to services. Understanding service design is important because it helps companies to be truly user-driven. Service design adopts the mindset of the design process, combining an active iterative approach with a relatively lightweight set of tools borrowed from user experience, marketing, branding and elsewhere. The tools are visible, fast and easy to use and they form common language for co-operation in cross-functional teams (Stickdorn 2018, 12-13).

The service design process starts by investigating the needs and values of a customer. Understanding these needs helps the design team or service developer to focus on the right problem, instead of jumping straight on to a solution. In the process fast experiments and prototyping test possible solutions quickly and cheaply. Prototypes evolve into pilots and then into implemented new services.

Service design projects are based on research and testing instead of authority or opinion. Organisations can use service design to improve existing services or develop whole new services. It is not really about the tools or methods, it is about behaviour, actions and the people behind them. Service design is for everyone who is interested in customer experience, collaborative creation and innovation (Sarvas et al. 2017; Stickdorn 2018, 2,14-15).

Digitalisation has made customers' requirements for good experiences even more powerful. Customers a lot of information, such as trusted reviews, price comparisons and alternative sources, just few clicks away. Some parts of the customer journey are not directly influenced by organisations, such as third-party reviews or discussions with friends.

Plenty of studies have shown that the customer experience makes a difference to the bottom line. For example, most customers return and buy again and are willing to pay more because of a good experience (Stickdorn 2018, 6-11).

The tourism industry creates and sells experiences. There are a lot of elements which need to work together to create a seamless travelling experience. Service design is a systematic way to develop business. Its main goal is create services, which satisfy user needs and fulfil the service provider's business requirements (Brown 2019; Stickdorn & Frischhut 2012; Tuulaniemi 2016).

The tourism industry in Finland

Finland's tourism industry has grown and become more important for the Finnish economy in the past few years. In 2017, the revenue generated by tourism was EUR 15 billion and foreign tourists spent about one third of that, EUR 4.6 billion, in Finland. The tourist industry offers employment for 140,200 people and it also has significant effects on other sectors such as commerce and transportation (Finnish Ministry of Economic Affairs and Employment 2018). Clean lakes, nature, silence in nature, the midnight sun and Finnish design are just a few of the reasons foreign tourists travel to Finland. Most of foreign visitors travel from Russia, Japan, China, Great Britain or Germany.

Visit Finland is responsible for the international tourism marketing. They have divided Finland into four destinations: Lapland, the coast and archipelago, the Lakeland region and the Helsinki region. Out of the 8.5 million trips which foreigners made to Finland in 2018, nearly 5 million trips concentrated on the Helsinki region.

The region of Häme belongs to the Lakeland region, which 2.9 million foreigners visited in 2018 (Business Finland 2018). Häme is only a 1-1.5-hour

Picture 1. Various nature activities, forests and lakes attract travellers to Finland. (photo: Iida Hollmen 2016)

Picture 2. There is growing interest in the experiences which Finland has to offer. (photo: Iida Holmen 2016)

drive away from Helsinki and it has the potential to attract more foreigners to visit the Lakeland area. In Häme there are lots of rural destinations and nature attractions worth visiting.

Growing interests in nature, pure food, silence and “live like local” experiences are also trends in the travel industry that support the characteristics and strengths of what Finland has to offer as travel destination. Finland interests foreign travellers, but Finnish people are also more interested in travelling in their home country these days. Awareness of the state of the environment and climate change have led to more travelling to domestic and surrounding areas.

Tourism is quite a fragmented business. Small and medium enterprises (SMEs) account for more than 99% of the enterprises in European countries and 94% of enterprises employ fewer than 10 employees (Small Business Standards 2016). Individual operators are quite small. The challenge is often that there is a lack of time or resources to develop the business systematically, and companies do not know how to produce, market or sell their products and services effectively enough. Companies should also understand better what their customers value.

Learning from others

The PALMA - Developing New Business in the Rural Areas through Service Design -project has helped rural entrepreneurs in the region of Häme to comprehend the role of service design and the importance of understanding consumer behavior and digital marketing in service development.

During the two years of the project, rural tourism entrepreneurs participated in a series of workshops and benchmarking journeys. They got to know about the benefits of service design and learned how to utilise it in their own businesses.

Interaction and sharing good practices between the more experienced reference companies and the developing target companies was one mode of operation. Day long workshops were organised in turn in the reference companies. Entrepreneurs from the target companies got to know the reference companies while they heard about the services and products which they offer.

Four reference companies from Päijät-Häme and Kanta-Häme represented diverse opportunities for rural tourism.

Lehmonkärki in Asikkala is a well-known meeting, holiday and party venue offering accommodation in high quality cottages and villas by lake Päijänne (Lehmonkärki 2019).

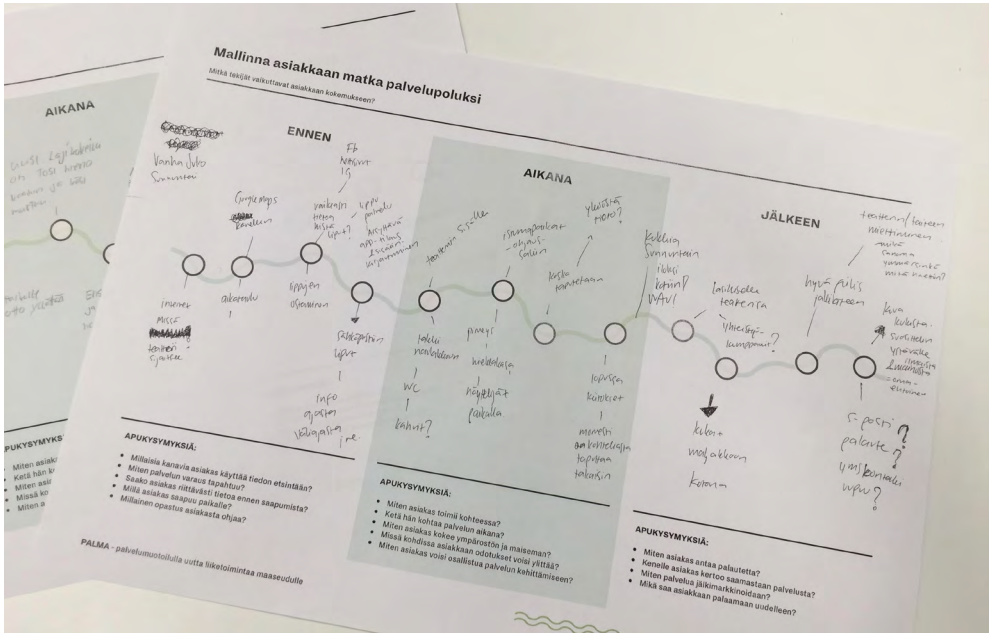
Villa Takila in Padasjoki offers high-class accommodation on the lakeside by Päijänne national park. They host families and foreign visitors especially, who are interested of Finnish design (Forlake 2019).

Hahkiala Manor in Hauho operates on a reservation basis as an accommodation, conference service and party venue. The manor with its unique environment and baroque style garden offer facilities for high-class experiences (Hahkiala 2019).

Iloranta in Hauho is a farmstead in authentic countryside in the middle of fields and forests. It offers camp schools, wellness facilities, family holidays and educational travelling. Visitors can taste home-made food and get to know traditional Finnish life and nature (Iloranta 2019).

The input of the reference companies was valuable and the entrepreneurs gave good feedback on the operation method.

Picture 3. Hahkiala Manor was one of the reference companies. (photo: Hahkiala 2019)



Picture 4. Journey maps visualise touchpoints and service moments from the customer's point of view. (photo: Kati Kumpulainen)

Understanding benefits of service design

The PALMA programme and workshop themes were planned and implemented in the same order a service development process would proceed. Prior to the workshops, qualitative research was carried out for clients of the reference companies. The clients were interviewed concerning their customer experiences in these companies. Additionally, some of the clients were observed in the service situation. Based on the research, different customer journeys were visualised, for example, that of a foreign tourist from Japan, or a camp school student, or a business meeting client.

Journey maps make intangible experiences visible. They illustrate the service moments and touchpoints before, during and after the service. Journey maps do not include only steps with a company but reveal all the steps which affect an experience. They help to find gaps in the customer experience and explore better solutions (Stickdorn 2018, 44). Journey maps were utilised in workshops where entrepreneurs also filled in empty journey map forms, based on their own clients.

Themes of the workshops included subjects such as:

- future trends of tourism
- The ABC of service design
- tools and methods for understanding the customer
- the customer experience
- co-creating new ideas
- productization
- food and scenery in tourism
- branding
- digital marketing

The subjects were quite broad, but with the help of information visualisation the given materials were simplified. Information visualisation is the process of representing data in a visual and meaningful way so that a user can understand it better (Interaction Design Foundation 2018).

During the PALMA project, future research was carried out into changes in customer behaviour and tourism trends. Future research considers different opportunities and what could happen in future. It is a mixture of history, the present and imagination. Trends, megatrends, weak signals and scenarios are all tools of future research.

Picture 5. It is important to have a mindset towards the future when developing services. (photo: Mervi Koistinen)

The research was carried out from the point of rural tourism and the trends were chosen based on how they could directly or indirect affect the industry. These trends were visualised in the form of trend cards, which can be utilised for brainstorming and innovation.

Some tasks were also given to entrepreneurs between the workshops. On benchmarking journeys, the participants were asked to make notes on the companies they visited. A specially designed travel diary with observation questions was used as a tool for this purpose. Three journeys were made in Finland and one 4-day journey in Slovenia. During these trips the participants got to know local tourism enterprises by observing the customer experience, digital marketing, storytelling, local food, scenery, co-operation, innovative products and services, among other things. Especially Slovenia was an inspirational destination. Only a few entrepreneurs had visited the country previously, and the image of the country beforehand was of a not so modern, eastern country. The truth was that it is a very clean country with small distances. It is one of the countries in Europe, which has most forest areas. Slovenian people respect nature and there are possibilities for various outdoor activities. Finnish entrepreneurs saw various examples of how Slovenian tourism entrepreneurs had developed inspirational products and services.

Picture 6. In the workshops participants co-created new service ideas. (photo: Juulia Lidman)

Picture 7. Benchmarking trip in Slovenia. Learning from best practices and comparing them to your own practices. (photo: Kati Kumpulainen)

Based on the feedback, it was clear that the entrepreneurs had gained many ideas and experiences from the journeys. For example, they established how to combine high-class accommodation with scenery. There were also many examples of co-operation with local companies, storytelling and the importance of digital marketing. Entrepreneurs who took part in the journey also got to know each other better and some of them have since created new products and services together.

The PALMA model: a user-driven approach to service development

The user-driven service development PALMA model was created during the project. It helps entrepreneurs to understand importance and benefits of service design.

The model consists of the same themes and subjects which were organised during the workshops and found in the created materials of the project. It was developed together with

Figure 1: The PALMA model helps to understand a user-driven service development process. (modified from Hanna Herkama 2019)

entrepreneurs who took part in the project. For example, they commented on the content and visual look. The model follows the same order as the service development process would proceed. It consists of four themes: 1) understanding customer, 2) productization, 3) branding and 4) digital marketing. Each theme includes its own materials for development work.

The model is visualised in the form of a circle, which emphasises an iterative development cycle. This helps entrepreneurs to understand how to think in a user-driven way while developing services.

The PALMA model includes various materials: such as templates to fill out such as a persona, customer journey canvas, empathy map, stakeholder map and digital marketing plan, which entrepreneurs can use in their development work. The materials are functional for new or more experienced companies.

PALMA brand and trend cards are visual, and they clearly sum up the main points of these issues. All these subjects are discussed from a user-driven point of view.

Materials which the PALMA model includes are tailored especially to rural travel industry, but they also serve companies and entrepreneurs in other business fields well.

Over 40 SME enterprises from region of Häme participated in the workshops or benchmarking journeys. Entrepreneurs also got to know each other and formed networks for possible future business. During the project, feedback from the entrepreneurs was often requested. They were also asked about their best learnings during the project, which were documented in a video interview. They mentioned that key learnings concerned the user-driven and future oriented mindset, insights from the benchmarking trips and workshops and networking with other entrepreneurs.

The future of travelling

One of the growing target groups in tourism are millennials. Their changes in behaviour will affect the tourism industry. Digital services, independent travelling, new channels of communication, social media and desire for experiences will challenge the travel industry to innovate new agile services. Various students of Lahti University of Applied Sciences, most of them millennials themselves, participated and brought their thoughts and ideas to the PALMA project. They visited the target companies, created future scenarios, conducted research, visualised information and facilitated workshops. Entrepreneurs found that the students brought new ideas and thoughts of future consumers to the workshops.

Tourism is a globally growing business. On the global scale Finland will compete with other destinations. It is easy to compare and buy digital travel services. However, Finland has a lot of potential to grow in the travel industry. However, it should be done in a sustainable way. Many trends state that Nordic exoticism will grow and attract new visitors to Finland and other Nordic countries in the future. To get there will require user-driven service development, wider co-operation and effective and patient productization and digital marketing. Understanding and utilising service design will offer user-driven methods and tools for this development work.

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Picture 1:
Iida Holmen. 2016. Televisiomaston_kierros-pitkospuut_metsassa. [Cited 24 Sept 2019]. Available at:
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Picture 2:
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Antti Heinonen, Katariina Mäenpää & Kaisu Tullinen

Design Methods in Building the House for Art, Posters and Design

Abstract

This article addresses the current changes of museums as institutes as well as the current changes of the operations in museums. Museums worldwide are dealing with similar issues: how to involve customers and understand their needs, how to utilise unfamiliar development processes required to meet the customer needs, how to handle the good aspects and evils of digitalisation, and how to use the social influence that museums have. A key term taking this all into account is "design thinking" and a key aspect are the design processes based on it.

In addition to addressing these museum changes, this article presents few development processes that are currently being carried out in two projects run by Lahti University of Applied Sciences. The combination of projects was established to build a concept for a new Art and Design Centre in Lahti and to support the museum personnel in the change process. The Lahti museums will be part of the new Art and Design Centre and therefore will undergo strategic and operational changes during the concept building phase of development.

There are several aspects concerning digitalisation in museums. One of these aspects is the digitisation of museum collections such as photographs and documents as well as photographing museum objects. Digitising collections is a huge task, yet it is crucial, to guarantee the better utilisation of the collections. Another aspect is the meaningful presentation of the collection and exhibition content in museums. An opinion expressed in the museum sector during this concept-building project is that museums want to be part of digitalisation through content. Digital technologies should not be forced upon museums unless the content is the starting point.

Museums have the same social influence on people as businesses do. Museums can be seen

as neutral, apolitical and beneficial to all people, but that might be far from the truth. What kind of social influence are museums offering or messaging to people locally and globally? What is the state of social justice in museums? This article addresses social influence through a few case examples of the social influence of museums.

The final theme of this article are the development processes and usage of design in its many forms in the development of museums. Public organisations like museums confront similar development challenges as organisations operating in the private sector. Service design is one of the current approaches used in order to develop value in companies and for their customers by engaging customers to participate in the value creation process. Visitors (customers) are kings also in museums, since government funding is based on the number of visitors per year in Finnish public museums.

The Institute of Design has acted as a leading partner in these projects and several forms of design expertise have been utilised along the way: interior and furniture design, visual communication and media content design as well as experience and service design. Service design was also applied to developing the productivity of the museum personnel and work wellbeing, while a strategic design approach was used to compose the strategy for the museum to guide it through the following years. This article will address selected scans of these design processes and their outcomes.

Digitalisation in museums – Antti Heinonen

Museums have always found ways to share access to the collections for public. Because our consumption of culture is becoming more and more digital, it often requires museums to modernise how they relate to their audiences as users of cultural content. The main advances in digital technologies in this field concern the reduction of transaction costs for the distribution of visual content, user-based creation of knowledge and information on museum collections and innovation in reaching the audience and distribution channels to provide authoritative content (Bertacchini and Morando 2011, 9). It could also make museums' cultural content more reachable for customers. While art event attendance rates among adults are declining, millennials who have attended arts events have expressed interest in attending more. Compared to older generations, they are more likely to find out about arts online, take peer reviews as seriously as professional critics' recommendations, and seek out ways to learn more (Eventbrite 2014).

Future technology will offer even more non-traditional ways to experience museum collections. It over a decade for the usage and popularity of the mobile Internet to reach the level it is now. Start-up companies and modern institutions have found new ways to utilise this global phenomenon during this rapid change. Many museums have been slow to recognise that having an app, a responsive website, a robust social media presence, or mind-blowing digital activation are tactics and have overlooked fundamental strategies on the use of this sort of technology (Dodge 2016). In this kind of technological progression, predicting and preparing for the future is relevant and vital for older operators, which indeed many of the museums are. When we should invest in digitalising collections and new kinds of customer

experiences is a question that many museums are struggling with. Beside other things, the answer should always rely on a well thought and designed ecosystem that allows all kinds of digital material to be as compatible, updateable and responsive as possible. Different future predictions, regarding technical standards and development, should be taken into account already while the ecosystems are being designed.

New innovations and developments in different areas such as virtual and augmented reality and artificial intelligence may be adapted to our everyday life in a faster cycle than the Internet. The majority of experts in those fields, predict that by 2025, immersive technology will be as ubiquitous as mobile devices in the consumer market nowadays (Perkins Coie 2019). Immersive technologies, such as augmented reality (AR) and virtual reality (VR), increasingly blur the line between physical and digitally simulated worlds. These can be utilised to perceptually enrich customer experiences. During the Tajumo project immersive technologies have played a vital role in the design process. From the beginning it was obvious that the new Art and Design Centre should use the latest digital technologies including in the Art and Poster Museum. Experts and student groups have researched and piloted several concepts that utilise immersive technologies for museum contexts. Personal wayfinding with AR navigation and gamification, virtual furniture exhibitions and animated content at a poster exhibition are all examples of how modern technology can be used to enlarge the traditional ways of experiencing a museum and its exhibitions.

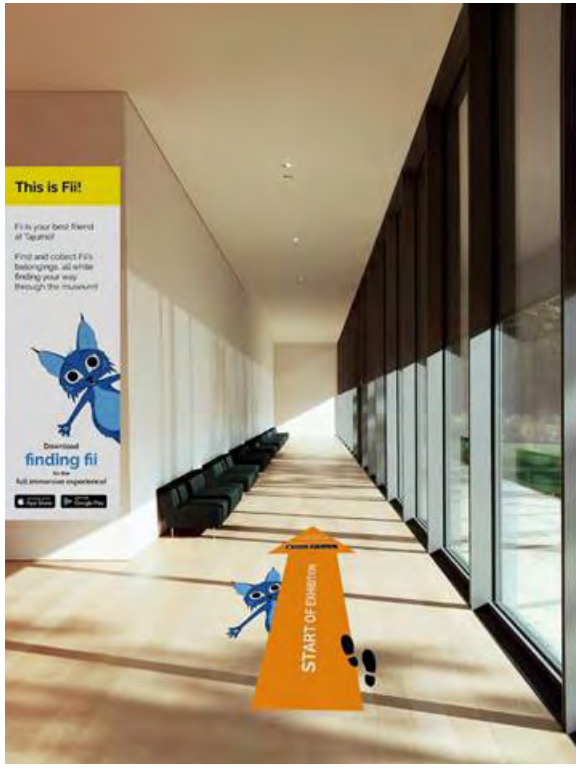


Figure 1. Personal mobile devices enriching museum visitor experience.

Figure 2. Visual design of the avatar Fi, the personal museum guide.

Personal mobile devices with computing and sensing abilities can offer museum visitors more customised experiences. This was one of the leading thoughts behind the 'Finding Fi' navigational museum game concept. This was produced by an international student group as a part of the Tajumo project at Lahti University of Applied Science during the spring 2019. The concept relies strongly on aspects of gamification and user experience design and provides users with the possibility to explore exhibition content in more motivating and long-lasting ways.

The 'Finding Fi' app is an independent part of the more traditional personal wayfinding application system, and the main target group are children from ages five to twelve. 'Fi' is animal-like character and avatar who works as a personal museum guide for the user. It will remember previous user visits, use storytelling to explain exhibition content in a more interesting and memorable way, ask users to do different tasks and play games for a more focused experience, etc. The application uses cross-cutting augmented reality features to encourage users to observe more exhibition content rather than passive online content. These features are meant to activate the museum visitor and make the relationship with a museum brand more personal.

This concept is just one small example. These kinds of a personal museum avatars could be common in the future. They can take on a wide variety of roles to make the museum experience more customised and based on the needs and expectations of different users. Museum avatars could be a friend to go to the museum with, or a personal art history teacher or an artist at the exhibition

Perspectives on the social influence of museums – Kaisu Tullinen

When building a concept for the new Art and Design Centre that involves existing museums, companies and other operators in the city, it is an opportunity for the existing operators to make wanted or necessary changes to their activities, strategy and to their overall existence. The new spaces in the upcoming Art and Design Centre will provide the opportunity to fix what was not working on the old premises and to design a space that has more flexibility and is able to make rapid changes as the activities in the centre change. Designing a new concept provides the opportunity to consider if all the activities in the museum are relevant and what would be needed to change in the activities when the new Art and Design Centre is ready to open its doors to visitors. One of the topics to rethink could be the social influence of museums.

The social influence of museums as a topic can be seen in the current debate on websites and in international museum conferences globally, but also in artwork and exhibitions locally. Articles about the future of museums are also addressing topics of social influence and social justice, such as Bryant-Greenwell's article "Taking a Stand Against Neutrality: The Role of Social Justice in Museums", which addresses the idea that 21st Century museums will be defined by their ability to adapt to change and their relationship with social justice and community activism (2019).

The social influence of museums includes several aspects depending on the type of the museum and is related to the overall museum industry. Current hot topics related to the overall museum industry include the elitism of museums (Bryant-Greenwell 2019), institutionalising history (MacLellan 2013) and risking museum funding by commenting on a political issue (Richardson 2019). Depending on the type of the museum, museums can make a wide range of contributions linked to a variety of socially influential areas. Museums could help to counteract the stigma of being an immigrant and give refugees a voice (Coates 2019). Museums could choose to amplify the Youth Climate Strike (Richardson 2019) or to contribute to the health and wellbeing of older prisoners (Coates 2019a), just to provide a few examples.

Exhibitions in museums are curated by professional curators, who make the choices about what and how collections and history are presented in the exhibitions. Through these choices, the exhibition and the museum cannot be totally neutral or apolitical (Bryant-Greenwell 2019). Being neutral when dealing with historical content might suggest that you are on the side of the winner, as they say that history is written by the winners. Additionally, when dealing with art, the curators' choices might only serve the culturally civilised citizens. Moreover, if an artist has his own stand on some current issues, it is also the museum who is taking a stand on the issue, if it chooses to display the works of that artist.

The social influence of museums has also risen as a topic in workshops held during this concept-building project. The museums of Lahti held some workshops for their own workers to consider the future of the Lahti museums as part of their strategy building tasks. During these workshops social influence was an obvious discussion topic. How should museums affect their customers, the community and the people living in the

Päijät-Häme region? And how can a city museum express the essence of the city? In the workshop discussions, the social nature of museums arose in several other discussions. When thinking about the existence of museums or, for example, thinking about the channels that museums should use in marketing, all the topics discussed included the issue of social influence. It is safe to say that museum workers in Lahti think that social influence is an obvious part of museum operations and it can be seen in all museum operations.

Picture 3. The social influence of museums is a work in progress. The methods of influencing are going change as people, behavior and societies change. Photo is taken from the Design Museum in London.

There is a law in Finland (Museolaki 2019) which guides public museums, as well as private museums and their activities. The Museum Act lists the tasks museums must perform, and states that museums should preserve, collect, present and provide cultural and natural heritage and art. The purpose of the Museum Act is also explicitly stated in the Museum Act, as: "To maintain and strengthen individuals' and communities' understanding and participation in culture, history and the environment; to promote the preservation of cultural and natural heritage and art for future generations; to promote community, continuity and cultural diversity; to promote civilisation, prosperity, equality and democracy (Museolaki 2019)." As seen in the purpose of the Museum Act, social influence and social justice are an essential part of the very existence of Finnish museums.

There is still the fact that not everyone visits museums and some citizens in Finnish cities are unaware that in their own hometown there is a regional art museum or cultural history museum (in some cases both). So are the city museums for everyone, if the citizens do not even know that the city museums exist? When discussing city museums, we must also notice that cities are run by their democratically chosen politicians and the decisions made by those politicians might affect the operations of the city owned museums. Mostly the decisions affect funding and recruiting of the museum, but there might be other differences of opinions between politicians and museums.

In June 2019 a new temporary museum space opened in Mikkeli. Mikkeli Art Museum had been operating in an old building for decades and the building was finally closed in 2018 because of indoor air problems. Mikkeli Art Museum was about to get a totally new museum building. The overall design and plan of the new building were already done and functional when the city politicians decided to not fund the new building. There was no going back to just operating in the old unhealthy building, so it was decided to locate the museum in a shopping center. Mikkeli Art Museum is now operating in the shopping center and spaces for the usage of museum are small but mainly functional. Cities and governments are struggling with finances and museums are an easy reduction target, since the dismantling of the museum's activities will not endanger anyone's life or health directly. While, for example, social and healthcare measures in cities cannot be reduced without endangering the health of the inhabitants.

The first exhibition in the shopping center also caused some friction between the Mikkeli Art Museum and the Mikkeli city politicians. Mikkeli Art Museum made a choice about who the artist would be and the topic of the first exhibition. How the artist dealt with the topic was not entirely acceptable for the city politicians and the museum director was called in to explain the choices. In the end, the mayor of Mikkeli city cancelled his attendance and speech at the opening of the exhibition, which shows that the exhibition was not supported by the politicians at the time. City museums operate under city politicians; either making their own choices, despite the reaction of politicians and then accepting the associated fallout, such as reductions in support; or by following accepted topics and approaches developed by politicians and staying on the "neutral side".

Another example of the social influence of museums comes from Rotterdam, where the

Museum of Rotterdam has started an active collection to involve the citizens of Rotterdam. The active collection is intended to serve as a tool for social change, to increase the museum's social impact in the Rotterdam area. In the Museum Next conference "Make Change Happen", Nicole van Dijk from the Museum of Rotterdam presented the idea of the active collection and a vision of culture, heritage and museums that relates to the idea of the active collection:

> "Culture: the social behavior and norms formed by the way people adapt to each other and their surroundings.
>
> Heritage: the parts of culture we value and want to pass to future generations. This is an active process.
>
> Museums: can provide a safe space for the sometimes difficult and painful exchange of culture. In this process it can be an inclusive platform for difference and co-create the heritage of the future" (van Dijk 2019).

The Rotterdam Museum's active collection contains objects, people and communities that are selected for the collection by applying six criteria with a twelve-member Rotterdam jury. The criteria for inclusion are that the items must have a link to Rotterdam, be currently happening, be committed to others/the city, inspire, people connect to a historical story and must be reciprocal. There are 800 active collection members that have been selected to represent Rotterdam. Through a personal connection created by an active collection, these 800 active collection members have also made the museum known to 3,000 other people in their immediate circle. This kind of museum activity is an inspiring way for the community to take ownership of the museum and vice versa.

Whatever the level of social influence is in any museum, it seems that museums are coming to a point where they must define their social impact on communities. They need to think about the effect of their activities, not just how and why they are making them happen (McKinley 2017). Social influence is also an aspect that could be measured more. The public and non-profit museums do not measure their activities in terms of revenue, so concentrating on measuring the social influence and communicating the results could make museums a better source of social inspiration to visitors, employees and the community. Developing indicators of social influence in museums is something which design thinking, and designers can help museum professionals with.

Design methods and the development of a museum – Katariina Mäenpää

The cornerstone of the new Art and Design Centre are the people who visit the exhibitions, participate in workshops and other activities, and use the services as well as those who produce the services and experiences, i.e. visitors, participants, users and the personnel. In order to approach the development process at hand, there was no other way to do it than to start with the people, and thus, design methods and design thinking needed to be applied (Lockwood 2009, Brown 2002). The development process as an entity was so broad and profound by nature that it was divided into two from the beginning.

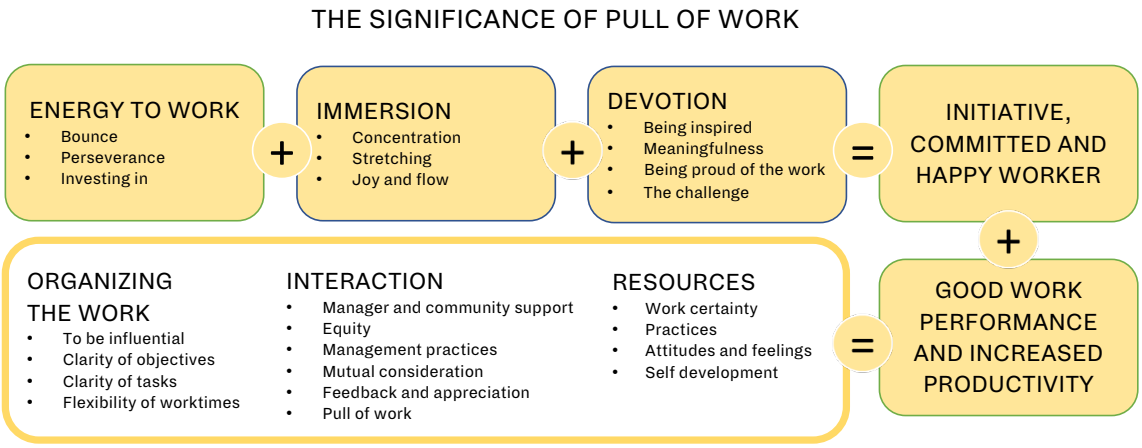


Figure 3. The Significance of the pull of work.
(Kuntatyönantajat 2007 in Mäenpää and Pakarinen 2019)

The Paju project focused on identifying the capabilities and means to deal with changes in the museum and with its personnel, i.e. to build internal strengths, while the Tajumo project created the overall concept for the new Art and Design Centre to meet the external demand and expectations, and establish attractive experiences and alluring encounters.

The Paju project – building capabilities from the inside

The aim of the Paju project was to study, how the productivity and work wellbeing in Lahti museums could be improved through service design, since the development challenges do not concern only the personnel of the art museum but the whole organisation of the Lahti museums. Thereby, the ability of public sector workers was enhanced during the project to handle notable working environment changes which arise as a result of service environment changes. The development process was derived straight from the principles of design thinking and is illustrated in the Paju model.

The key concepts of the project were productivity and work wellbeing. Productivity in the public sector was defined as ways to do better things or finding the right operation modes,

while the output depends on the quality and the necessity of the service or product itself besides the amount of the service or product. Accordingly, the input consisted of the number of workhours, rewards for the work and other qualitative factors, and the quality and scarcity of workforce (Soininvaara 2009). Work wellbeing is a sum of the cooperation of several actors: employees, employers, policymakers and practitioners, while factors affecting work wellbeing range from personal health resources, physical workplace, psychosocial work environment to enterprise community involvement (Rokho 2012, Kuntatyönantajat 2007).

The relationship between productivity and work wellbeing is obvious: satisfied personnel are more productive than unsatisfied workers, and thus, employees' well-being determines an organisation's long-term effectiveness (ILO, International Labour Organisation 2019). This phenomenon which increases both productivity and work wellbeing is called the "pull of work" (Kuntatyönantajat 2007, Mäenpää and Pakarinen 2019). The process is described in Figure 1.

In order to enhance work wellbeing in Lahti museums, the voice of the personnel had to be heard and this was the moment that service design methods were involved. According the double diamond design process (Design Council 2015, Catalanotto 2018), the first phase of the process was the discovery phase which focused on the premises. The research concerning the work and personnel consisted of observing the work tasks, operating models, work environments, customers and the pull of work. Employees were interviewed on current work environment themes and expectations of the future in broad terms. Perceptions of their own competence, knowledge, and know-how were discussed as well as the organisation's strengths and weaknesses concerning the changing operational environment. In addition, mystery shopping and benchmarking provided valuable information from an external perspective.

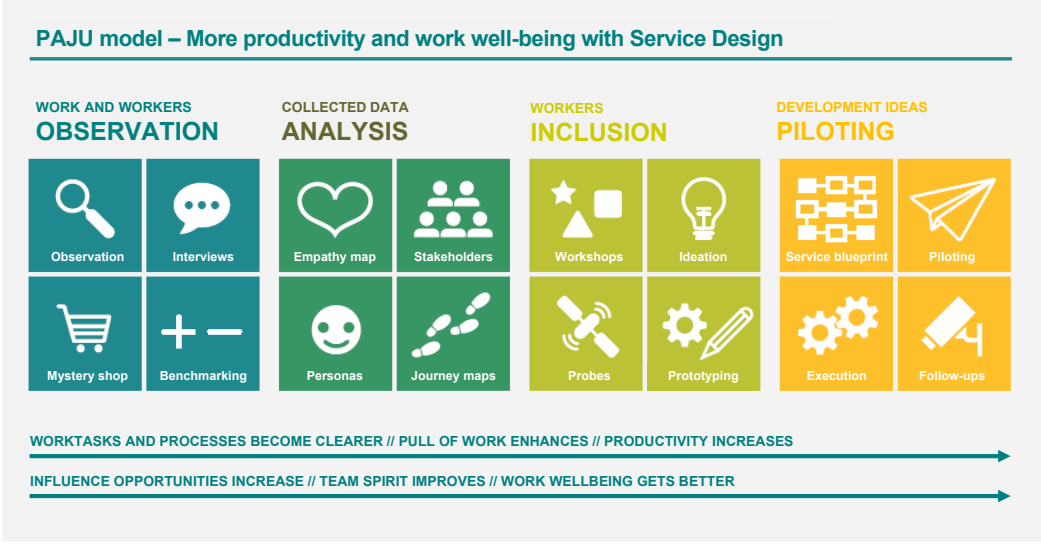
When the data saturation point was met, it was time to move on to the definition phase and focus on analysing the gathered information and defining the right questions to answer (e.g. Ackoff in Koivisto et al. 2018). The aim of thein service design process is to build an insightful constructive understanding instead of absolutive truths, and thus, qualitative data is emphasised. If generalisability of the conclusions is needed in the final phases, quantitative methods can be used later. Here, an empathy map was applied to survey the employee's needs, feelings, hopes and fears to identify the factors affecting their decisions and behavior (Gray 2017). A stakeholder map assisted in determining and scrutinising the influence of the actors and connections between them. Recognising how information flows and synergies form in the network helps to target resources where they are needed and unblock possible bottlenecks preventing smooth operations (Dam and Siang 2018).

Additionally, employee profiles and employee journey maps were elaborated. The former represents the archetypes of the employees. Profiles (or personas) can be approached from various perspectives, and it is important to identify the most relevant for the situation at hand. The number of profiles was limited to five or less, since otherwise they become too fragmented and lose their relevance (Design Council 2015). The latter, employee journey map is similar to a customer

journey map and it describes the route employees experience from their first impression forward with the employing organisation. It consists of every touchpoint and interaction sequences that the employees have and will have with the employer throughout the years as well as during a single workday. The employee is as important as a customer (Davey 2018). Analysing, understanding and appreciating the information produced by and about the employees provided valuable insights into work wellbeing and the tools needed to proceed in the design process.

After the discovery and definition phases one main challenge was found: general management, which is probably the most common issue regardless of the type of organisation. Lahti Museums needed a strategy that would draw the lines for the whole organisation and a strategic design consultancy Wevolve took the responsibility for the process, focusing more on external factors while the Paju project concentrated on employees and internal aspects. These two processes were clearly intertwined so interaction and communication sharing of information was crucial. In order to enhance the work wellbeing and productivity, the employees' sense of self management became the core of the Paju project and formed

Figure 4. The Paju model – Better productivity and work well-being with service design.
(Mäenpää and Pakarinen 2019)



the essence of following phases of the design process: development and delivery.

Although the personnel had been involved throughout the process, their role was emphasised even more in the third phase. To develop various alternative solutions and concepts for the defined challenges, employee inclusion was implemented in inclusive workshops, ideation, prototyping and by using probes. Inclusion requires a genuine will to listen to the employees and hear what they have to say, and vice versa, the personnel must be truly committed to the organisation. Inclusive methods can be applied in many different operations, including decision making and strategy work (Lehtinen 2017).

Inclusive workshops provide a possibility to inspire and encourage the personnel in joint ideation and development. Well-designed workshops make processes transparent and enable real-time communication. It is vital to listen and understand the participants and encourage open-minded discussion. Practices to involve the group should be always designed and goal-oriented, and although workshops are very useful for certain purposes, it is important to define the goals and who to include in every particular workshop (Barbour 2016). Ideation is one of the service design tools that fits well in workshops. The aim is to generate, develop and communicate new ideas that can be presented in several forms such as verbal, visual, concrete or abstract presentation. This requires a safe environment and innovative atmosphere (Hamilton 2019).

Prototyping reveals whether the idea is good enough to put into practice. It is also important to recognise that prototyping is not just a process, but a certain mindset, and that interaction and continuity are prerequisites for successful prototyping (Miettinen 2011). Observing and documenting the group's own thinking and behaviour can be done with the help of probes that open new perspectives and improve employee understanding (Rauhala 2017). Probes challenge employees to consider their own work, their wellbeing at work and the work community on a larger scale. Well-designed probes help to discover completely new solutions to everyday problems. Probes are exploratory by nature.

Finally, it was time to deliver validated specific solutions, i.e. to pilot test the developed ideas and concepts. Piloting is an important step of continuous iteration, and thus, processes to capture user feedback are vital (Design Council 2015). Constant development is necessary and instead of looking for a distant new development idea, it is far more practical to scrutinise something already existing and seek improvements to it (Mäenpää and Pakarinen 2019).

A service blueprint was illustrated with a revised employee journey map linearly describing employee experiences, the activities of the employee and interaction with employer, as well as the needed resources along the way as designed, i.e. the blueprint concentrated on future aspects (Design Council 2015). The blueprint demonstrates in detail, how the sequences relate to each other also from the employer's perspective and how they provide added value to the process (Kumpulainen and Pakarinen 2019). Potential service blueprint sequences or prototyped development suggestions are then pilot tested before deployment. This helps to save resources and can minimise the risk of failures (Design Council 2015). Piloting or agile

testing is always conducted with a test group and its beginning and ending are clearly defined. Before starting, it is important to decide what will be assessed and how it will be measured. Numeric measures are good to compare and follow. Pilots should be a platform to learn and create permanent operative models for an organisation (Lovlie 2016).

The pilot tested practices and procedures are now ready for implementation, which means introducing jointly designed ideas and processes into the actual work environment. This is the most important phase of the service design process, since otherwise all preceding work becomes worthless. To succeed, communication is more important than ever. The implementation involves practically 90 percent of the development process, and thus, inclusion of the personnel in the service design process is crucial: committed employees will be motivated and willing to do their best (Mäenpää and Pakarinen 2019). To be able to follow the impact of the changes, it is imperative to monitor and guide the processes of productiveness and work wellbeing among the Lahti museum personnel. If problems appear, it is important to react and rectify the causes as fast as possible. Useful measures to follow are employee satisfaction, the functionality of the work environment and the atmosphere of the work community.

As a result of the Paju project, a model (Figure 2.) illustrating service design in an organisational development process was created (Mäenpää and Pakarinen 2019). The model can be applied also in the private sector although it was initially established in the context of the public sector.

The effects and outcomes of this design process are expected to clarify working tasks and processes, enhance the pull of the work, and increase productivity. Additionally, the employees should also be able to increase their ability to influence their actual work and the work environment, the overall atmosphere and work wellbeing will improve. The Paju project was carried out in 17 months, and due to the length of the project, there was not enough time to complete the last part, i.e. the piloting. Accordingly, no major changes in the Lahti museum's personnel took place, since organisational change processes are relatively slow, and it takes time to put new procedures into practice and alter the organisational culture. The true test of the Paju model will happen in the near future, when the new Art and Design Centre and the Poster and Design Museum have their grand opening in late spring 2021.

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Katariina Pakarinen & Ulla Saarela

City Breakers as Cultural Travel Explorers

Abstract

Cultural tourism produces regional and local cultural resources, valuing cultural products and services on a commercial basis. The aim is to create experiences and opportunities to explore, learn about and participate in cultural events. This reinforces the construction of human identity and builds an understanding and appreciation of one's own and other cultures.

Lesser known travel destinations will become more popular, since travellers are looking for places that are less crowded. Sustainability and healthy lifestyles will be emphasised. Because of climate change, increasing number of travellers wish to travel more ecologically and they are looking for alternatives to air travel.

The Culture Tourism for City Breakers -project brings together cultural production, tourism management and business agents to build a multidisciplinary co-development forum for cultural tourism actors. As a result, there will be a piloted co-development model and study programme that brings together culture and tourism practitioners, students and professionals.

Keywords: cultural travel, culture tourism, events, City Breakers, Finland

Finland as a cultural travel destination

Finland is especially known as a nature destination and travellers often list lakes, snow and the midnight sun as their main reasons for traveling to Finland (Wood 2018). In addition, Finland provides a fast-growing range of modern surroundings and distinctive arts and cultural events. Cities and villages offer an interesting background for culturally oriented travellers, such as authentic lifestyle seekers and city breakers, as they explore the spirit of the country. Especially during

the summertime every Finnish town is filled with peculiar and exceptional events such as the Wife Carrying World Championships held annually at Sonkajärvi, or the Ant-Nest Sitting Competition or the sauna days in various locations.

Cultural heritage, in addition to the polarity between a modern lifestyle and a close relationship to nature along with the geological location between the east and the west are Finland's finest assets (Markkola 2018). Finland also has exceptional expertise in areas such as health and wellness (Sitra 2013) that could be used more to attract foreign visitors.

Cultural travel emphasises experiences

Cultural travel is often described as visiting places or events of a cultural content, but the range of what can be considered to be cultural travelling is a lot broader. Typically, cultural travel includes experiences ranging from participating in a course to learn a new skill, becoming familiarised with the local cuisine, observing a city with a local guide or staying with locals (TravellerHints 2016). Cultural travel underlines experiencing authentic life as a part of a foreign culture, rather than viewing it from the perspective of a temporary visitor. Attending festivals and visiting museums brings travellers closer to the culture, but they do not provide the same experience as becoming a part of the culture. Increasing number of travellers wish to avoid other travellers, and they choose preferably lesser-known destinations where special local features are utilised cleverly, for example in cultural events (Visit Finland 2017, 19-20).

Events and event tourism are evolving factors in regional branding and identity building. The strength of events is their possibility to attract highly diverse target groups. Events are a possibility for a region to connect its citizens, promote its regional qualities and skills, enhance the usage of infrastructure and promote the destination. By creating culture events in co-creation with residents, businesses and local organisations can build the brand of the location. (Leppä 2019.)

A cultural traveller explores the world with a purpose as he chooses specific locations according to taste, interests and preferences. Often the trips are carefully prepared, and travellers prefer tips and advice from locals over guidebooks (Find World's Beauty 2018). Cultural travellers seek things they have not seen or experienced before instead of bringing the home environment, with their own habits and traditions, to the travel destination (TravellerHints 2016). Observation and participation play an important role. Unique experiences arise from interaction with local people because locals create and hold the culture (TravellerHints 2016).

Travelling with a cultural mindset and a curious state of mind helps travellers to become acquainted with new cultural assets. Taking part and learning new things strengthens the traveller's identity and helps them to understand other cultures and ways of life more deeply (Matkailun edistämiskeskus 2014). Experiencing culture also boosts creativity and participating in cultural activities can increase our capacity to learn (Kantola 2019). Culture also provides satisfaction when travellers can accomplish new skills while meeting new people. These new social relationships can support wellbeing.

Future and emerging trends in cultural travel

The future might seem distant, but if you think about the travel industry five or ten years ago you will realise that many things have changed rapidly over the past few years. Traditional booking agencies and hotels are now competing with online agencies and Airbnb-like accommodation. Instead of pre-made holiday packages people are more interested in personal experiences and because of this, experiences will become more tailored (Palviainen 2019). Travelers are increasingly participating in producing the service they are interested in.

Picture 1: Events are a possibility for a region to connect its citizens, promote its regional qualities and skills, enhance the usage of infrastructure and promote the destination. Lahti City Hall designed by Eliel Saarinen. (Photo: Konsta Partanen 2018)

Megatrends such as globalisation, digitalisation, population growth, increasing inequality and climate change affect people's behavior. Trends help us to understand the needs of different types of travellers and the things that effect travellers' decisions. For example, aging travellers would like services to be even more accessible and customer oriented, while in turn millennials are more interested in digital services and platforms which assist independent travelling (Palviainen 2019). Lesser known travel destinations will become more popular since travellers are seeking places that are less crowded or cheaper. Sustainability and healthy lifestyles are becoming increasingly important to travellers. Because of climate change, increasing numbers of travellers wish to travel more ecologically and they are looking for alternatives to air travel.

Digital change is forcing the development of more platforms and channels as the number of service providers increases. New technologies will change the way we travel. For example, with XR-technology you can create teasers, or you can bring destinations virtually to those travellers who are unable to travel physically, such as elderly people or those who cannot move around anymore. XR-technology can also help the decision-making process or ease the fear of travel with simulated surroundings. For those who are scared of flying a virtual tour around airport and an airplane could be helpful (Suominen 2019).

While travelling new technologies can also add something new and special to the destinations. Technologies can be used to reconstruct historical sites or to add more content to existing destinations to create more in-depth experiences. Santeri Suominen, Curator of the XR-Center Helsinki even suggested, that maybe in the future we can visit places that exist only virtually. Or maybe we can create our own travel destinations and fill them with the things we love to do.

Developing cultural travel products

According to the Kulmat.fi webpages "Cultural travel produces regional and local cultural resources, valuing travel products and services on a commercial basis. The aim is to create experiences and opportunities to explore, learn about and participate in cultural resources. This reinforces the construction of a person's identity, understanding and appreciation of one's own and other cultures."

Travellers often see the travel destination and the travel area as whole, and they rarely consider individual services while reviewing the whole journey (Kumpulainen & Pakarinen 2019). Travel services are formed from smaller travel packages and they should be examined as a part of the big picture. Services need to be high-quality and uniform to attract visitors. It is important that service packages are designed to fit to travellers of all shapes and sizes. The key to success is customer satisfaction, which arises from pre-expectations, the actual service experience and the value the customer gets. Phases before and after the service are just as crucial parts of the customer journey as the middle part of the service chain. The main goal is to create durable interaction between the service provider and traveller.

As a business area, cultural travel combines local culture with business agents to create a unique travel experience. This requires intensive

Picture 2: Observation and participation play an important role. Unique experiences arise from interaction with local people because locals create and hold the culture. Lanunaukio/Lanu Square. (Photo: Konsta Partanen 2018)

co-working and mutual understanding between operators. Collaboration is easier when agents respect each other, and they wish to understand different points of view. This makes commitment easier and allows honest communication (Kantola 2019). While developing cultural travel products, we should utilise more regional and local resources. Investing in use of sustainable materials, local products and ingredients, and local workforce form a base for culturally and socially sustainable tourism which respects local culture (Business Finland 2018).

The specific features of the local cultural environment can also enable a new perspective on regional development, which can have a significant impact on the vitality of communities and the development of local business opportunities (Nousiainen 2018). This is particularly true in small towns.

Challenges in the field of cultural travel

Despite all of the potential, travellers do not yet see Finland as a cultural travel destination

as they do not know what Finland has to offer (Markkola 2018). Our culture supply is limited outside the Helsinki metropolitan area especially during the wintertime. It is difficult for foreign tourists to book travel products in advance, since only a small number of experiences can be bought online.

The small size of the regional operators, defective connections and lack of know-how in productization are the main challenges in designing memorable city culture experiences. Additionally, artists and travel agents do not know each other well enough and because of that they have insufficient knowledge of each other's industries. Small entrepreneurs also have difficulties in seeking common advantages, as they have limited time, money and workforce resources (Markkola 2018,10).

Co-creating and co-developing cultural travel

The Culture Tourism for City Breakers -project brings together fields of cultural production, tourism management and business agents to build a multidisciplinary co-development forum for cultural tourism actors. With a strong connection to educational institutions, the project focuses on co-creation and co-development. As an end result there will be a piloted co-development model, that brings closer culture and tourism practitioners, students and professionals. The results will also be developed into educational material that works as a dissemination platform for new expertise for all the students of culture and tourism at a national level.

One of the key elements in the project consisted of four think-tanks related to developing city-based international cultural tourism. These were held in each partner city (Helsinki, Lahti and Jyväskylä) during the spring 2019. The think-tanks were a great platform for cultural practitioners to strengthen local and national networks. In turn tourism practitioners discovered new culture travel products for distribution.

The project is funded by the European Social Fund and it continues the Creative Journey -project coordinated by Visit Finland. The project is being executed by Metropolia University of Applied Sciences, Haaga-Helia University of Applied Sciences, Lahti University of Applied Sciences and JAMK University of Applied Sciences together with Visit Finland and regional travel organisations between 1.8.2018-31.8.2020.

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Veli-Pekka Räty

Design Profits

Abstract

Based on research studies, investing in design increases customer satisfaction, product usability, communication, and profit. Companies that are design-mature may see over double returns compared to the remaining companies. This stems from increased product quality, usability, and customer satisfaction. These aspects in turn, originate from increased knowledge of user needs, and fulfilling them through human-centred design. Creating effective company communications is required to carry the basic purpose of the company. All these belong to the domain of designers. The Design Venture Programme at the Institute of Design at Lahti University of Applied Sciences concentrates on coaching small and medium-sized enterprises and microenterprises to be more design-mature for their growth and internationalisation.

Keywords: business coaching, communication, design, design leadership, design management, enterprises, human-centred design, microenterprises, project management, small and medium-sized enterprises, visual communication

Why worry about design?

Our world appears to be in constant change. We are seeing climate change, the need for a circular economy, shifts from grocery shops to online shopping and from tangible products to intangible, mobile applications and services, constant digitalisation, extended reality, very fast mobile networks, and the Internet of Things, for example. Certainly, this seems chaotic and confusing for people, but also for enterprises. What should companies do and what should they market in all this turmoil?

People, however, typically do not change that much. People, that is users of products and services, still have same basic needs as before.

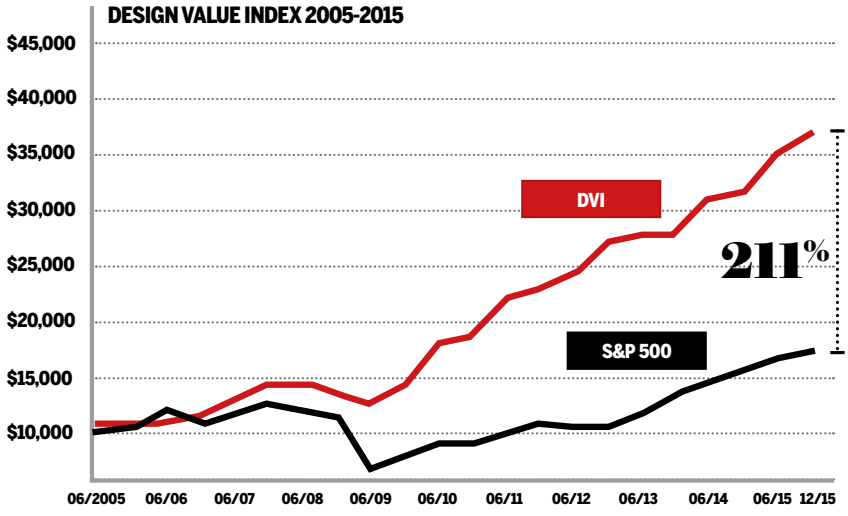

Fig. 1. The Design Value Index (DVI) study shows 10-year returns yielding 2.11 times (211%) that of the S&P 500. The DVI is based on a portfolio of 16 publicly traded stocks in the US: Apple, Coca-Cola, Ford, Herman-Miller, IBM, Intuit, Nike, Procter & Gamble, SAP, Starbucks, Starwood, Stanley Black & Decker, Steelcase, Target, Walt Disney, and Whirlpool. (Rae 2016)

Their desires and needs continue to exist. They still have desires and needs for communication, feelings, stories, dreams, interaction, and socialisation. The environment, friends, family, and values still hold enormous importance for people. They even have the same faults and imperfections despite the technological and environmental changes. All these and more belong to our life as users, and as humans.

But why would an enterprise need to worry about design?

We look at three recent studies that have examined the role of design for companies. We see that by investing in design, companies increase their product or service usability and user satisfaction among other benefits. By engaging in human-centred design, companies are able to really hear the voices of their users and create products and services that fulfil users' needs. Through precise communication, companies are able to reach their users with personal messages. We look at the Design Venture Programme that coaches SMEs to be more design mature. Finally, by making investments in design, companies are able to achieve growth, internationalisation, and make financial gains. Let us begin with the end result, profit.

Design makes a profit

The Design Management Institute's (DMI) 2015 Design Value Index (DVI) is based on a portfolio of 16 publicly traded stocks from companies considered to be design centric. It is contingent on a set of criteria that reflects best practices in design management. The DVI shows a 211% return over the S&P 500 (see Fig. 1, Rae 2016).

Inspired by the DMI's Design Value Index, Pentagon Design recreated the Design Value Index study in Finland by asking 13 Finnish design and business experts to list the most design intensive companies traded on the Helsinki stock exchange. The resulting Finnish Design Value Index (FDVI) study shows 10-year returns yielding 2.4 times (240%) that of the OMX Helsinki 25 (see Fig. 2, Suomela 2018).

Pentagon Design used daily stock price data and yearly shares outstanding data to calculate a market capitalisation-weighted index from these companies. The graph of the calculated index was compared to the OMX Helsinki 25 index for the period of 2.1.2007–30.12.2016 (Suomela 2018).

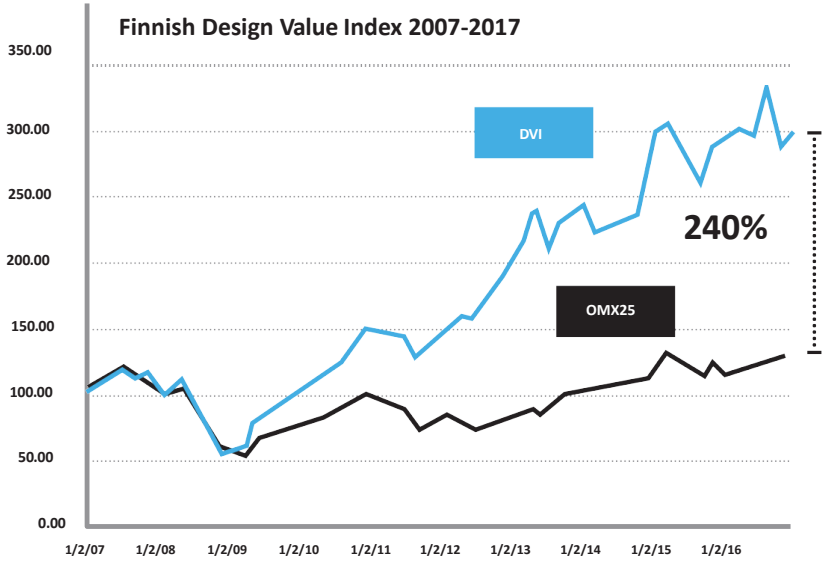

Fig. 2. The Finnish Design Value Index (FDVI) study by Pentagon Design shows 10-year returns yielding 2.4 times (240%) that of the OMX Helsinki 25. The FDVI is based on a portfolio of the 9 most frequently named companies by design and business experts: Amer Sports, Finnair, Fiskars, Kone, Konecranes, Marimekko, Martela, Ponsse, and Wärtsilä.

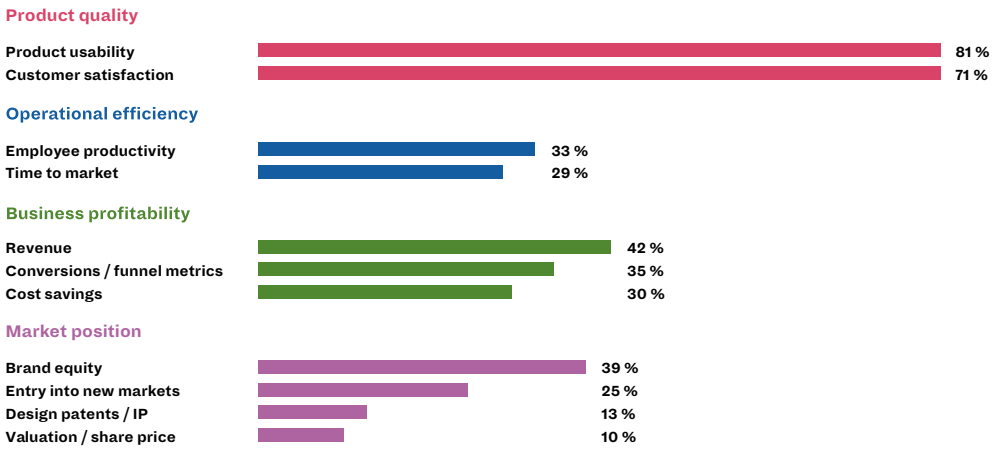

Fig. 3. Interviewed companies report the proven impact of their design team on product quality, operational efficiency, business profitability, and market position. (Buley 2019)

Why is this so? Why do design-centric companies make more profits than other companies?

Rae (2016) sees design not as a pure factor that makes DVI companies' stocks perform better on the stock market, but rather as a highly integrated and influential force that enables the organisation to achieve outsized results.

Buley (2019) looked closer at qualitative aspects of how companies can create better business outcomes through design. Apparently, this is the largest study to date including 2,200 companies within 24 industries in 77 countries.

She detected that among the most design-forward organisations, design is well integrated into the product development process with a senior team and in the product roadmap. In fact, she continues, there is a direct correlation between the number of business benefits that design drives and the degree of organisational adoption of design. Organisations that embrace and integrate design practices also report more positive business outcomes, including when it comes to product, position, profit, and more.

When organisations establish the right conditions for design and make room for it in their core processes, they also experience deeper customer understanding, bolder exploration and experimentation, and more informed decisions vetted through the continuous testing and learning process that design enables.

According to her study, leading companies are using design to drive their efficiency, profit, and position. Nearly three quarters of companies say they have improved customer satisfaction and usability through design (see Fig. 3).

Hence, by investing in design, design-mature companies increase the usability and user satisfaction of their products and services. By fulfilling their users' needs better and more accurately than the other companies, design-mature companies are able to be more efficient, profitable, and achieve a better position. All these in turn, lead to better profits, which we saw before.

Human-centred design

Human-centred design (HCD) emphasises the human perspective in the design process of a product or service.

HCD is an approach in interactive systems development that aims to make systems usable and useful by focusing on the users, their needs and requirements, and by applying human factors, as well as knowledge and techniques concerning usability. This approach enhances effectiveness and efficiency, improves human well-being, user satisfaction, accessibility and sustainability; and counteracts possible adverse effects of use on human health, safety and performance (ISO 9241-210:2019).

The following principles are typical to a human-centred approach to design:

- the design should be based on an explicit understanding of the users, tasks and environments;
- the users should be involved throughout the design and development;
- the design should be driven and refined through user-centred evaluation;
- the process should be iterative;
- the design should address the whole user experience;
- the design team should include multidisciplinary skills and perspectives.

One way to illustrate the HCD process is presented in Fig. 4.

Human-centred design teams do not have to be large, but the team should be sufficiently diverse to collaborate over design and implementation trade-off decisions at appropriate times during the design process. For example, the following skill areas and viewpoints are typically needed in the design and development team:

- usability, human-computer interaction, user research;
- users and other stakeholder groups;
- subject matter expertise;
- marketing, branding, sales;
- user interface, visual and product design;
- business analysis;
- hardware and software engineering, programming, production;
- human resources, sustainability.

This means that projects benefit from creativity and ideas from the interaction and collaboration of team members who collectively have an extensive skill base. An additional benefit of a multi-perspective approach is that team members become more aware of the constraints and realities of the other disciplines. For example, technical experts can become more sensitised to user issues and users can become more aware of technical constraints.

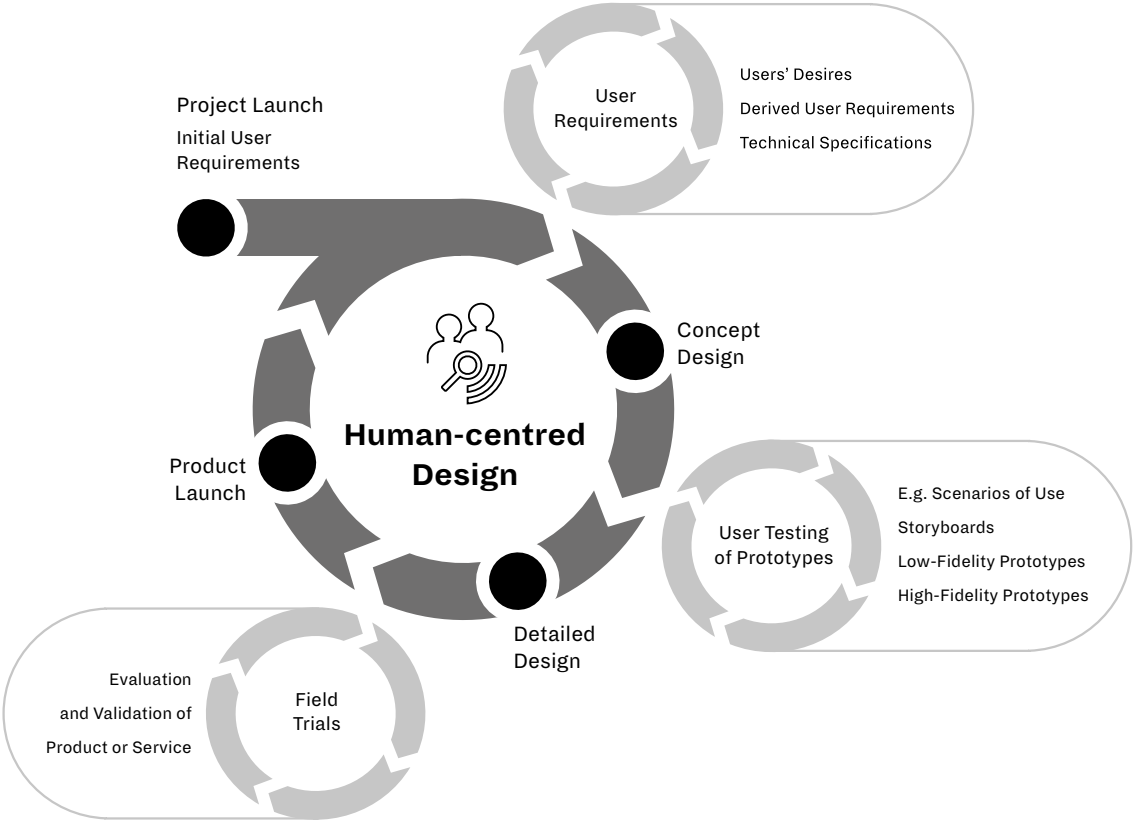

Fig. 4. Illustration of a human-centred design approach. Some of the multitude of designers' roles during the development process are presented.

User issues are especially important in product and service design, usability, interaction design, and visual and other sensory design. Experts in these areas design the products and services for users. Therefore, their role is crucial in creating successful and meaningful products and services. The professionals design products for improved customer satisfaction and usability, and ultimately create profits for the company.

Let us look at two examples of obtaining user requirements. One where users are consulted throughout the development process, and the other where a group is formed to advise on the commercial impact of a forthcoming product or service.

Constant monitoring of user needs

As seen in Fig. 4, the user needs or requirements are revised in several phases of the development process. Company managers and designers know the initial requirements. Once the users are involved, their desires are translated to derived user and functional requirements, and technical specifications. The process does not end there. When the concepts are designed and prototypes are tested with users with various methods, not only using the ones in Fig. 4, the designers will

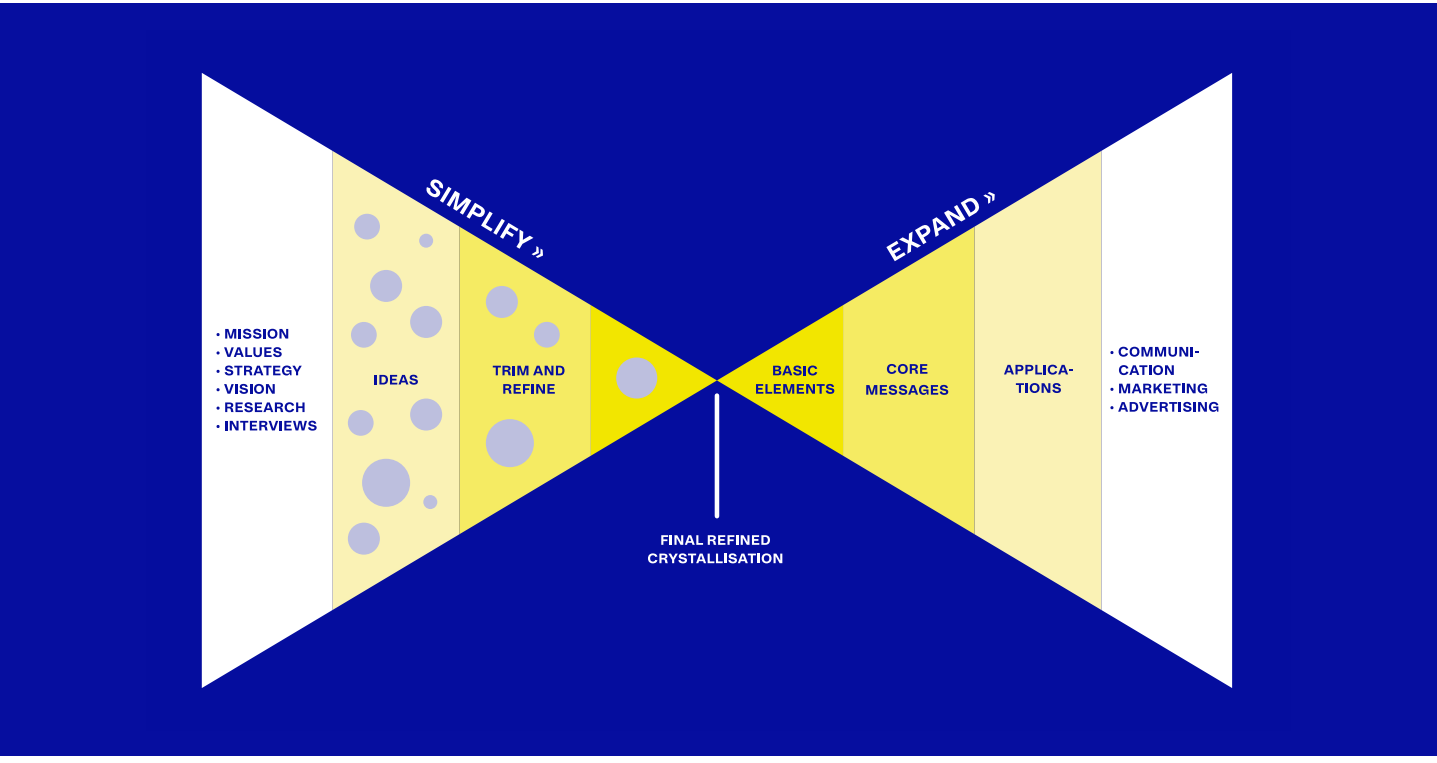

Fig. 5. The messages companies create, are based on the essence of the company. They need to be simplified to the final refined crystallisation of the core. The core can then be expanded to company's communication. (Toivanen 2018)

acquire more detailed requirements. Similarly, they are able to improve the products with detailed designs and field trials.

Hence, designers attain more detailed information concerning the users and their needs. During this process, the users will also experience and receive more detailed information of the product or service, its possibilities and limitations. Users may, and most likely will, change their desires compared to the ones they stated in the early stages when they defined their requirements. Therefore, it is essential to monitor user needs, and to involve users constantly at appropriate intervals, not only at major checkpoints. This tracking needs to be carried out through a series of systematic and regular consultation events with end users.

Commercial impact advisory groups

Traditionally design and development projects have advisory groups which may be called, e.g., a management group. Typically, in a project of one company only, the advisory group is formed of experts in content and management of the company in question and clients. In larger projects, with several companies, there may be several members, and also a member of a funding agency. Such a group meets at certain intervals to provide guidance and advice, and mentors and approves the work of the design and development project.

A commercial impact advisory group (CIAG) differs from the traditional project advisory groups in that all its members are outside the project consortium. The CIAG advises but has no authority in the final decisions of the development. The CIAG can be used for affirmation, but also to introduce questions or doubts. Both the assurance and wariness of the CIAG are expected to advance the development, to help understand user requirements, anticipate commercial impacts, as well as to lead to a product and service which fulfils the users' needs, and therefore also improve the project's overall success (Räty et al. 2017).

Communication

As we noted in the beginning of this essay, we as humans have desires and needs for communication, feelings, stories, and dreams. Companies eagerly use these needs in their communication.

In order for the company's message to be effective, it needs to be simplified to a very small refined core. That core in turn can then be expanded to communication, marketing, and advertising. For example, a simplification of the Titanic storyline is that a man and a woman fall in love on an unsinkable ship that sinks. Finally, this was expanded to a film lasting three hours and 14 minutes (Toivanen 2018).

Similarly, the messages that companies create are based on the essence of the company, its purpose, mission, values, strategy, and vision. Toivanen emphasises clarification in the design process. He describes a process saying that designers "need to simplify things so much that it begins to feel bad and stop when it starts to feel good again," (Toivanen 2018). In other words, this means that the final refined crystallisation of the core has been found. The core can then be expanded to include basic elements, core messages, applications, communication, marketing, and advertising (see Fig. 5).

This concept is significant. It means that all company's communication conveys the essence

of the company, e.g., its values. On the other hand, no communication—or at least no effective communication—is possible without deriving it from the essence of the company. Logos, products, services, advertising, and their tone of voice, all carry the basic purpose and vision of the company. This work belongs to the domain of designers, as well.

Design Venture Programme

The Design Venture Programme at the Lahti University of Applied Sciences (Lahti UAS) promotes design to speed up businesses, especially SMEs and microenterprises. We aim to strengthen smart specialisation of the Lahti region by improving the strategic position of design which is one of the priority sectors of the Lahti UAS. Our aim is to create successful businesses and foster their growth and internationalisation.

Since the beginning of the Design Venture Programme in March 2018, we have coached 34 SMEs and microenterprises from various sectors to understand the role of design in their businesses. Additionally, we coach them to buy design and use designers, and coach designers to sell their services to SMEs and microenterprises. The enterprises' business areas include, e.g., coffee roasting, food, sports equipment, software, car tuning, video production, adult education, and online shopping.

Within the programme, design means product and service design, but also refers to communication, especially digital communication, and branding, among other areas. In the early stages of the programme, coaching the latter areas have been indispensable for our enterprises.

To raise the awareness of design both in everyday life and in development processes of companies, we coordinated the Lahti Design Week in 2019. This consisted of seminars and talks on design aspects, such as digital clothing in computer games, digital games in city development, wood architecture, and museums' active and new roles in cities. Furthermore, the Design Week had altogether 20 exhibitions of various results of design in, e.g., furniture for temporary housing and emergency accommodation, information design of city statistics, history of sports clothing, vehicle design, and photography.

The Design Venture Day, as a part of the Design Week, addressed special questions and issues that enterprises typically have. They were given guidance in design, marketing, and legal clinics.

The Design on the Road events began in 2019. Their purpose is to address companies, governmental organisations, and the third sector outside the Lahti area in proceeding with design in their development processes.

From March 2018 to August 2020, the Design Venture Programme is a project that the Lahti UAS is running together with the Lahti Region Development LADEC. After the project period, it is planned to run the programme independently at the Institute of Design.

Design Means Business

Company management requires experts on user issues: in branding, communication, product and service design, usability, interaction design, and visual and other sensory design. These experts design products and services for users. The users' satisfaction is vital for the company, both large and small. Ultimately the users bring in profits to the company.

Recognising the users' real needs and designing products and services for the users, improves user satisfaction and usability. Using effective communication, the companies' messages reach their users, both current and new ones.

All the above, result in financial gains for the companies. Within the Design Venture Programme, we coach SMEs and microenterprises to use design in their development processes, and to grow. Design means business.

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Harri Heikkilä

The Milab-project

Visual Communication Education Responding to the Labour Market Needs

Abstract

One core function of a polytechnic university is to answer the needs of contemporary working life. According to a recent study, the labour market need for visual communications professions is increasingly focusing on user experience design and as a platform for designs on touchscreen devices. The MILAB-project answered this call by asking companies in the visual communication field what kind of skills they concretely expect from jobseekers, and constructed a complementary competence course based on these demands. The pilot consists of three topics: Co-operate (creating common ground between arts and tech), Design (UXD for touchscreen devices), and Execute (High end interactive prototyping for mobile devices).

The Lahti Institute of Design MILAB project aims to diversify and update visual communication education to meet better current and future proven needs through educational measures, resulting in improved job placement and increased attraction of visual communication studies in Lahti.

Keywords: Graphic design, user experience, user interfaces

Background

The visual communications professions are in a state of change. This is hardly breaking news. In fact, the process has been underway since the start of the nineties – due to the technological change: the fall of the 500-year-old Gutenbergian galaxy and the rise of the digital sphere. The conquest of the responsive design over fixed layouts and the rise of big touchscreens from the start of the current decade have further stimulated this change. Smartphones and tablets have accelerated media convergence, raised the importance of user experience and underlined the

significance of platforms. Media convergence is a process where more devices, content, and channels are increasingly accessed through a single universal device, cloud services and platforms. Moreover, it has continued to evolve, especially in the United States and Asia where large platforms and ecosystems have left European ones far behind (Krishna 2015). Large platforms are capable of investing in an excellent UX and are thus in an advantageous position.

The trend described above requires a new attitude and skill set from coders and designers alike. Parallel with this process, the role of the visual designer has been in shift from the traditional role of the artist to a broader, more producer-like role (Lupton 2011, 12–13) and further to a specialist in the field, whose design solutions build on user needs, testing and research (Frascara 1997).

Current recruiting ads strongly reflect this change: in those Finnish ads seeking "designers", almost nine out of ten required UX/UID know-how, while eight out of ten mentioned a requirement of communication and teamwork skills; also mentioned frequently was the ability to design for apps. Only very few ads sought "web designer" or "graphic designer", as opposed to ubiquitous "UX-designer" and "UI/UX designer". (Dziobczenski et al. 2018). Some designers are willing to go even as far as to abandon the whole term "graphic" in "graphic designer" (Flanagan 2019).

In conclusion, the market need for visual communications professions is increasingly focusing on user experience design and as a platform for designs, on touchscreen devices.

Proposed solution in works: MILAB

One core function of a polytechnic university is to answer the needs of contemporary working life. Design and creative content are increasingly important to the country's competitiveness and business success, and UX/UI-industry experts are increasingly in demand.

It was clear that this societal need has to be addressed somehow in the future curriculum. MILAB started as a feasibility study by the principal lecturer of visual communication. Information from targeted Finnish media design agencies was collected during the winter of 2018. The research question concerned what the agencies expect from the upcoming visual designer who aims to work with their company. The results support the above findings. The recruiters seem to choose the word UX-designer instead of graphic designer "because this way we can find the multitalented graphic designers, and we can get better candidates to choose from".

Expertise requested by frequency in answers:

- Experience working in a multi-disciplined environment, especially with a developer/coder
- Familiarity with prototyping tools
- Understanding of agile development models and tools
- Usability and UX development methods and user testing
- UID-understanding
- Broader role and professional abilities as of a traditional graphic designer
- Presentation and argumentation skills
- Good grasp of today's technology

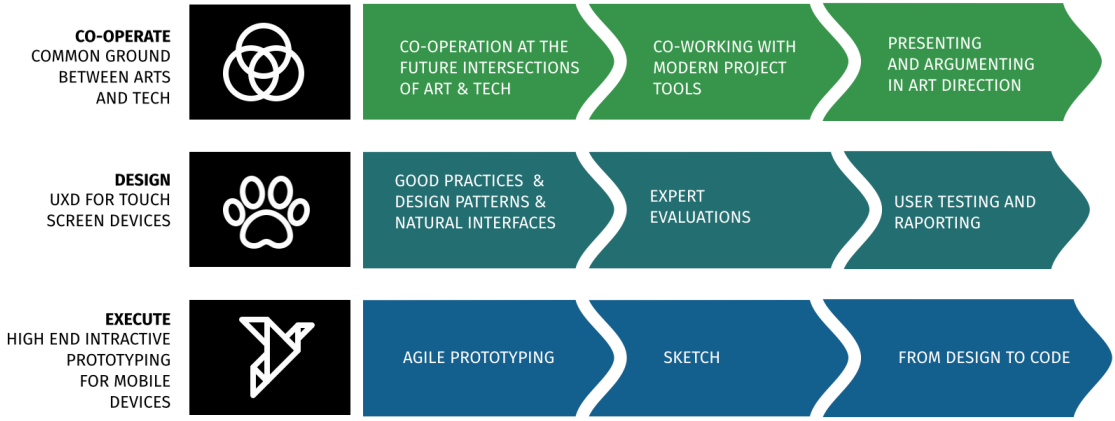

Figure 1. The curriculum is modular and consists of three topics. (Graph: Harri Heikkilä)

Examples of expertise are discussed below:

Experience in working with a coder: Working is an interactive process where one has to share a common ground: mutual language in terms and concepts is necessary, and understanding what is feasible, what can be done and with what effort within some platform is essential know-how as well.

Familiarity with prototyping tools: This requirement means that the designer knows what kind of software is available and can choose an appropriate one which fits the project. For example, when to use Sketch, when to create just a quick interactive layout with XD, or when to simulate something more challenging with Flinto for mac; and, of course, how to use these tools, as well.

Usability and UX development methods and user testing: The designer has to be able to adjust designs according to feedback and also be able to collect that feedback independently if necessary. Quick heuristic evaluations are also an important asset in the toolbox.

The problem is how to implement this set of requirements as a curriculum, and how to interpolate this collected data to actual courses as an output. Our solution is to create an educational resource that is divided into three functional lines corresponding to those societal and corporate needs discovered in our research, and, moreover, to break these lines to flexible modules. This way, each educational line can be modified to different purposes from BA to MA, and to in-service training.

Future results: the microlevel

After the curriculum, students can

- create feasible mobile software concepts in collaboration with a coder
- test the service or software and modify it according to the feedback received
- understand the basics of human-computer interaction
- identify the common interaction modes and models in graphical user interfaces and platforms
- critically analyze interactivity, justify verbally in writing and visually any solutions made
- recognize the design features of touchscreen devices and know good practices, and master the methods of evaluating them
- select, design and implement interactivity in a meaningful way
- understand platform-specific user interface design guidelines and where to find their detailed instructions
- implement plans using software, such as Flinto, XD and Sketch
- understand agile development and Scrum's working methods
- work fluently with a coder
- present, perform and justify as an art director
- identify and understand emerging media technology

Future results: the macrolevel

- Skills better suited to the needs of working life
- Increased LAB expertise in UX / UI
- Better distinction from competitors
- Increased aspiration and attraction.

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This is the third review of the publication series named the Lahti 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 nine articles written by experts from Lahti University of Applied Sciences.

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