



A Shift Towards Sustainability: Case Study of Tuotanto- ja Työntekoyhtiö Päägå Oy

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**A Shift Towards Sustainability: A Case Study of Tuotanto- ja
Työntekoyhtiö Pågå Oy**

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Kestävyyssuunnitelma: Case Tuotanto- ja Työntekoyhtiö Pägå Oy

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Tämä opinnäytetyö on tehty yhteistyössä Työnteko- ja Tuotantoyhtiö Pägå Oy:n kanssa, ja siinä keskitytään erityisesti heidän messuosastojen rakentamislukemointaansa. Kestävän kehityksen mukaisesti opinnäytetyössä huomioidaan monipuolisesti eri osa-alueita ja työn tarkoituksena on antaa Pägålle suuntaviivat, joiden mukaan he lähtevät kehittämään vastuullisempaa liiketoimintaa. Tietoperustassa käydään läpi kiertotaloutta ja vastuullisuutta, liiketoimintamalleja ja arvon luontia. Systeemiteorian avulla tarkastellaan suunnitteluprosessia ja arvoketjua. Tutustutaan myös ekosuunnitteluun, viherpesuun, viestintään ja muutosjohtamiseen.

Systeeminen muutos tulee messualalla hitaasti. Niin loppuasiakkaat, kuin messuvieraatkin odottavat näkevänsä uusia ja kiiltäviä pintoja. Myös brändäykseen liittyvät värit ja muodot tuovat haasteita messuosastojen komponenttien uudelleenkäytölle.

Tutkimus- ja kehittämistyötä varten on asetettu kaksi tutkimuskysymystä: 1) Mitä muutoksia on tarpeen tehdä sisäisissä toiminnoissa kiertotalouden liiketoimintamallien edistämiseksi? ja 2) Kuinka voidaan tehokkaasti edistää ekosuunnittelua? Tutkimus suoritettiin laadullisena tutkimuksena, johon kuului puolistrukturoidut Pägån edustajien teemahaastattelut. Pägån tavoite on olla alan edelläkävijä vastuullisuusasioissa ja vastata tiukentuviin asiakkaiden vaatimuksiin, sekä tehdä oma osansa ilmastonmuutoksen hillitsemiseksi.

Kehittämissuunnitelmassa tehdään Pägålle ehdotuksia, joiden avulla he voivat edistää kiertotaloutta ja vastuullista liiketoimintaa. Systeemiteorian mukaisesti Pägån tulee jakaa prosessinsa pieniin osiin ja miettiä kuinka luoda lisää vastuullista arvoa kussakin osassa. Vastuullisuus tulee luoda strategian ytimeen, samoin kuin messuosastot tulee suunnitella niin, että uudelleen käytettävät komponentit ovat suunnittelun perusta. Suunnittelijoiden tulee olla myös tietoisia, mitä eri uudelleen käytettäviä komponentteja heillä on vapaana ja varastossa. Kiertotalouden liiketoimintamallien mukaisesti Pägå voi harkita Stand as a Service konseptia tai messuosastojen rakenteiden vuokraamista alan muille toimijoille. Hyvin suunnitellut ja luotettavat mittarit antavat tietoa liiketoiminnan kehittymisestä vastuulliseen suuntaan, sekä perustan läpinäkyvälle faktoihin perustuvalla asiakasviestinnällä.

Yhteistyö eri sidosryhmien kanssa on tärkeää. Pägån tulee ennakoivasti esitellä kiertotalouden ratkaisujaan asiakkailleen, ja kertoa onnistumisestaan esimerkiksi sosiaalisen median alustoilla, käyttäen esimerkiksi aihetunnistetta #CircularStands. Ylijääneet materiaalit tulee saada tehokkaasti samanarvoiseen käyttöön. Kiertotalous antaa Pägålle mahdollisuuksia säästää niin materiaali- kuin jättekuluissakin.

Asiasanat: Ekosuunnittelu, Kiertotalous, Messuosastot, Muutos, Vastuullisuus

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A Shift Towards Sustainability: Tuotanto- ja työntekoyhtiö Pää Oy

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This thesis was written in collaboration with Pää Oy, a company that specialises in the construction of exhibition stands. The aim of the thesis is to launch a sustainability change in their field of exhibition stand construction. In line with sustainability, the thesis takes a wide range of issues into account and its intention is to provide Pää with guidelines for developing a more sustainable business. The theoretical framework covers circular economy and sustainability, business models and value creation. Systems theory is used to examine the design process and the value chain. Ecodesign, greenwashing, communication and eco-management are also explored.

Systemic change comes slowly in the exhibition event industry. Both end-customers and exhibition visitors expect to see new and shiny surfaces. Using branding colours and shapes in stands pose challenges for the reuse of components in other exhibition stands.

Two research questions were selected for the research-oriented development study: 1) What changes are needed in internal operations to promote circular business models, and 2) How to enable eco-design. The research was carried out as a qualitative study, including semi-structured theme interviews with representatives of Pää. Pää wants to be an industry leader in sustainability issues, as well as to respond to increasing customer demands. The work is therefore very timely.

The development plan makes suggestions to Pää to help them promote the circular economy, and sustainable and responsible business. According to systems theory, Pää should break down their processes into small parts, and think about how to create more responsible value in each part. Sustainability should be at the core of the strategy, and the exhibition stands should be designed with reusable components at the core of the design. Designers should also be aware of the different reusable components they have available and in stock. In line with the circular economy business model, Pää may consider a Stand as a Service concept, or renting the stand structures to other industry players. Well-targeted and reliable metrics provide information on how the business is developing in a responsible direction, as well as a basis for transparent, fact-based customer communication.

Cooperation with the various stakeholders is important. Pää should proactively present their circular economy solutions to their customers, and communicate their success on social media platforms, for example using the tag #CircularStands. Surplus materials should be effectively made available for equivalent use. For Pää, the circular economy offers opportunities to save on both material and waste costs.

Keywords: Circular Economy, Eco-Design, Exhibition Stands, Sustainability, Transformation

Table of Contents

1	Introduction	6
1.1	Case Company: Tuotanto- ja Työntekoyhtiö Päägå Oy	6
1.2	Participation to the Exhibition	7
2	Circular Economy Paradigm: Transforming Exhibition Stands for Sustainability	8
2.1	Exploring System Theory	8
2.2	Circular Economy and Business Model.....	10
2.3	Value Chain and Value Creation	12
2.4	Eco-Design in Exhibition Stands	14
2.5	Communication, Green Washing, and Change Management	17
2.6	About the Theoretical Framework.....	20
3	Methods and Process.....	21
3.1	The Research, Context	21
3.2	Theme Interviews	26
4	Insights from Interviews: Unveiling Perspectives on Circular Innovations in Exhibition Stand Sustainability	30
4.1	What Changes are Required in Internal Processes to Implement Circular Economy Business Model?.....	31
4.2	How to Enable Eco-Design (Sustainable Materials, Modularity, and Re-use).....	34
5	Rethinking Exhibition Stand Sustainability.....	37
5.1	Value Chain and System Theory.....	38
5.2	Macro and Micro Level Changes	40
5.3	Business Models.....	42
5.4	Communication and Green Washing	44
5.5	Metering and Tracking System	46
5.6	Design.....	50
5.7	Donations.....	53
5.8	Suppliers and Procurement	54
5.9	Development Plan in a Nutshell	56
6	Reflective Thoughts.....	57
	References.....	61
	Figures	68
	Attachments.....	69

1 Introduction

Rapid changes in the operating environment brings different opportunities and challenges to the companies. It is important to develop the ways of doing business and to anticipate for future changes and adjusting strategies accordingly. (Ojasalo, Moilanen & Ritalahti 2014, 3.) For a long time, many people took nature and the resources it provides for granted. However, we have now realized that nature has its limits, and we cannot waste them as much as we want. (Braungart & McDonough 2009, 25-26.) Climate change and green transition but pressure on companies to act more sustainable in all areas. According to Global Footprint Network, since year 1970, humans have used more natural resources than Earth can annually produce. To raise awareness, the term ‘overconsumption day’ was developed; this is the day, when the country’s consumption surpasses the amount of natural resources produced. (Brambilla 2022, 9) In year 2023, the Finnish over consumption day was 31.3.2023, we should aim to reduce our consumption to at least a quarter of its current levels (Toiskallio 2023). Decreasing the consumption of natural resources is imperative to ensure a more livable planet, and a circular economy provides one way to achieve that.

This thesis aims to address future challenges through collaboration with Tuotanto- ja työntekoyhtiö Pägä Oy (hereafter referred to as Pägä), which wants to be a forerunner in sustainable exhibition construction. Under pressure from its own clients, designer agencies, Pägä seeks to transform its operations to be more sustainable. The purpose on this thesis is to change Pägä’s actions from “Cradle-to-Grave” to “Cradle-to-Cradle” business (Braungart & McDonough 2009, 102) as much as possible. This research-oriented development study concentrates to find places to enable eco-design, where each step of the process in holds add-on environmental considerations (Newton, Charnley, Rowe, Tymms, Mills 2014, 11). One point of view is that no material should be treated as waste or as a cost (Evans, Fernando & Yang 2017, 216). The concept of circular economy is not about disposal, it is about producing and consuming more efficiently (Calatayud 2022, 142) forming the foundation of this thesis.

1.1 Case Company: Tuotanto- ja Työntekoyhtiö Pägä Oy

Pägä is a Finnish company, and it was founded in 1996. In year 2020 Pägä strengthened its knowledge by uniting with Production Mill HILMI oy and Pastell Oy. Pägä is specialized in the design, implementation and furnishing of structures for media productions, virtual events and studios, artist and exhibition sets, and structures for events and trade fairs. (Pägä 2023.) In 2023 Pägä had almost forty employees (Asiakastieto 2023). Pägä’s customers are from different areas, like production companies, architects, set designers et cetera. Pägä has their own smithy where they produce custom made furniture’s for example to offices, hotels, and restaurants. Along with designing Pägä also rents furniture’s to different events. (Pägä 2023.) In capital area Pägä has two different premises. Their rental business is in Konala, Helsinki (here

after Konala site) and the workshop is in Veromies, Vantaa (here after Kiitoradantie). They also have operations in Tampere. According to Asiakastieto, Päägå (VAT 1054547-7) had a turnover of EUR 4.7 million in 2023. Turnover increased by 95.8%. The operating profit was 608 000€ and the operating profit margin was 12.5%. The company's equity ratio was 68 %. (Asiakastieto 2023.) Päägå's rental business is operated under the name Event Furniture Finland, which serves as the importer of the rental products and also acts as the retailer (Päägå Oy, 2023).

Päägå has different functions, and this thesis concentrates on their exhibition stand manufacturing, which is part of Päägå's special construction business line. Päägå's own customers are designing agencies, which use Päägå to build a stand for their own customer, the brand. Designing agencies send Päägå a request for Päägå to build a stand based on their design. The desired technology is decided by the design agency, but Päägå can do most of the other material choices, like floors, walls, and use of rental furniture and rental plastic plants. Päägå builds the exhibition stand from their own materials and they also do the dismantling of the stand. With this brief introduction to the company and to the value chain of the exhibition stand, it is easier to understand how the upcoming theoretical framework supports this research-oriented development study.

1.2 Participation to the Exhibition

Exhibitions are an old way and a good place to meet and greet stakeholders. First exhibitions in Finland were in Lahti back in 1934 (Häyrinen & Wallo 2014, 83). The largest exhibition center in Finland is Helsingin Messukeskus and it had 1 087 718 visitors in 2019 (Kivinen 2022) and 9 804 organizations were there as exhibitors (Messukeskus 2023). Exhibition stand is like a little event of itself, and it also communicate about the company's values. In exhibitions, it is important that the people in the stands are active and that stand itself is attractive. (Häyrinen & Wallo 2022, 84.) The main reason for attending exhibitions is to network with different parties and to attract new customers. Exhibitions are also good places to get familiar with the latest trends and innovations. Designing the stand is one main factor while participating in the exhibition. Location and the size of the spot are the main factors with designing the stand. Location may vary a lot in a different location. Stands can be designed with your own team or with the help of a design agency. Design agencies can help to create custom made stands according to the latest trends. (Focal exhibitions 2023.)

The road from an idea a finished stand includes three main factors: conception, designing, building. For conception, designers will have a conversation to fully understand what customer wants to achieve with the stand, so that stand will be truly made in line with their wishes and expectations. At this point there are also important questions like how the logistics will be arranged, and how many shows the same stand should last. Storage between

exhibitions is also something to be planned and there will be some integrations in the stands that need to be noticed in the design. After the stand concept is agreed, the designer will send a detailed design of the stand, and the manufacturing cost will be within the agreed budget. After these steps the stand can be built. (Focal exhibitions 2023) In the designing stage various important decisions are made, like material choices, logistics, as mentioned above, and how the stand is built and how the materials can be reused, repaired, and even refurbished. During the design, the future of the stand and used materials are chosen. The stand is clued together it cannot be neatly disassembled, but by using screws almost no visible harm is made to the materials. (Ellen McArthur Foundation 2021.)

2 Circular Economy Paradigm: Transforming Exhibition Stands for Sustainability

Literature and peer reviewed articles that supports the research-oriented development study was selected to this theoretical framework. Selected sources provide deeper understanding of topics like circular economy, business models, value creation, eco-design, system theory and communication. The meaning of this theoretical framework is to give deeper understanding what topics and actions should be noticed and done when the goal is to transform Pågå towards more sustainable business and eco-design. Theoretical framework supports the selected framework for this research-oriented development study (Tuomi & Sarajärvi 2018, 22). The most common definition of sustainable development is that the current generation should not use more natural resources, than it leaves behind to the future generations. The main goal of sustainable development is to ensure conditions of a good life for the present and future generations. Sustainable development includes three different dimensions, ecological, economical, and social & cultural sustainability. (Motiva 2023.)

World today faces multiple different challenges. Growing population, exceeding planetary boundaries and depletion of resources pressures companies to change their current behavior. As Evans et al. stated, change towards more sustainable industrial system requires the understanding of system and value transformation. Business model needs to develop from creating only economical value to create, deliver and capture also social and environmental value. (Evans et al. 2017, 203-204.) This theoretical framework constitutes the research theory, which serves as a presupposition for examining the issues addressed in this thesis (Vilkka 2021, 43).

2.1 Exploring System Theory

System theory is an interesting approach that can be utilized in Pågå's operations. To create, deliver and capture sustainable value in the whole value chain, system theory thinking helps to outline the overall picture and to see connections between different factors, it is a

framework that helps to see interrelationships. Systems intelligence can be defined as the ability to perceive entities with interactive feedback loops, in a meaningful and creative way (Wahlström & Ollus 2013, 67) By utilizing system thinking the changes can be done in micro and macro level to maximize the benefits and agile transition. System thinking encourages to see multiple perspectives rather than giving straight answers to questions. (Evans et al. 2017, 204-205.) The micro level of the organization is employees, teams, and departments, it is a foundation for the company's operations. Macro level sees the organization as whole and its interaction with the environment. (De Keyser, Vandembemt & Guitte 2023, 2.) Non-technical business model changes in the firm's micro level niche innovations that create actual change in a current system (Hernández-Chea, Jain, Bocken, & Gurtoo 2021, 19).

Business models can be conceptualized in various ways. In this research-oriented development study the definition of Bocken, Short, Rana, and Evans is used. As Bocken et al. say the business model has three main elements, value proposition, value creation and delivery, and value capture. In the heart of the business model is value creation, the typical way to do that is looking for new business opportunities like new markets or revenue streams. The product or a service that generates economic return, can be seen as a value proposition. Earning revenue from providing good, services or information from customers is value capture. (Bocken, Short, Rana, & Evans 2014, 43.) Business models are used to explain how the value is created, not only how value is captured (Zott, Amit & Massa 2011, 1019).

The difference between circular economy business model and sustainable business model is that circular economy business models focus on closing the resource loop, sustainable business models obtain practices that answers Sustainable Development Goals. Sustainable business models also use niche to achieve the wanted result. (Hernández-Chea et al. 2021, 2.) United Nations have launched a sustainable development action plan, Agenda2030. There are seventeen different main Sustainable Development Goals in Agenda2030, and goal number 12 is responsible consumption and production, including Circular Economy. These Sustainable Development Goals are often referred by an abbreviation SDG. (Motiva 2023; United Nations 2023.)

Sustainability-oriented innovations should profoundly influence an organization's philosophy and values (Evans et al. 2017, 207). Embedding change into the core of a business model is crucial, extending sustainability management to encompass environmental, social, and economic concerns while acknowledging the limits of the ecosystem (Evans et al. 2017, 208). Business models are recognized as pivotal in the sustainability transition, necessitating a profound understanding of sustainable business model innovations (Hernández-Chea et al. 2021, 1). Geissdoerfer, Pieroni, Pigosso, and Soufani's study highlights the evolution of business concepts as tools for systemic analysis, planning, and communication, serving as strategic assets

for competitive advantage and firm performance (Geissdoerfer, Pieroni, Pigosso, & Soufani 2020, 3).

The transition towards sustainability requires, that the change needs to be in the core of the business models, it cannot be built around it. The most impactful way is to build the strategy around sustainability related issues, including circular economy. (Bocken et al. 2014, 44.) The implementation of new circular economy business model requires innovation and testing from the organization (Geissdoerfer et al. 2020, 2). It is important to have a good understanding of the organization, as the lack of firm level-perspective can limit the understanding, which steps are required for the transition. Which actions influences for the system transitions, and which nuances of strategy operations will lead to sustainability transitions. (Hernández-Chea et al. 2021, 19.)

2.2 Circular Economy and Business Model

Circular economy is not only green economy or waste economy, but also complex and holistic model, which involves rethinking the use of resources at every stage of the chain (Brambilla 2022, 12) it also aims to minimize resource depletion along with waste and emissions (Geissdoerfer et al. 2020, 1) and integrates environmental considerations into the design and development of products according to life cycle thinking and reduce single use (Calatayud 2022, 142) keeping the materials in the loop in the same level usage as long as possible (Geissdoerfer et al. 2020, 2; Ellen McArthur foundation 2023a). The aim to decrease the use of natural resources binds the eco-design inside the circular economy business model which creates a sustainable, low-carbon, resource-efficient and competitive business. (Loikkanen, Huijala, Valkonen & Kinnunen 2022, 25; Turunen 2022, 45.) Implementation requires rethinking of value propositions and reorganization of different value chains, effectiveness in the production along with making financial profit (Geissdoerfer et al. 2020, 2).

Reusing saves energy and resources (Zhuang, Shih, & Wagiri 2023, 14). In European Union, there is five stepped waste hierarchy which was created as a guidance for waste. The main goal is to prevent the generation of waste. If pre-venting the waste is not possible, the waste must be refurbished to be used again or to be recycled. This hierarchy is created to help disconnect natural resources usage, waste generation and economic growth from each other. (Huilaja, Kinnunen, Lehtonen, Pyyhtinen & Valkonen 2019, 22.) It is also notable, that before material is recycled, it should be modified as lower-level product (Ellen McArthur 2023a) and that burning waste for energy is not recycling and not part of circular economy, it is only beneficial way of getting rid of the waste (Geissdoerfer et al. 2020, 10-11). Either is recycling is the long run answer (Newton et al 2014, 5).

Circular economic flows are divided into biological and technical flows. In Pågå's business they follow the technical flow, which points out the extension of the material life cycle,

resource efficiency and recycling. A circular economy reduces the need of virgin natural resources and the amount of waste and pollution. The use of renewable energy also lowers the carbon footprint. The designing should be switched to Cradle-to-Cradle thinking, so the designing will also consider the reuse phase of the materials. (Ellen McArthur 2023a.) Pågå uses wood in their exhibition stand manufacturing. If the wood would be like virgin wood, and it would not have any chemicals, it could be treated with biological flow, and it can be composted. Most of the wooden parts are treated with chemicals, so they will end up to technical flow.

Sitra defines five circular economy business models, product as a service, sharing platforms, extending the product life cycle, resource efficiency and recycling as well as renewability (Sitra 2023). Intensifying strategy is business models which in holds example rental and leasing models and sharing models. Proposed value is products as a service, and created value is product-as-a-service design. Captured value is financial, because same invest can create income multiple times. Geissdoerfer, Pieroni, Pigosso, and Soufani did recognize four different circular economy strategies, cycling, extending, intensifying, and dematerializing. Dematerializing strategy proposes to utilize digitalization which would mean digital exhibitions in Pågå's business line. (Geissdoerfer et al. 2020, 10-11.)

In sustainable business, the value proposition would provide measurable social and/or ecological value along with economical value (Bocken et al. 2014, 43). While innovating new business models, these business model innovations need to be done through sustainability lenses (Hernández-Chea et al. 2021, 19) and as Yang, Evans, Vladimirova and Rana writes, by identifying the value uncaptured in current business models, firms could turn this understanding into value opportunities that can lead to new business model which has higher sustainable value (Yang, Evans, Vladimirova & Rana 2017, 1802-1803). Bocken et al. defines eight sustainable business model archetypes. They are maximizing material and energy efficiency, create value from waste, substitute with renewables and natural processes, deliver functionality rather than ownership, adopt a stewardship role, encourage sufficiency, re-purpose the business for society and or environment and develop scale-up solutions (Bocken et al. 2014, 55). Mentioned archetypes can be grouped to be technological, social, or organizational (Bocken et al. 2014, 48). These archetypes can be utilized in value proposition, value creation and delivery as well as value capture. Using archetypes can help to define sustainable business model innovation (Bocken et al. 2014, 42).

Companies that can innovate quickly and successfully new business models can create value faster than their competitors. By innovating new business models can be critical for companies, they need to find new ways to meet new requirements from the society, stakeholders, and law makers. With business model innovation companies can have a concept to new business model and plan how to implement it, do adjustments to old business models or use it to

transform one business model to another business model. (Geissdoerfer et al. 2020, 3.) The transformation requires innovating ideas that promotes sustainability transitions and have positive impact to stakeholders (Hernández-Chea et al. 2021, 5). Organizations can also do experiments in a collaboration with stakeholders and control their own daily operations and logistics. Organizations should think how they can reduce the environmental impacts in their day-to-day operations. (Hernández-Chea et al. 2021, 12.) To ensure the implementation of this business model it must be implemented in an organizational level and organizations need it understand that different factors can create value together, so they should not be seen too individual tasks (Geissdoerfer et al. 2020, 1&12). In sustainability transition, the transition is long-term journey and sometimes it requires training or requiring new employees (Hernández-Chea et al. 2021, 5&12).

Sometimes circular economy can be referred with few or all 6R's. The R's stand for reduce, reuse, recycle, recovery, redesign, and remanufacturing. First R, Reduce is from 1980's. It was accompanied with Reuse and Recycle in 1990's. They were the foundation for green manufacturing and aimed to reduction of natural resources, producing minimum waste, emissions, and pollution. The sustainable manufacturing includes Recovery, Redesign, and Remanufacturing. It also aims to closed loops and multiple life cycles. (Jawahir & Bradley 2016, 104-105.)

2.3 Value Chain and Value Creation

Value chain cannot be seen as a linear process, it resembles more like a spider's web (Evans et al. 2017, 204-205). Value can be captured in different points of the spider's web and, that's why organizations need to consider the value creation throughout their network, including customers, supplier, employees, society, and the planet (Evans et al. 2017, 218) and it requires collaboration with suppliers and customers (Ellen McArthur Foundation 2023b). By mapping the network to find the points where value is lost, can they be noticed and then be changed as a value opportunity (Evans et al. 2017, 218). To promote sustainable business, the sustainable practices are noticed through the value chain (Hernández-Chea et al. 2021, 1) and to find places of improvement within economic, environmental, and social perspectives (Kuo-Jui, Ming-Lang, Wen-Hua, Mohd & li 2023, 1). To ensure sustainable value chain the co-operation between different stakeholders is necessary (Hernández-Chea et al. 2021, 1). It is important to have a sustainable vision of organization, utilizing innovations to improve business, society, and environment and value absence to create positive impacts to the internal and external organizational structures (Hernández-Chea et al. 2021, 5).

Evans, Fernando, and Yang did collect to their study different forms of value, to understand the opportunities for value creation. There can be value absence, value surplus, value destroyed, and value missed.

- Current value proposition is value captured.
- Negative value outcomes of current model are value destroyed.
- Value that is currently lost or wasted by current model is value missed.
- Creating and capturing new value opportunities through new activities and relationships is value opportunities.

(Evans et al. 2017, 209-210.) Uncaptured value is sometimes visible, like production waste streams, under-utilized re-sources, co-products, and reusable components. Uncaptured value can also be easily recognized, like idle workers, and employees which knowledge or expertise is not utilized. The uncaptured value should be identified, uncaptured value should be turned to value opportunities and those value opportunities should be turned into value (Yang et al. 2017, 1797).

One way to map the value uncaptured, is using the Cambridge Value Mapping Tool, which Evans et al present in their study (Evans et al. 2017, 212-214.) It has a step-by-step process, where these questions are asked:

1. What is the unit of analysis e.g., product, service, or business line?
2. Who are the stakeholders for the unit of analysis?
3. What is the purpose of the unit of analysis?
4. What is the current value captured?
5. What is the value missed and/or destroyed?
6. What is the surplus and/or absence?

Evans et al also mapped the strengths and weaknesses of this tool. Few of the strengths they mentioned is that individual can use the tool to identify those opportunities that can create sustainable value in their organizations.

It also gives a new way to analyze how to make new environmental, economic, and social profits to the business. The identified weakness is its failure to explore the potential unintended consequences that may arise in the value chain once the identified value opportunity has been implemented. (Evans et al. 2017, 212-214.) The co-operation and dialog between different departments in the organization is important to develop value propositions and leverage business opportunities (Hernández-Chea et al. 2021, 1). Experimenting and implementing campaigns to create awareness about sustainability among stakeholders and rethink the way to create value (Hernández-Chea et al. 2021, 12).

As sustainability has become one of the key factors for long-term business success (Yang et al. 2017, 1794) and activities to promote change towards sustainable business model can be done in long-term strategic level, medium-term tactical level, and short-term operational level (Hernández-Chea et al. 2021, 11). There should also be a balance between short and long-

term objectives, this helps to ensure that all decisions are in line with business objectives, and this also reduces risk associated with strategic, tactical, and operational management (Reactive Executive 2023).

Long-term strategic level includes determining the vision, mission, and goals, and developing a strategy how to achieve these goals (Reactive Executive 2023) and change from unsustainable practices towards sustainable ones (Hernández-Chea et al. 2021, 11 & 17). Hernández-Chea et al. states that organization should think what unsustainable technologies they are substituting, and how should they capture value and make sustainable technologies that are profitable for the business. In medium-term tactical level focus is on setting networks and collaborations towards sustainability. Questions that should be considered are how to partner with customers to co-create sustainable value, how societal stakeholders can be motivated to move towards sustainable practices, and what sustainable practices should be integrated to the supply chain to reduce negative effects? (Hernández-Chea et al. 2021, 11.) Short term actions to adopt sustainable practices can be reached by controlling daily operations, conducting awareness campaigns, and experimenting with collaborations to deliver values-based sustainability practices (Hernández-Chea et al. 2021, 1). Focus is on establishing a sustainable vision and purpose and start implementing sustainable related practices in a short-term operational level (Hernández-Chea et al. 2021, 12).

2.4 Eco-Design in Exhibition Stands

Developing circularity and circular economy can reduce the environmental impacts of the exhibition stands. Instead aiming to zero waste, and eco-effective approach tries to maintain resource quality and productivity in multiple usage cycles. (Newton et al 2014, 5-6.) As Braungart & McDonough stated in the book called Cradle-to-Cradle - Re-making the way we make things, Cradle-to-Cradle thinking and designing is opposite for prevalent Cradle-to-Grave thinking, where products are only used once and then thrown away (Braungart & McDonough 2009, 25-26). In Cradle-to-Cradle thinking it is important to really think through how the materials could be in a same level usage. Recycled single use products are not a good choice, they are only less bad (Braungart & McDonough 2009, 6 & 9) and it is important to understand, that recycling is downcycling (Braungart & McDonough 2009, 56). Recycling is not always as sustainable as assumed, sometimes recycling and downcycling of products can create more emissions and it can be more expensive. The best thing is to maintain the product in a same level usage (Braungart & McDonough 2009, 59).

Ideally Eco-design would be the new normal, like standardization and moving assembly line did increase the efficiency for production significantly (Braungart & McDonough 2009, 23). Now we must make same innovations to exhibition stand construction business. Gladly, the designers today are more aware of the finiteness of natural resources, and they understood

the value of the eco-design. This gives a need for the design to reinvent its practices again, to lead more readapting new ways of thinking and designing. (Neidoni & Buzdugan 2017, 184.) Eco-effectiveness is a concept where there is a proposition for products reinvention (Newton et al 2014, 5-6) in the designing phase, as the decisions related to used materials and technologies is made in the designing process (Neidoni & Buzdugan 2017, 186).

Newton, Charnley, Mills, Towe and Tymms stated, one proposed hierarchy of sustainable design has four levels. First one is Green Design, which means that product is designed and developed by focusing single issues, like selecting recyclable materials. Second one is Eco-design, which is the standard of the product design development, in eco-design each step of the process holds add-on environmental considerations. Sustainable design is the third level, and it includes ecological, economic, and social considerations, like the impact of the product development on factory operators. In the top of the hierarchy is design for sustainability. It includes the radical redesign of products and services. It aims to more sustainable future and one example is whole system design. (Newton et al 2014, 11.)

There were challenges to find scientific research about exhibition stands. This topic was also noticed in a study by Newton et al. where they stated that there is a limited amount of research made from sustainable stands and exhibition industry environmental impacts (Newton et al 2014, 3). It was also stated by Newton et al, that even awareness is growing around sustainability issues, the exhibition industry continues the linear economy business model. Branded exhibition stand usually involves harmful toxic materials and they usually end up being waste, after being used once. (Newton et al 2014, 2-3.) The awareness is seen one of the main factors for developing more sustainable exhibition stands (Newton et al 2014, 8). Usually, exhibitions are used as a place where brands want to increase their sales (Neidoni & Buzdugan 2017, 184) and stand could be utilized to show sustainability values.

However, the stands have their own requirements. Exhibition stands must be visually attractive, and the designer must consider the exhibition goals and that the stand will be memorable. Stand needs to take advantage of the whole space that is available, be attractive, brand loyal but also unique. Showy graphics and short sentences can enhance the appearance of the stand, utilizing the lighting. (Neidoni & Buzdugan 2017, 187.) Designing reusable, easily assembled and disassembled components that can be used in various stands, P&G can reduce cost, waste, usage of natural resources and their GHG emission. The logistics and storage of components can create extra cost, but with durable materials components can be used in various stands. (Zhuang, Shih, & Wagiri 2023, 2-3.) Circular economy is a part of the process to achieve sustainability and efficiency (Zhuang, Shih, & Wagiri 2023, 14) in company operations. There are few things that need to be notified while designing components. They also need to be easily inspected, cleaned, and repaired. As Zhuang, Shih and Wagiri writes, Fivet and Brütting has said that reusable components have three characteristics: reversibility,

modularity, and transformability. Gorgolewski was also referenced in Zhuang's et al. study, and comment was made that the structure and the compatibility of the needed functions must be also considered, while designing reusable building components. (Zhuang, Shih, & Wagiri 2023, 3.) It is also important to see the business with new eyes. Can only part of the stand be renewed? Can it be reused with another customer the way that only colors are changed? (Braungart & McDonough 2009, 113.) One approach to more sustainable stands is to divide the problem to smaller parts and seeing then individually, also systemic thinkers can see this problem as a whole and noticing different interconnections. A systematic point of view can help to create leverage points that lead to more solutions and hopefully in the future more radical and systematic changes. Multi-disciplinary teamwork including designers can help to make new innovations. (Newton et al 2014, 12.)

There are contractors available that offers more sustainable materials to stands. Still core materials are softwood (like MDF, plywood, timber, and pine), steel, aluminum, Foamex, vinyl and stretched fabric. For changing the unsustainable materials to sustainable ones many things need to be considered to guarantee that the change is truly sustainable. The whole life cycle of these products should be measured, like using Life Cycle Assessment (LCA) and Environmental Product Declarations (EPD). (Newton et al 2014, 5.) Newton et al. present in their study few points to be considered when designing more sustainable stands. There can be quite high variation of the temperature in the physical venues where the stands are located. Graphics need to bear different temperatures. Also, graphics need to be either reusable or recyclable. Sustainable materials can also be more expensive than the commonly used, unsustainable ones. In modular design components need to be suitable size. Too large components would be hard to handle. The interlocking mechanism should be easy and trustworthy to use. Green Design principles should be focused on, like selecting recyclable materials and seeing the whole process of the stand, from the design to the waste management. (Newton et al 2014, 9-10.) Even there are terms like "design for environment", eco-design" and "design for sustainability", it is important to notice that all human activities have environmental impact (Neidoni & Buzdugan 2017, 186).

Materials must be reusable, recyclable, biodegradable materials, and low degree or non-toxic. One choice for material is plant fibers, like cardboard or paper, readily made from recycled materials. (Neidoni & Buzdugan 2017, 186.) When starting to think the material changes, it is important to make sure that the change will be positive. Not only a change to another material, which is as bad as the first one, but only in a different way. (Braungart & McDonough 2009, 12.) When choosing products like paints and glue, it is important to remember that using less harmful products and chemicals is not enough. If usage has dropped down for 70 percent, it means there is still 30 % left. Also, this 30 percent can do harm. (Braungart & McDonough 2009, 53.) Reduction can be a good start, but total avoidance is the goal. By using 30 percent harmful substances and materials only moves destruction to further away

(Braungart & McDonough 2009, 54). Used materials need to be as free from the chemicals as possible. It is hard to know how chemicals will react in the future, while they are reused. Used materials should be chosen wisely, and a portfolio, where sustainable manufactured materials are provided, will help the designer to do its choices. (Braungart & McDonough 2009, 8 & 38).

The core elements for sustainable stand are that the design is flexible enough to create different shapes so it can be used for different customers. Individual graphics must be easily removable, so the structure can be easily reused, and the assembly of the stand must be easy and fast. Stand must be durable enough, even it is designed to be modifiable. All the materials must be recyclable, and the used wood needs to be certified. The line between modifiable parts must be easily hidden with graphics. Design must notice manufacture, use and disposal phases. (Newton et al 2014, 11.) The locking system of the components it is also important to think, so that the screws or other locks do not show or wear down the wooden or plastic pieces, concentrating on creating functional integrated interlocking system can reduce the wear down on parts. There can be few categories of components based on their strength. Some of them might need to carry more weight than the others. (Zhuang, Shih, & Wagiri 2023, 4, 12, 16.)

Today we need to think how modularity can revolutionize the construction. How standard size pieces can be utilized while manufacturing the stands. (Braungart & McDonough 2009, 65.) Modularity can help efficient reuse of the materials and parts of the stands and that way extended the usage period. The change to more sustainable exhibitions stands must be a in a whole system level, and this needs new ways of designing. (Newton et al 2014, 13.) But efficiency itself is not a value, it depends on the different surrounding factors (Braungart & McDonough 2009, 65). As Newton et al. wrote, the important thing is to remember that “to be less bad is no good - to destroy less is not positive”. By using the idea of eco effectiveness in the exhibition stand manufacturing, the “less bad” can be changed to more positive, and the goal should be closed loop in all life cycle areas. By using biodegradable products, a biological metabolism can be created. Biodegradable materials can be utilized by using biodegradable ink in graphics and plain carbon in the walls. (Newton et al 2014, 5-6.)

2.5 Communication, Green Washing, and Change Management

The importance of noticing the places for unintended green washing needs to be observed. While doing rapid and large changes, it is important to try communicating them properly. Sometimes good intentions are failed in the to be advertised correctly, and they can create huge scandals. Good intentions are not enough to build a responsible image, the actions need to be show properly in the media. Company’s responsibility can also develop to affect social factors. (Isokangas, Niipola, & Vassinen 2022, 8-9.) Internal and especially external

communication about sustainability and responsible actions needs to be well planned, as marketing of non-green products is different than marketing green products and services (Groening, Sarkis, & Zhu 2018, 1849).

What is green washing? As Vangeli, Malecka, Miltrega and Pfajfar states, the green washing has been a research topic since the early 2000's. These studies search what is the difference between companies communicate about their sustainability actions, how they take care of planet and people, versus the actual negative impacts of their operations. Vangeli et al. writes how Nemes et al describes green washing. Green washing can be result of selective disclosures, as irrelevant, unsubstantiated, or empty claims. Claims that can refer to unreliable certificates, collaboration with environmentally unfriendly companies, with negative environmental impacts or lobbying for environmentally unfriendly regulation. (Vangeli, Malecka, Mitrega & Pfajfar 2023, 281.) With consumer marketing, the actions should be targeted to all customers. There is wide range of marketing activities to be noticed, like pricing, process, production, promotion, and people. These marketing activities should be designed to demonstrating firm's goal of decreasing the environmental impacts of its services and products. (Groening et al. 2018, 1850.)

Both, Vangeli et al. and Isokangas, Niipola and Vassinen writes how important it is to have reliable communication. Isokangas says that trust is a valuable capital, which can be lost in a blink of an eye (Isokangas et al. 2022, 11). Vangeli et al. brings up how Szabo and Webster have warned how greenwashing can even impact to financial performance, as greenwashing scandals can lead to public boycotts (Vangeli et al. 2023, 281-282). Companies are in a competition to look as responsible as possible (Isokangas et al. 2022, 25) real actions which make a real impact stands out. Customers do not believe in the commercials; they want to see proof (Isokangas et al. 2022, 38). Saha and Darnton commented in 2005, how researchers and observers have worked for an actual criterion, which helps to see that which company really is a green company, and what is a pretender. Carreno did point out at 2023 regulators tries to have logic for the communication through various regulations. (Vangeli et al. 2023, 282.)

While determining the intentionality, a good rule is to keep the marketing budget in a reasonable. It should not be too large compared to product or service, timing of the marketing campaign, or related to the actual environmental impact. (Vangeli et al. 2023, 292.) Also, Isokangas et al. mentions, that along with communicating with comparable facts, it is also important to tell how widely the environmental effects are noted. Does the numbers only hold inside the effects of usage time or for the whole life cycle (Isokangas et al. 2022, 102). Advertising in social media and in other channels with comprehensible comparable transparent information can be good way to stand out, showing facts is important and tell what is compared to what (Isokangas et al. 2022, 100-101). Sometimes greenwashing is made on purpose, and the goal is to mislead or manipulate, and sometimes it is made unintentionally (Vangeli et al.

2023, 292). Anyhow, it is also good to remember that honesty trust are important values for Finns (Isokangas et al. 2022, 44), a good reputation in these areas have a significant value.

Third-party certifications are one way to prevent greenwashing. Also training the employees in all organization levels is one way to avoid greenwashing. It is important to use right vocabulary, develop green marketing strategy, and to prevent unintentional greenwashing. Companies are responsible to be accurate when they present their environmental endeavors and the relative greenness, in other words, they only tell what they have done, not plan any disconnected green marketing campaign. (Vangeli et al. 2023, 292.) It is important to act like promised. Real responsible actions can be an expense for the beginning, but it can be profitable in a long run (Isokangas et al. 2022, 117).

As workshops and innovating together plays a huge part in successful transition, few points from the change management will be presented, as commitment is a key to success, and behind of successful transition is that the executive group and the managers are committed to transition (Korhonen & Bergman 2019, 92). Leaders are the persons who can influence others to work for the common goal (Ha 2014, 47). Clear division of responsibilities and authorities help innovation, as everyone should know which group or team can make what kind of decision (Korhonen & Bergman 2019, 94). Via participative leadership, leaders include employees to the decision-making process. This increases engagement and rises motivation and psychological empowerment. (Ha 2014, 48.) Trying and developing new approaches should be as easy as possible. This transition is also a good place to let employees gain their knowledge and create positive changes to daily work. (Korhonen & Bergman 2019, 59.) From the communication aspect it is also important to have education and training throughout the organization, this way the employees can tell the communication and marketing department about their contribution to environmental issues in their work (Vangeli et al. 2023, 292). Employees skills can be utilized in a new way, when their current know-how is mapped and analyzed, and new responsibilities can be added to their job function (Korhonen & Bergman 2019, 59).

Different teams and departments can also have their own sustainability responsible persons, who can be the messengers between their team and the circular economy manager. This also helps the commitment between different employee groups, and it may help to give some feedback, critic, or new development ideas to the executives. The spirit should be as open as possible, and the communication should be two-ways. Managers needs to ask and listen what the employees has to say (Korhonen & Bergman 2019, 111). Ha introduces Norris and Porters different types of leadership, one of them is people leadership. In people leadership leaders inspire and lead employees by utilizing their best characteristics, characteristics like positive attitudes, innovation, caring, competence, and integrity. (Ha 2014, 48.) A supportive culture is important to have, this kind of culture gives employees a feeling they can safely expose their opinions and views (Korhonen & Bergman 2019, 11). During the transformation towards

the circular economy business model, the management should remember that it is leading of matters as well as employees (Korhonen & Bergman 2019, 12).

Workshops and innovation between department could provide valuable ideas to the management. It is important to know where they are, before starting to plan the road to the future. (Korhonen & Bergman 2019, 18-19.) Ha explains how Joseph Schumpeter have introduced five types of innovation: new products or services, new methods of production, opening new markets, development of new sources of raw materials or other inputs and creation of new market structures in an industry (Ha 2014, 105). Other innovations can be for innovating processes, organizational units, or organizations and / or marketing (Ha 2014, 106). In ideal situation, there would be conversations between the whole personnel. It would be good to understand how the history of the company affects to the current situation, and to understand the outside factors (Korhonen & Bergman 2019, 18-19). Via innovating, firms can adopt to the changing requirements of external and internal environments, customer demand and expectations and to the market demand (Ha 2014, 106). The communications need to be done so that the personnel will understand the importance of the change. When the change is done little by little, it strengthens the capacity for renewal. (Korhonen & Bergman 2019, 18-19.) It would be good to have the whole personnel involved to the development, because the management does not have answers to all the questions (Korhonen & Bergman 2019, 20). It is good to acknowledge, that the lower level of organization can give new perspective to the management (Korhonen & Bergman 2019, 21). While planning the transition, the organization should be treated as open system where mission, vision, structure, strategy, people, policy, and practice are treated as a as parts of a larger whole (Ha 2014, 113).

2.6 About the Theoretical Framework

There is no point in pursuing value-free qualitative research. Instead, the researcher must be aware of own pre-understanding of the topic as well as the nature and content of your own beliefs (Puusa & Juuti 2020, 143). The collected data was wide and covering many topics, and the wideness makes it interesting, but hard to handle (Puusa & Juuti 2020, 146). More sources were collected and read than were left for the final work. The remaining sources of information helped to build an essential knowledge base for the work. The circular economy is the sum of many things, so it needs to be approached from many different angles.

The theoretical framework contained references to secondary sources. Unfortunately, in these I could not access the original source. However, these secondary references have been highlighted in the text to maintain transparency.

While this data is analyzed and implemented to the development layout, it is good to use as a guide a comment by Pertti Alasuutari “observations are not findings, only clues” (Puusa & Juuti 2020, 146). This qualitative theoretical framework is supposed to be a meaningful

overall image, and it is used to create justified interpretation and to make conclusions (Puusa & Juuti 2020, 148). In other words, the information in the theoretical framework should not be utilized as a single truth, it can be the foundation to the provided innovated ideas.

3 Methods and Process

There are multiple reasons why this kind of study is useful for the commissioner and to the society. Climate change and decreasing amount of biodiversity and natural resources is the biggest challenge we face today. This thesis will investigate how Päägå can do as less harm as possible to the environment, based on the concept of sustainable development and circular economy. By adopting the concept of circular economy and actions to support sustainable development, Päägå's customers and other stakeholders will benefit too. By working advance, Päägå is also ready to face stricter environmental regulations to come (Hernández-Chea et al. 2021, 1). So, it helps to be a forerunner, that way company is more prepared for the future regulation changes, there is also a phrase "reduce, reuse, recycle and regulate" (Braungart & McDonough 2009, 53).

Finland have also committed to be carbon neutral in 2035 as aligned in Paris agreement. Lost in biodiversity, overconsumption of natural resources and climate change is calling companies to act along the government. One of Finnish objectives is to reduce deforestation, which will impact the wood use in stand manufacturing, Päägå cannot afford to have single use parts made by wood. The construction site is already under observation, it is important to do the changes before the requirements will be extended to another business areas. The Finnish government also wants Finland to be a leader in the change towards circular economy by adopting circular economy related actions, Päägå will help achieving this goal nationally. (Finnish government 2023.)

Today most of the materials in exhibition manufacturing are used once. The amount of waste is unsustainable. In this thesis I found ways to develop sustainable and economical ways to Päägå benefit from circular economy. This research-oriented development study will focus on second level of hierarchy of sustainable design, which were is Eco-design, which is the standard of the product design development, in eco-design each step of the process in holds add-on environmental considerations. Päägå wants to lead its operations to more sustainable way, and this thesis main goal is to help them to start the journey.

3.1 The Research, Context

Green transition and sustainability crumb gave a need for this thesis, and the framework is adjusted to implement the circular economy related actions. Eco-design and eco-effectiveness are in the core of circular economy. Green washing is under radar, and it seems that

green washing will cause some financial sanctions in the future. It is also important that Pääga raises awareness of their stakeholders about their circular economy related offerings. They should not do them background and out of sight. As Hanna Vilkkä states, that the absence of context causes many of the problems that can appear in the thesis writing process (Vilkkä 2021, 42) and I see there is two main issues to be studied, operational functions including communication and material one. This thesis is made as qualitative research-oriented development study, because I saw it is a best approach to understand the Pääga's business and opportunities they have with circular economy business models.

The research questions are:

1. What changes are required in internal operations to implement circular economy business model related actions?
2. How to enable eco-design (sustainable materials, modularity, and re-use)?

The development task is to create comprehensive guidelines for Pääga, that they can utilize in their journey towards circular economy.

This thesis is qualitative research and development work (Kananen 2012, 158) referred as research-oriented development study. The collected material was searched with various key words, like circular economy, sustainability, business models, business development, transition, change management and green washing. I tried to find research papers about stands, but the studies I found were more about the event itself, not the individual physical stand or exhibition booth. Communication topic was also presented in these studies, and specific literature about that topic was utilized. Theoretical framework includes peer reviewed audited studies, literature and few terms that were explained with the help of various web sources. Some of the literature I was already familiar with, and some was completely new to me and gave new perspective and information. I had a theoretical literature review, as I focused on creating theoretical framework around my research question. Books often give a more user-oriented perspective than research reports because the information has already been applied, so they were used to fill in the information provided by research reports. This qualitative research-oriented development study is based on the understanding of new phenomena, circular economy business model, and what it could mean for Pääga (Kananen 2012, 93). This was seen as a good approach as it increased my knowledge around sustainability issues, which must be seen as a whole, not through narrow sight.

First step of this thesis was planning what to do. The research methods and angles did change during the process but the reflection on the purpose of the work did help to focus on right issues and to determinate the research problem. This helped to map key words for the research-oriented development study. It is a challenge is to collect exact information (Ojasalo et al. 2014, 13) from today's information oversupply. Even though it was ensured that the

scientific theoretical framework is wide enough to ensure awareness and knowledge to the issues that are connected to this thesis. The collected information was analyzed using thematic analysis (Kananen 2012, 48 & 117) because this is a good way to organize and internalize collected theoretical framework information. Information analyzing was done while trying to make conclusions as neutrally as possible, as it also is assumed by good research practices. By collecting exact information and utilizing it in the right way, Pägå strengthens its position as a pioneer in the industry (Kananen 2012, 158; Ojasalo et al. 2014, 13).

At the early stages of this thesis there was a visit on Pägå's premises. The visit on April 25th, 2023, included a good conversation with Jarno Salmivuori. This appointment did not have any structure, and it was spontaneous conversation. Interview was not recorded, but main points were written down. Main goal of this visit was to get a basic understanding of the business and to gain more possible topics for the interviews. The literature considering stand construction was quite shallow.

The structure I used for this study is seen in the theoretical framework, where the research studies and literature information is divided under topic headlines. After the research studies were collected, books were read, the validation and early-stage conclusions were made (Kananen 2012, 93). After the theoretical framework had a structure, and the knowledge had been assimilated, then the interviews were planned. The utilization of peer audited scientific studies is wide, but it is good to remember that this is seen as a second-hand material. By having the interviews, the primary material is collected too. (Vilkka 2021, 59.) I had a brainstorming session with other students, where I introduced my research-oriented development study and my research questions. With their help I created the interview questions. The interview process is presented in chapter 3.2.

The relevant information collected from the interviews is presented in the findings chapter. After the findings were about ready, I started writing my development plan. Development plan was reflected with the theoretical framework to find the connections and the development points.

Data management will have two different periods, the ongoing writing process period, and the time after the graduation. During the writing process the data will be saved on Laurea University of Applied Sciences server, to my personal OneDrive. There is different kind of data, research studies, interview recording, interview transcriptions and multiple versions of the thesis. OneDrive is a good choice, as it can be accessed from different computers with Microsoft account log in details. Interview recordings were saved to OneDrive, and they remain there until the thesis is published. After that they are deleted. The transcription of the interviews will be saved for two years.

Interviewees were notified why the interview is held, where it was held and what they were used for, and that the thesis will be public. Interviews were held by Teams and recorded. The Teams meeting invite that was sent, had the comment that the interview will be recorded and, and the recording was mentioned at the start too. Approved Teams meeting was seen as an approval for the interview. Thesis writers contact details were provided to the interviewee with the invite. Interviews are transcribed manually. Data management needs to be planned in the early stages of thesis writing project. (Ranta & Kuula-Luumi 2017, 413 & 415.)

After the writing process the data will be moved from Microsoft OneDrive to personal computer. Back up version will be saved as an email. Data that will be saved until March 2026 are the latest version of the thesis and interview transcriptions. Data is correctly marked and clearly referenced to help to check the information afterwards if needed.

The thesis writing process is illustrated in Figure 1. First contact with the commissioner Päägå was made in March 2023. In the first Teams meeting with Jarno Salmivuori (Päägå) it was agreed that the actual work will start on May and the thesis will be ready in the end of the year 2023. In the April 2023 commissioning contract and other arrangements were made. I did also have the first meeting with Jarno in Päägå's premises when I started my thesis work. Data was collected in May 2023 and the plan, and the outline of the work was approved by the Laurea thesis instructor Marjo Poutanen. During the summer theoretical framework was created and early in the fall the interviews were planned and held in one day September 28th, 2023, via Teams. Transcription was done in October and early November the theming and analyzing was planned with the instructor. In October 2023 the thesis work was rescheduled to be ready in January 2024. During November and December, the findings and development plan were written. In January, the finalizing work was done, like spelling check, and reference correction. During the writing phase Words automatic references and sources management were used. Finally, the work was submitted for evaluation in the February 2024.

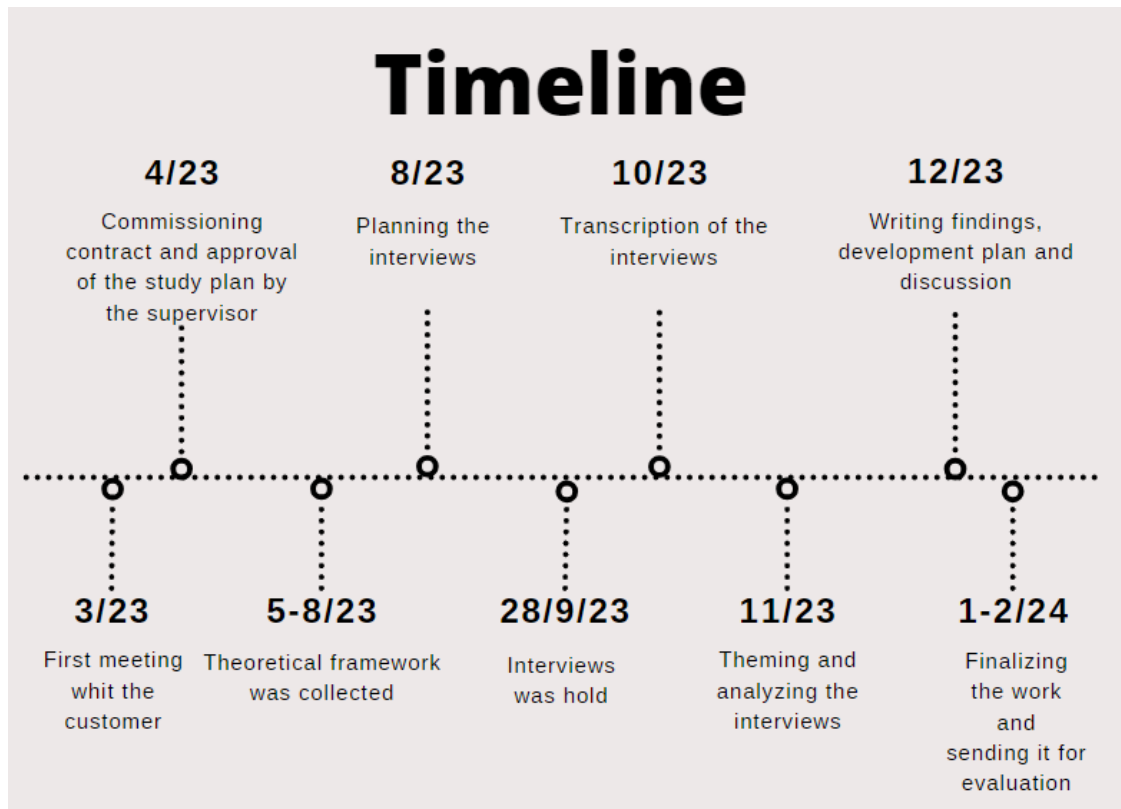


Figure 1: Thesis Timeline

The delimitation of the research-oriented development study problem is important, so that the focus will stay in the issues that are relevant towards the research questions (Kananen 2012, 158). This thesis will create an overall image of the problem by showing all the related factors. This thesis will not go deep to all essential details. Totally left out, but not less important topics were basics of calculating carbon emission, or what areas the change of future legislation may affect. This thesis will not go deeper to chemicals, their harmfulness, or environmental impacts, or pricing or emission differences between recycled and virgin products. The overall impact of exhibition sector in Finnish emissions is neither investigated. The amount of left out topics shows how wide entity this topic is.

While this research-oriented development study was planned, I had an assumption that there was no circular economy related actions done in Pääjärvi. Once the interviews were held, it was seen that they already do quite a lot. After this finding the other research questions were changed. The original question was “What changes are required in production / product design to implement circular economy business models?”. It was changed to “What changes are required in internal operations to implement circular economy business model?”. This leaves external operations up for further research, including the administration of sustainable value chain.

In the very first meeting with Tero Hokkanen, who is a Circular economy specialist at Laurea University of Applied Sciences, and Päägå's representatives, the major points of this thesis were planned. Those ideas did change their character along the way but stayed in the background. The first draft was simply to answer the research questions that was set before the work started. The original research questions were used to a create metering system for analyzing the used materials and to research how to create reusable stands and how it will affect to the business and how to develop the business.

3.2 Theme Interviews

There were four representatives from Päägå, and their job titles are presented in figure 2. There was a person from the board who is an Account Director. This was a good choice from executive level, and it gives perspective on how management sees the sustainability issue, and how willing they are to commit to adopting a circular economy business model related action. Committed executive group is seen as a key factor for a successful transition. Other three interviewees have a role with materials. The Production Manager is responsible for the operations in the workshop and has a large role in the material purchases. There is also a Project Manager, who works with the exhibition stands and materials. One interviewee is a Supervisor and a Project Manager who also participates in building stands and works with materials.



Figure 2: The Interviewees

This thesis does include four half structured interviews and the interviewees were suggested by the commissioner from Pågå. The questions were hard to decide, but it was important to understand the nature of their work. Interviews were held in Finnish. Interviews were a good way to collect information, as I wanted to get to know Pågå's representatives' attitudes, opinions, experiences, and observations. (Muotio 2022; Ruusuvuori & Tilttula 2009, 11.) The interview was seen as a better method to collect data, as it is possible to have a flexible conversation and make clarifying questions. In an inquiry the answer would have been written, and the data handling might have been easier, but it could have left open questions (Tuomi & Sarajärvi 2018, 75).

Interviews were recorded to help in analyzing the interviews and to notice new things about the conversation (Ruusuvuori & Tilttula 2009, 14). All the interviewees were informed about the goal of the interview and thesis (Ruusuvuori & Tilttula 2009, 17). The goal was to get opinions and ideas how to develop the circular economy business model for Pågå. Half-structured interview gave me a chance to have a sprawling interview, to pick up more points and allow some freedom into the conversation. Interviewees did not see the questions beforehand, because I wanted to receive spontaneous answers. The idea of these interviews was to keep the course of the interview open and collect interviewees own ideas and opinions. Objective was to gain an understanding how the selected employees see and think about the sustainability related issues, including circular economy and communication. Do they already have some thoughts or idea show to operate more efficiently. What they think about this kind of changes and have they made big change projects before. Interview invite in Finnish is seen as attachment 1. In the invite I mentioned that the interview is recorded, how the material is handled and stored and who had the access to the materials.

Even during a structured interview, there are limitations on the questions that can be asked. The questions must be based on the issue to be investigated and the goal is to find meaningful answers based on the research (Tuomi & Sarajärvi 2018, 77). With the research questions I want to know **1) what changes are required in internal operations to implement circular economy business model** and **2) how to enable eco-design (sustainable materials, modularity, and re-use)** in Pågå's own business. With question one, I wanted to check their current opinion and view about circular economy and what actions they do in their daily work. It is a question that pointed us towards the other questions. With question two, I wanted to know do they already re-use or recycle in house and are there some kind of circular economy actions already in place, that I was not aware of? The answers directly helped me with research question one and gave me a good place to ask more accurate questions. With question three I wanted to know do they already have some ideas of their own related to production, product design or (even) eco-design. With questions four and five I aimed to have some material ideas, and did they already have some modularity in their design. With question six I tried to collect information on how they would see the transformation to eco-design. Communication

related topics were included in all the main questions. With question seven I tried to find out what the main functions of are developing their operations. These questions were only the main questions in half-structured theme interview. The helping questions and free talk also helped to achieve more information.

Questions

1. Miten määrittäisit kiertotalouden työsi näkökulmasta? / How would you define your work from circular economy point of view?
2. Mitä teillä tehdään jo nyt kiertotalouden mukaisesti? / What are you already doing in line with the circular economy?
3. Miten muuttaisit toimintojanne kiertotalouden mukaiseksi? / How would you change your operations to be more circular?
4. Kuinka itse käyttäisitte jätteen ja ylijäämämateriaalit uudelleen omassa toiminnassanne? (johdattelua modulaarisuuteen) / How would you reuse waste and surplus materials in your own operations? (Follow up questions will lead to the modularity)
5. Mikä on mielestä kestävämpi, uudelleenkäytettävämpi ja kierrätettävämpi materiaali korvaamaan nykyisiä materiaaleja? / What do you think is a more sustainable, reusable and recyclable material to replace existing materials?
6. Miten näet kiertotalouden tulevaisuuden yrityksessänne? (Voidaanko tuotesuunnittelua viedä millä keinoin kohti eco-designiä?) / How do you see the future of the circular economy in your company? (How to lead the product design towards eco-design?)
7. Millaista lopputulemaa toivoisitte opinnäytetyön lisäksi, joka voisi auttaa teitä kiertotalouden edistämisessä? / In addition to the thesis, what kind of final product would you like to see that could help you promote the circular economy?

Analysis of the interviews began with the transcription of the interviews, as it was the easiest way to start analyzing the content. For these interviews, the focus was on the content of the speech and a content analysis was carried out (Ruusuvuori & Nikander 2017, 427 & 435). With the transcription and theming of the interviews it was possible to find out how Päägå currently operates and how employees think about certain issues, It was decided not to have straight quotes from the interviewees to ensure their privacy (Ruusuvuori & Nikander 2017, 430). While analyzing the interview it is important to remember that the opinions are not identical, and the answer should not be seen through interviewers' own perspective (Ruusuvuori & Tiittula 2009, 36). I had a theoretical approach while analyzing the interview data. The analyzing was not directly based on the theoretical framework, as it would have been if I had a deductive approach. The connections between the interview data and theoretical framework are still shown. I utilized the theoretical framework to get confirmation to the conclusions I made from the interview material. As Tuomi and Sarajärvi are quoted in KvaliMOTV website,

theoretical approach to the data can also be called abductive reasoning, which applied to this as I had theory-bound analysis reasoning. Abductive reasoning means, that the theory formatting is possible once observations are based on some guiding thought or glue. Which in this case was the data collected in the theoretical framework of this thesis. I cannot highlight enough that the sample of the Päägå employees was small, and generalization is strong. However, I think that the sample was good in relation to the time available. I placed the comments from the interviews to the analysis framework that followed the topics raised in the conversations based on the research question. Analyzing unit is the amount of the times individual topics raised up in the interviews, which I marked down while I did the theming. (Alavaikko, Pekonen, Vesterinen 2018; Yhteiskuntatieteellinen tietoaarkisto 2023; Tuomi & Saarajärvi 2018, 97 & 99.)

Theming of the interview material means that the interview material is themed by different topics. Theming highlights the content, and the classification shows how many times the topics came up in the conversations. (Muotio 2022.) I color coded and divided the answers based on the research questions into 1) what changes are required in internal operations to implement circular economy business model and 2) how to communicate about the circular economy related actions? Color coding also helped me to go back to the right recording if I needed to check something. While theming the iterations, surprising themes arose, like the effect of Production Hiili Oy acquirement and how they already include circular economy business models in their operations. As Vilkkä states, in my material analysis I tried to see if there are some expected themes missing, or are there some surprising, unclear, or rare themes or combination of themes present in the material (Vilkkä 2021, 155). This assumption proved to be true. In the findings I presented the raised issues per topic because the answers mainly covered both research questions. This way the finding was also more pleasant to read.

The idea of analyzing the qualitative research-oriented development study is to gain a deeper understanding of my own thesis theoretical framework material (Vilkkä 2021, 153). The theoretical framework material should also be processed as detailed and relevant (Vilkkä 2021, 154). While analyzing I looked for both, saturation, and differences (Muotio 2022). As I had less than five interviewees, I did not open the actual amount how many times current topic came out. I used more imprecise words to ensure privacy of the interviewees, as it is not suitable or common to tell actual numbers if there is less than five people involved. However, I tried to use words that gave some kind of hint how large was the saturation. I also decided not to have direct quotes to ensure their privacy. As all my interviewees worked in a different position, I also gave weight to the issues that were mentioned once. In this small organization single opinions count too. This content analysis provided me with a summarized description (Muotio 2022) about the current situation in Päägå's business, the status of circular economy now and possibilities for new circular economy business models, as well as what needs to be done to ensure effective development of circular economy related matters.

Interviews were transcribed from the recordings to individual word files. The transcription was not word to word, and only relevant parts of the conversation were written down, as topics like vegetarianism did pop out too. The transcription is only one interpretation of the interviews, and the observations were made via my own expectations, even if the goal was to be as open-minded and objective as possible (Ruusuvuori & Nikander 2017, 440). Analyzing the answers was textual analysis, as the content was transformed as a text (Muotio 2022). Material was approached with inductive reasoning and the limited content was utilized to deduce a general opinion how things are, work and could work in Päägå (Tieteen termipankki 2019). I concentrated more on what interviewees said instead of how they said it. The material I received was my own interpretation of the situation at the time, an interpreted reality of a lived experience and perception (Vilkka 2021, 74).

During the analysis, I also outlined the process from the first customer contact to the time after the dismantling the stand. I also wanted to have an own chapter to the question “How do you see the future of the circular economy in your company “. I think it is important for Päägå to see what their employees think. Littering was done in Finnish, but while I themed the interviews, I did translate the answers to English. This theming helped to find saturation in my interview material (Vilkka 2021, 154). My original idea was to theme the answers based on the theoretical framework, but I decided that was not the effective way to work on this thesis.

4 Insights from Interviews: Unveiling Perspectives on Circular Innovations in Exhibition Stand Sustainability

During the interviews it was noticed that Päägå has already done circular economy activities in their business. They did continuously work to find new ways to grow their rental business and solve their own linear usage problems. It was noticed right away, that developing internal and external communication was a key factor of success. As the rental business was their core business earlier, they were mainly a circular economy company. In March 2020 Production Mill Hiili Oy and Päägå combined. Originally Päägå was focused on rental business, and Mill Hiili was focused on special construction. So, this change added special construction, like stands and stages, to Päägå’s portfolio. It took a while to get the internal processes rolling after this change, but now they have the possibility to develop their circular economy business models. The goal of this work was to find the ways how Päägå can implement circular economy and sustainability actions to their business. The journey has already begun, so with these following findings and with the help of the theoretical framework it is possible to present a development plan for Päägå as a result of this thesis. One presented hypothesis from Päägå employee was that 50 percent of materials used in a stand could be reused. Of course, it is also cost-effective to increase reusability in materials.

One problem is that the exhibition visitors and the brand want exhibition stands to look shiny and new, and selling materials to stands that seems used is not option. This issue did raise up in a few interviews. Before there is a systematic change in the overall opinion, Pågå must think how to make used things look cool. If there are items that are needed for the special effect, they should have already served their original service. For example, if there is a car as a special effect, and it is modified to serve its purpose in a stand, that car should have served its purpose as a car before being utilized in a stand.

Along the interviews the process was outlined to make it easier to understand the value chain. The value chain was also briefly discussed in the introduction. Outlining the process helps to find the circular economy business model possibilities in different points of the chain. Designing agency, which is the customer, sends a quote to Pågå with the sketch of the visual image that shows what the end customer, which is the brand, wants. This image includes the technologies required like screens etc. Pågå's designers, technical drawers finalize the drawings, and they can decide what materials are used, for example rental wooden wall frames, rental mat pieces etc. It is notable, that if the image does not have seams (for example in the floor or walls) they should not be seen in the end product either. Pågå builds the stand in the venue and dismantles the stand after the exhibition event. Usually, Pågå takes the waste with them. Some locations have some containers for the most common waste, like plastic, cardboard, and mixed waste. In Pågå's own premises they have waste containers for wood, energy, mixed, plastic, metal-, WEEE (Waste from Electrical and Electronic Equipment) and cardboard waste. They had a person from the recycling company walk through their waste materials and planned the recycling program. So, the last step of the waste hierarchy is in order.

4.1 What Changes are Required in Internal Processes to Implement Circular Economy Business Model?

Well-targeted, timely communication is at the heart of successful implementation, and it was mentioned by more than one interview. Well planned and pro-active internal and external communication was found to be important. One idea was to have a check list for the sales phase, but also an idea of a proactive marketing about the sustainability solutions to customers was seen as a good approach. It was not clear how actively they offer the rental items in the sales phase, as that point of the project is usually quite rapid. It was mentioned by more than one interviewee that the sales phase is quite rapid, and the work must be done quickly. It was mentioned in more than one conversation, that those circular economy related decisions that customer can affect should be done before this phase. Metering incoming and outgoing waste was also recommended.

Pågå strengthens its eco-effectiveness by having a marked area for used materials in their workshop storage. It will replace the current process that is where the warehouse manager puts a note to used materials, but the materials are not located in the same place. Once this new “reusable items” area is ready, the designers can easily go and check what is available and add those materials in their designs.

There was a pilot dismantle project, where the project people created a chat on their mobile phones, where they decided which materials are reused while dismantling the structure. Usually, the materials go to Helsinki site where their rental business is located. As the workshop is in Vantaa, the Helsinki people must ask from Vantaa what materials are saved and what is not. This creates extra work and maybe even extra logistical emissions. Pågå has started creating their own sustainability reporting and they have their own requirements for their own suppliers for the materials to be used. Those materials can be sustainably manufactured, reusable, or easily recyclable.

As a summary, it was noted that Pågå has seven internal processes that should be developed. I divided these topics under three headlines, communication, reusable items, and design. In communication, they have noticed the need to have proactive communication towards the customers and the need develop their sustainability reporting. To promote the usage of reusable items, they will maintain a specific area in Kiitoradantie for reusable items. They should also meter incoming materials and the amount of waste. In design, they should create the checklist for sales to make it easier to offer the reusable items and include them to the design. They should implement the controlled dismantling for their projects and maintain a list of requirements for suppliers. Figure 3 presents these topics that originally came up in the interviews.

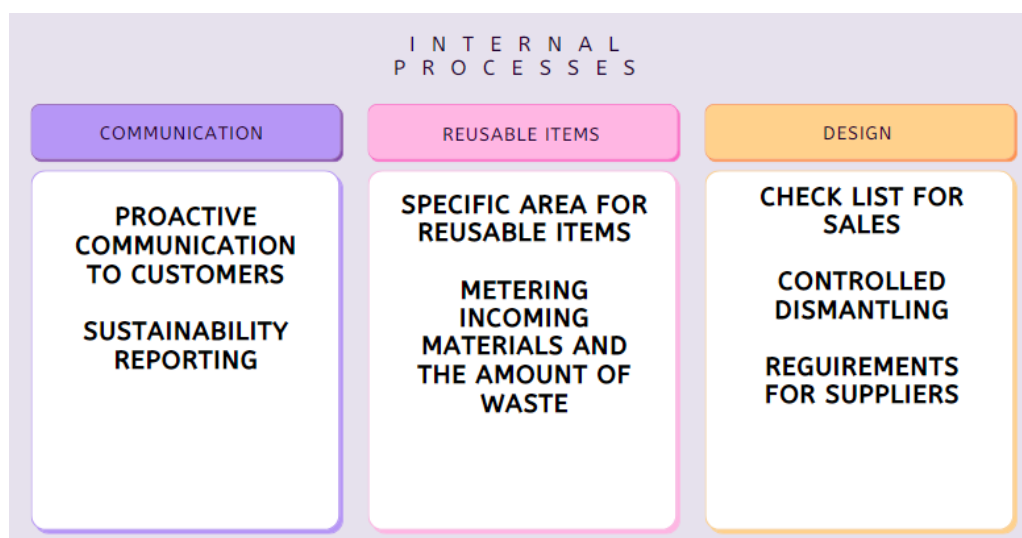


Figure 3: Internal processes that should be developed to promote the circular economy?

The interviewees were very optimistic and excited about the possibilities of circular economy. Even if the sample of the company was small, it seemed like everyone is committed and aware that the amount of waste must decrease. They are willing to find solutions for their own problems by inventing more rentable elements.

Along with Pågå, the whole industry has an interest to develop circular economy, but the problem is to find the one who is brave enough to show that second hand is cool and a stain in a mat or a seam on the wall does not bother them. There are already some minor signs of systematic change there already is, for example the hallways on the exhibition centers are no longer covered with floor carpeting and some exhibition centers provide containers for most common waste like plastic. European Union and tightening regulation were mentioned too. It was seen that the whole industry will be amazed when the amount of waste will be monitored and there will be more requirements in exhibition industry too.

Sometimes the employees only see their own area of responsibility, and it might be hard to understand why things are done how they are. It was also clear from Pågå's side, that communication is the key factor, even if it is difficult to find the golden mean / the happy medium. The interviewees were very optimistic and excited about the possibilities of circular economy. Even when the sample of the company was small, it seemed like everyone are committed and aware that the amount of waste must decrease. It is not seen as a solution to quit selling problematic materials like floor carpeting, it is more important to try to guide the market towards more sustainable choices. Possibilities of circular economy in Pågå's business has been a larger topic inside Pågå for a year or so, and its importance is noticed.

4.2 How to Enable Eco-Design (Sustainable Materials, Modularity, and Re-use)

Currently Pågå has few modular and reusable offerings they can utilize in the stands. These offerings are seen in figure 4. They have solutions like rental piece floor carpeting and reusable wood frames which last up to five times. For wall frames they also use T3 tubes for walls that are almost eternal and PD space dividers. It was seen that the usage of reusable wall framing was in order. These reusable offerings can be included in the design of the stand. It was uncertain how much rentable wall coverings and wall fabrics are used.

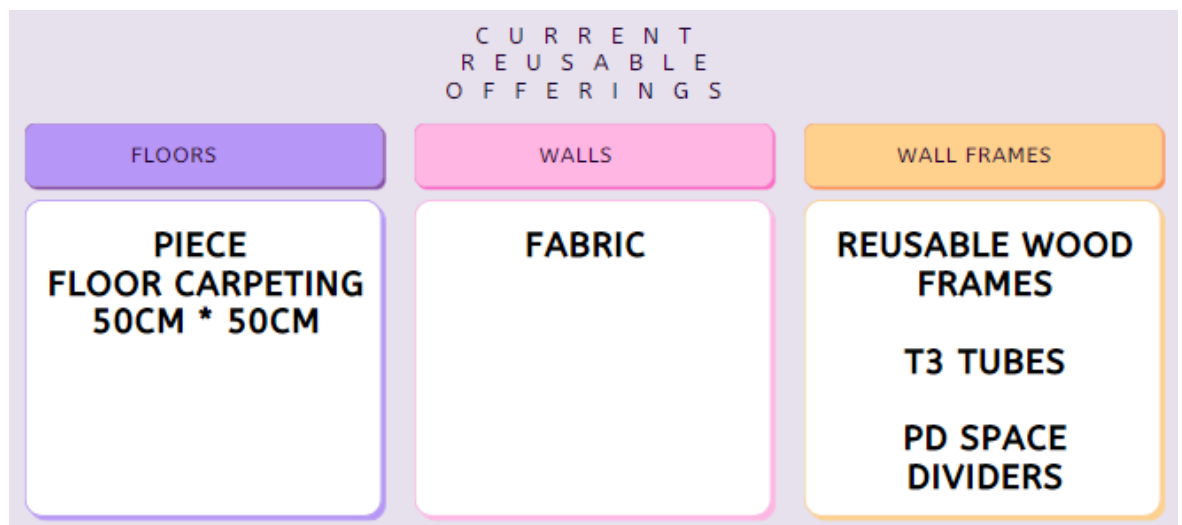


Figure 4: Current reusable offerings that can be included in the stand design.

Even if there were rentable solutions for floors and walls coverings, they were mentioned as the most problematic too. Floor carpeting has multiple different colors and durability ratings. They are also the part that endures most wear and are easily stained, as mentioned in a few interviews. They have also a safety role as the wirings are covered with the floor carpeting. Wood panel as a floor covering was mentioned too, so they have other materials than floor carpeting they use, but floor carpeting is the most common option. Walls can be covered with fabric, which was mentioned in multiple interviews. The problem with fabrics is that they may have a damage when they are attached and then they cannot be used again. Also, the fabric needs to be large enough, because if the plan of the stand does not have a seam, it is assumed that the live stand does not have it either. Materials and accessories that are challenging to be reused are seen in figure 5.



Figure 5: Materials with challenging reusability.

Walls and some units like tables can be taped. Taping has also its challenges, because it is labor intensive work and removing of the tapes can harm the material. For example, if the wooden frame is taped and when the tape is removed there can be glue stains. Those stains cannot be painted over, as the paint won't attach the glue. Foam board is another way to cover the wall frames. Foam board might be cracked while it is attached or dismantled, but they are actively trying to find new solutions to do the attachment without harming the foam board. Foam board is often branded, which complicates the reuse.

Screws were mentioned too. They were seen as hard material for the reuse, as the ends of the screws last around two usages, screwing the screw and screwing it out. The assumption is that they do not use the cheapest screws there are in the market. Finding a reusable and durable screws would help to lower the amount of waste too. Metals are easy to remanufacture, and the durability of the material stands the recycling process quite well. But it is important to remember, that because the recycling consumes energy, closed loop screws would be ideal.

They also use LED strings to create light effects to the stands. This string is problematic because it is a single use object. The string is attached with tape, and dismantling the string can easily create a messy roll, and they have not found a neat way to dismantle it. Also, the tape wears out when it is ripped off. They try to find a modular alternative to the string, that could be attached with screws. Converters that they use can be and are reused.

They also donate things that are no longer useful for them, like the floor carpeting and water-based paints. The carpeting is not reused, as it might be dirty, have a wrong shape or unusable color. As mentioned in more than one interview, they now have a partner in the

construction industry that uses the old floor carpeting as a protective material in their construction site. However, using the carpets as protective material means that they are not utilized in same-level usage. Paints, that cannot be used because of the color, are gathered and donated to other parties. I can assume, that the paints stay in same-level usage, as the paint can mainly be used as a paint. These left-over materials that are currently donated are seen in figure 6.



Figure 6: Current left-over donations

It was also mentioned in a few interviews that the carpenters are picky with the materials. So, the wood that's used is mainly solid wood, MDF, or plywood, which are subject to reprocessing, like sanding and repainting. Chipboard is not commonly used, because it is not durable.

Figure 7 shows that in Pågå's own premises they have waste containers for wood, energy, mixed, plastic, metal-, WEEE (Waste from Electrical and Electronic Equipment) and cardboard waste.



Figure 7: Waste Management

They have a paint stripping device. It is an interesting device; it separates solvent from the leftover paints. This solvent can be reused to clean the painting equipment, and there is no need to buy any additional solvent. Most common colors can be reused, but if there is some special paint that cannot be utilized, it will go to the paint stripping device.

Branding causes problems with recycling. Sometimes the customers are suggested to have a generic solution, for example not printing the date or year on the wall fabric coverings, so that the fabric can be reused. Brands often have a specific color, and sometimes it is desired that the stand represents the color of the brand. These specific color choices complicate the reuse, as they symbolize one specific brand. One possibility is to use visualization, which was mentioned more than one interview, like LED screens for promoting the color of the brand, but often the visualization was decided before the work order arrives to Pågå. Sometimes it is decided that end customer wants to use a wall covering or some special effect again later. In these cases, either the customer can take them to their own warehouse or Pågå can store them for them. If the stand is brand new, as it usually is, the end customer does not know what they want to take with them from the stand beforehand, and they need to see the finished stand first. This complicates at least the first design that Pågå does for the customer. There are also cases where the end customer has something in storage that they want Pågå to use. It can be the wall coverings or some kind of special element, like lighted logo or something huge to hang from the ceiling. Sometimes the end customer wants some kind of shapes on the stand for branding, and that makes it difficult to use the reusable rental wall frames. Branding makes the exhibition stand special and make it to stand out from the crowd. Pågå has branded itself as a maker of custom-made stands, so it is harder from them to have reusable items compared to some other exhibitions stand construction companies.

5 Rethinking Exhibition Stand Sustainability

This chapter summaries the collected findings and information from theoretical framework that supports the development task, which was to find comprehensive guidelines for Pågå to utilize in their journey towards sustainability and circular economy in their exhibition stand construction. Goal was to find answers how Pågå should develop their internal operations and how they can enable eco-design. Communication, well-planned adjustable and controlled strategy, organized processes and open-minded and plucky testing for new rental products and bold co-operation with stakeholders are few ways to success.

Throughout system theory thinking the value chain can be divided in the smaller parts. Both research questions are combined to a single development plan, so it is more comprehensive and easier to follow. The order of the chapters below is not sorted by the value of the topics.

This development plan is to be considered a wholeness where different parts complete each other.

5.1 Value Chain and System Theory

In the interviews it was stated that Pågå has some expectations towards their suppliers. Collaboration in the value chain is a key to green value chain (Hernández-Chea et al. 2021, 1). Along with the suppliers, employees, and materials along with other stakeholders are valuable pieces of the value chain. System theory thinking helps to divide the chain to smaller parts and shows that value chain is more like a spider's web than a linear chain, as different functions are linked together. From the smaller points of the chain, Pågå can see the points where value is lost and find a new way to capture additional value. (Evans et al. 2017, 204-205 & 218.)

Bocken et al did talk about eight sustainable business model archetypes and how these archetypes can be utilized in value proposition, value creation and delivery as well as value capture. In value proposition Pågå can think of ways how products and services use fewer resources, generate less waste and emissions, and create less pollution than similar products or services. In value creation and delivery, Pågå has a great opportunity to find partnerships and activities that help to minimize resource usage, waste, pollution, and emission generation. Focus is on products and manufacturing process innovation, but it can be extended with help of new partnerships and value networks. More value is captured by minimizing need of resources or waste costs. By finding new ways for utilizing side streams and leftovers can also create social value. (Bocken et al. 2014, 48.)

Evans et al had thoughts about sustainable value creation for Pågå to utilize. System theory thinking helps to maximize the total value capture in different points, creating environmental and social value along the economic one. Good approach is to think that any incoming material to the company should not be treated as waste and must be utilized effectively (Evans et al. 2017, 216). Of course, it seems a bit impossible to have any waste at all, but it should still be a secret goal. Uncaptured value is the potential value, which is currently uncaptured.

As stated earlier, Evans et al. write there are four forms of uncaptured value, value surplus, value absence, value destroyed, and value missed (Evans et al. 2017, 209-210.). Value surplus can be made by using renewable or recycled materials. Once Pågå is the market leader of sustainable stand construction, they can offer education about sustainable construction methods and materials that allow the company to offer additional value to its customers. Also, side streams from production can be seen value surplus. For example, little pieces of wood can be utilized in creating shapes on the stand frame. Value Absence can happen if Pågå would not concentrate on the sustainability issues, now when it is a rising megatrend and end customers starts to demand more sustainable solutions. Value absence can also happen if energy is lost.

An Example is losing the heat manufactured by the machines they use, or the knowhow of the employees is not utilized. Value destroyed can be seen in single use or unstable materials. Value is missed, if the components of the stands are not reusable, or the side streams are thrown away and not utilized and if there is unused working time. Unused working time can be the time spend on the travelers' seat on the car. For example, the time can be spent on leaving donation advertises of unused materials in Tori.fi, Facebook or Materiaalitori.fi.

Evans et al presents Cambridge Value Mapping tool (Evans et al. 2017, 212-214). The tool guides to approach different points in the value chain with the questions:

1. What is the unit of analysis e.g. product, service or business line?
2. Who are the stakeholders for the unit of analysis?
3. What is the purpose of the unit of analysis?
4. What is the current value captured?
5. What is the value missed and/or destroyed?
6. What is the surplus and/or absence?
7. What are the new value opportunities?

(I have modified these questions to suit the case company Päägä)

From the point of view of this thesis, the example answers would be:

1. In this thesis, the unit for analysis is an exhibition stand.
2. The stakeholders for the unit of analysis are Designer agencies as the customers. End customers are the brand, and the exhibition visitors are the ones that want to be amazed with the stand. Also, employees from Päägä are highly involved from the designers, carpenters, assembler, disassemblers, Helsinki workforce, workshop manager to Päägä's owners. The different suppliers should not be left out either, as they are one of the key players in building a sustainable stand.
3. The purpose of the analyzed unit is to promote the end customers brand, be visually attractive, give new experiences, and the most common goal is to increase the sales of the brand.
4. The current captured value for Päägä is sales and income, good reputation, a satisfied customer, and from the circular economy point of view, reusable parts of the stand. There can also be value capture in the designing (increasing use of reusable parts, innovating more reusable parts) and construction (collecting surplus) phases.
5. What value missed and/or destroyed they have in the company? Looking into different waste streams coming from the stand can help to notice what value is missed and/or destroyed in single used materials. Can foam board, carpets, LED strings have more usage possibilities? The bookkeeping and metering waste streams helps to see missed and destroyed value. Unused working time can also be viewed as missed value.

6. What kind of surplus and/or absence can be found from the company? Again bookkeeping, metering and innovation helps to find surplus that can be utilized. Are there some networking possibilities or utilization possibilities for stakeholder's knowledge related to sustainability and circular economy issues? Value absence can happen when employees have the knowledge, but that knowhow and passion is not utilized.
7. Your waste can be someone's treasure and it can give new value opportunities. For example, "waste" can be offered to different foundations, daycares, hobby crafts groups to utilize in craftworks. All possibilities of possible reuse should be mapped out. Is there a possibility that the customer can utilize the parts in their own environment? Are there missed possibilities for stakeholder co-operation, is there unused working time? Can "waste" be easily modified by Pågå into products that can be sold?

Mapping the network is an easy way to recognize where value is lost and to find places for value opportunities (Evans et al. 2017, 218). Dividing the different value points can be done multiple times. Evans et al presents another tool too, Sustainable Analysis Value Tool, where different value chain points can be divided also in different timeframes, beginning of life (BoL), middle of life (MoL) and end of life (EoL). (Evans et al. 2017, 210-214.) The different timeframes can be utilized in the future, as in the beginning Pågå might not want to bite off more than they can chew.

5.2 Macro and Micro Level Changes

Sustainability and circular economy are modern trends, so the public opinion will take this change as a positive thing. To achieve successful transition towards circular economy model, Pågå needs to adjust their values and thinking, so that circular economy is in the core of operations and make investments to training and skills (Dimmelmeier 2022, 151). It is also important to recognize development opportunities along the way and implement them to existing projects or to the start of completely new ones (Korhonen & Bergman 2019, 11).

In the transition, it is important to take a closer look of company strategy and values. In the overall transformation, the company value must show the wanted outcome (Korhonen & Bergman 2019, 53). Pågå values are not shown on their webpage, but according to the interviews, continuous development is included. Continuous development could include material and energy efficiency and reduction, powerful networking and doing good in the community as much as possible. It was mentioned multiple times in the interviews that Pågå sees the importance in doing the change, and they are willing to find solutions in all problem areas.

The strategy should be built to close the loop, and as said, the change needs to be in a core of a business models to be efficient, not only add-ons. The proactive innovation strategies are the most impactful, even if all business model innovations towards sustainability are good

too. (Bocken et al. 2014, 44.) The journey to change is long, transition itself is long (Hernández-Chea et al. 2021, 5) and it requires long term planning. Implementing sustainable and circular economy activities to a unique work environment of the company requires innovating and repeated testing (Geissdoerfer et al. 2020, 2). Making new partnerships and value networks are also key factors (Bocken et al. 2014, 48). The importance of communication came up the interviews, and well targeted communication in right channels helps to develop new value networks. These macro level (De Keyser et al. 2023, 2) changes help organization to shift in the right direction.

In the micro level inside the organization, where the employees, teams, and departments are, lies the foundation for the company's operations where the operational changes can be made (De Keyser et al. 2023, 2). Owners and employees' skills, competence and expertise play a key role in the business development. There are few low-cost trainings that Päägå could benefit from. On the 9.10.2023 commissioner was informed about Chamber of Commerce climate program. This free of charge climate program is targeted to small and medium businesses. Program will provide practical training, tools, and guidance for companies to start doing their own Life Cycle Assessments. They also offer specialist that can help to do the actual emission reduction actions and gives the opportunity to aim for carbon neutrality. (Keskuskauppakamari 2023a.)

In the early stages of this thesis project, Päägå's representative mentioned their interest in the carbon footprint of their products. He was on the right track, as also Charney et al states that the whole life cycle of these products should be measured, like using Life Cycle Assessment (LCA) and Environmental Product Declarations (EPD) (Newton et al 2014, 5). There are different fee-based academies for that, and one good choice is SYKLI Environmental College. SYKLI organizes training program for Specialist Qualification in Environmental Studies, where the focus can either be in energy- and material efficiency, carbon footprint calculation or climate change. This degree can be completed alongside working. (SYKLI 2023.) I also recommend Päägå to get know the free Climate University courses (Climate University 2023).

One possibility is to bring in expertise from outside of the company. This can create new discussions or bring some specific skills available for the organization (Korhonen & Bergman 2019, 29). External person does not have the inside knowledge from the company, but she/he can be more expertized on circular economy and sustainability related issues. An outsider could gain knowledge by having internal audits and by mapping the ways of work.

With the training they could also consider sustainability alongside of durability. Different chemicals have different environmental aspects, that might not be so obvious. The term green chemistry could be something that Päägå could be interested in (Bocken et al. 2014, 48). While gathering of new information about the topics that are related to Päägå's functions, it is

important to have an overall view. Again, in here the system theory thinking helps, as the different units of the processes are observed.

5.3 Business Models

Hernandez-Chea et al. defined the differences between a circular economy business model and a sustainable business model. Circular economy business models focus on closing the resource loop and sustainable business models obtain practices that answer Sustainable Development Goals. (Hernández-Chea et al. 2021, 2.) This thesis introduces the Sustainable Development Goals to the commissioner as they are widely used, but the development plan is not built around it. Commissioner can utilize them in their strategy work if they choose to do so. Sitra has defined five circular economy business models: product as a service, sharing platforms, extending the product life cycle, resource efficiency and recycling as well as renewability. These are the models Pågå could utilize (Sitra 2023). In Pågå, they could for example release Stand as a Service production line. According to the sharing platforms model, they could rent their components to their competitors. Extending product life cycle could mean replacing a broken board of a wall frame, even it demands extra labor. Resource efficiency and recycling is using components again and again, and then recycling them properly. Renewability could be for example using carbon wall frames.

There are Intensifying strategy is business -models which entail rental and leasing models and sharing models. In these kind of business models proposed value is products as a service, and created value is product-as-a-service design. Captured value is financial because the same investment can create income multiple times. This business model is used in Pågå's furniture rental business. Sharing model in stands would be more in utilizing modular parts of the stands, which was already presented in cycling strategy. Dematerializing strategy proposes to utilize digitalization (Geissdoerfer et al. 2020, 11).

Innovation plays a key role in circular economy business models (Geissdoerfer et al. 2020, 1). Innovation between departments can be effective, as Charney et al states multi-disciplinary teamwork including designers can help to create new innovations (Newton et al 2014, 12). Workshops with the members from all the departments are a good approach, but even better is workshops for the whole company, where there is a supporting atmosphere, and all ideas are good ideas. The dialog between departments should be always open, and decision making should be easy. Open communication and a feeling that all ideas are good ideas helps to develop value propositions and leverage business opportunities. (Hernández-Chea et al. 2021, 1.) Innovating in Pågå should not be focused on products and materials, but new partnerships and value networks. This kind of innovation comes naturally, while finding new ways the minimizing the amount of waste. (Bocken et al. 2014, 48.) All innovations should contain circular

economy in the core, innovations should target on minimizing the side streams and waste to share, not only finding places where to donate materials.

The term 'business model' also explains how the value is captured, not only how it is created. Bocken et al has a definition of business model, where it has three main elements, value proposition, value creation and delivery, and value capture. (Bocken et al. 2014, 43.) Uncaptured value was discussed earlier. Pågå's future circular economy business model should be designed so that the natural resources are used as little as possible, and the material should be kept the loop as long as possible (Geissdoerfer et al. 2020, 2). By keeping the materials in the loop as long as possible, the waste will be automatically minimized, but along with that also the emissions should decrease.

As value creation is the idea of business model, we can utilize the conceptual business model framework from Bocken et al article. This framework was adapted from Richardson (2008) and Osterwalder and Pigneur (2005), that Bocken et al used as a source in their own research. Value proposition for Pågå is Product or service for a certain segment and also newly created or strengthened relationships. Pågå could start with one specific segment to offer a certain product. For example, the totally renewable stand, where wall frames and piece carpets are used, and the wall covering, and other branding comes from the customers storage. Value creation and delivery includes key activities, resources channels and partners technology. Value capture is the new cost structure and improved or added revenue streams. (Bocken et al. 2014, 43.)

This could mean that the development of the stand starts with the rentable and reusable items, and the added branding elements should be kept as reusable as possible. It would be best to design branded items that the customer could keep and re-use during the next event. This could form a product line all its own. Good product lines with a clear boundary conditions and good communication strategy can make it livable business. The whole thinking should be making circularity in the core, and economy after that. Of course, the pricing needs to ensure livable business too, but new product lines of course require financial investments. Good encouragement is that proactive innovation strategies seem to be most impactful ones (Bocken et al. 2014, 44). The innovation and implementing new business model can give Pågå a chance to create value faster than the competitors (Geissdoerfer et al. 2020, 3). The tightening regulation also gives motivation to find new solutions in advance, so they can be experimented piece by piece. In one interview, it was stated that Pågå has done many innovations before competitors, which were copied by the industry later. The Pågå representative saw this as a good sign, because of the desire to lead the whole industry in a more sustainable direction.

Value creation is looking for a new business opportunities like new markets and revenue streams. This was seen in the acquirement of Mill Hiili Oy. Value proposition is a new product or a service that generates economic return. In sustainable business there can also be social and/or ecological value, that can be measured. Here Päägä could consider a new business line like Stand as a Service or a product that includes basic rentable items like wood frames, piece floor carpeting and wall coverings. Capturing value is the revenue earned from providing goods (stands), services (rental products) or information. (Bocken et al. 2014, 43.)

In the theoretical framework Ha explained how Joseph Schumpeter has introduced five types of innovation: new products or services, new methods of production, opening new markets, development of new sources of raw materials or other inputs and creation of new market structures in an industry (Ha 2014, 105). While thinking and innovating the new business models or modification to the current business models, this split can give foundation to the workshop. The 6R's that are usable methodology. reduce, reuse, recycle, recovery, redesign, and remanufacturing (Jawahir & Bradley 2016, 104-105) can be used as categorizing help in the innovation phase.

As a wild card, and for true business model innovation, Päägä could consider if they want to extend their business and start to be a hub for reusable stand materials. They could collect the left-over exhibition stand parts from the competitors and resell or re-rent the parts for competitors. This can be extending business line to their furniture rental business and finding solutions to the whole industry's problems. From this hub also third parties could collect the stand parts to be reused, instead of donations. Päägä could get more materials to their storage from hotel or restaurant renovations, Materiaalitori.fi is a good place to utilize for these kinds of operations. This change needs to be included both strategic and operational level, starting from the strategic level. AI could be used to suggest suitable parts from the warehouse to the ordered stands, or even to give how-to advice about doing little adjustments in building the stand with the reusable parts.

5.4 Communication and Green Washing

More than one interviewee mentioned the importance of internal and external communication. One idea was to add check list to the sales phase to catch possible issues in reusability, but proactive approach in marketing about the sustainability solutions was also seen as a good addition. As it was mentioned by more than one interviewee, the sales phase is quite rapid, and the work must be done quickly. That's why I propose to combine the ideas of check list for ongoing sales work and proactive marketing to get the sustainable idea to the buyers even before any stands are ordered.

Päägä could create a brochure about their circular economy related offerings and do a proactive marketing like visiting the key customers to present their solutions and advertise them

via newsletter and social media. Proactive marketing can also be done via education and training stakeholders and customers (Geissdoerfer et al. 2020, 10-11) so visits to the key customers should have a training angle instead of simply presenting their solutions.

Developing and maintaining an external marketing plan is one way to raise the awareness to the stakeholders. As it was found out in the interviewees, Pågå already has a lot of circular economy related offerings. These should be collected into a portfolio and a strategy should be built towards circular economy business models. Using an advertising year clock, with variable sustainability topics could be good approach. Topics to include could be sustainable materials, sustainable chemicals, and different donations to different parties. Also, the paint stripping device is an interesting solution, which should be promoted.

When Pågå communicates about their solutions, the facts should be easily available. Today, Pågå does not advertise their circular economy solutions too heavily. While they create marketing and communication plan around them, the provided information must be transparent. Also, limitations should be communicated, so that no unclear statements are made. Open and honest communication creates trust among stakeholders. Especially when the business field is small, untruthful communication can damage the reputation (Isokangas et al. 2022, 11,). I recommend Pågå to have a communication plan that is based on honesty. In the interviews we talked about this issue, and the opinion was that metering can be used along the communication. Vangeli et al. brings up how Szabo and Webster have warned how greenwashing can even have an impact to financial performance, as greenwashing scandals can lead to public boycotts (Vangeli et al. 2023,281-282).

Creating good meters and communicating them openly to the stakeholders is a way to avoid being blamed for green washing. No unsubstantiated allegation or superficial claims should be used. All human activities have environmental impact (Neidoni & Buzdugan 2017, 186) and remember “to be less bad is no good - to destroy less is not positive” (Newton et al 2014, 5-6). For example, instead of saying that they have rental wall frames and piece floor carpeting, they should tell that with this and this solution you can have up to 50 percent of recycled materials. If they choose to, it will give another viewpoint to say, “this stand is made 50 percent from virgin materials”. If they have LCA expertise in the company in the future, they could communicate the consequences of decisions. For example, they could say to a customer, that if they choose unbranded wall coverings, they can save up to X CO₂ emissions as the covering can be used for X times.

Pågå advertises their products in LinkedIn. They could utilize social media and create a hashtag which they could use to separate their more #CircularStands. They could build and offer line around that name. It would be even better to get the customers to use the same hashtag in their own social media posts, but that may need a very deep customer

relationship. If Päägå can find a pilot customer, who can help them to build the circular stands offerings, maybe they could start using the same hashtag. The advertisement of circular stands should be built as a collaboration relationship with the designing agency, and even better, with the brands.

It was also stated in the interviews, that Päägå has started their own sustainability reporting. It is a good think to start the work before it is mandatory, as the reporting will develop as the time goes and it will be more mature than the competitors once the reporting demand expands. Päägå can use this SDG in their external and internal communications. SDG is widely known, and big companies often refer to it in their sustainability reports. By advertising this commitment Päägå can show their stakeholders that they are following sustainability trends. Following the different SDGs has a circular economy contribution. Direct connection to circular economy was with affordable and clean energy (7), industry, innovation, and infrastructure (9), responsible consumption and production (12), climate actions (13) and life on land (15). Indirect effect was found with clean sanitation and water (6), decent work and economic growth (8), sustainable cities and communities (11), life below water (14) and partnerships for the goals (17). (United Nations 2023.)

5.5 Metering and Tracking System

For tracking and communicating the reuse times and the lowering emission, Päägå must develop and maintain a metering system that is based on the goals they have set to themselves (Kivineva 2021). Metering and reporting the carbon footprint is also an important way for companies to take responsibility of their on environmental impacts (Ecobio Oy, 2023).

Both the theoretical framework and the interviews stated that the metering is important, however, there was no deeper analysis about how to create effective meters. Stakeholders also expect at least some kind of responsibility related reporting from the companies. The meters should be planned to serve the reporting and to engage stakeholders. Meters should be relevant and easy to compare. (Väyrynen 2021.) The metering of reusable parts will mainly first serve Päägå in their own development, but they should be planned so that they serve external communication too. As Väyrynen states, the sustainability meters have two meanings, first they are an internal tool to lead sustainability and keep on track of the sustainability work, and they give a tool to the stakeholders, which gives them opportunity to follow, compare and evaluate companies. If Päägå choose to follow some reporting framework, the meters should be planned so that they fulfill the expectations of the framework. (Väyrynen 2021.)

Metering was raised as a topic in the interviews as well as in many places in this thesis. Meters should at least be incoming materials (amount of purchased materials), energy usage and energy source (electricity and fuel) and number of injuries. The reusability rate should be mentioned too. Finding a way to keep track of reuse times requires the co-operation with

designers and the warehouse management. Easiest way could be that the Designer tags the used items to a tracking form while she/he draws them to the design. Of course, they must make sure that reusable items are actually then used in the designs. Inaccuracies in this type of bookkeeping can happen, if the designer tags that reused units will be used, but the constructors find out that the unit is broken, and they must make a new one. Reliable tracking system ensures reliable indicators and meters.

The meters should be relevant, it is easy to think that getting lots of data is important. But by developing few relevant meters it makes the tracking and communicating easier. The meters should be based on Päägä's operations, where the material flows are more important than water usage. Meters should be comparable with other players in the business. The stand construction business is in the beginning of the transformation journey, so the Päägä should actively track what kind of meters other companies maintain. (Väyrynen 2021.)

Väyrynen presents SMART model for choosing the good meters. Meters should be specific, measurable, attainable, relevant and time bound (Väyrynen 2021). If I suggested that one meter is the times that a stand has reusable component. Is that meter specific enough, or should it be known what component is reused? If wall frames can always be reusable, and wall coverings only survive one year, can they be attached to the same meter? Probably not. Reused times -category needs to have categories. For example, wall covers should have double metering, reusable and single use -wall covers. They together provide the information of totally used wall coverings. Categorization helps to find spots for innovation and development. Quantitative meters support that the data is measurable and comparative.

Meters should be attainable; realistic and they should meter something Päägä can affect. To keep the number of meters reasonable, they should be relevant and support the desired goals. Meter should be time-bound, communicated quarterly or annually, and reflect to a time goal. Common goal is that 2050 the overall business is carbon neutral (Euroopan komissio 2023).

- In two years 25% of the used materials in stands are reused.
- In year 2030 50% of the used materials in stands are reused.
- In year 2040 90% of the used materials in stands are reused.

Time shows if the 90% goal realistic. In 2050 all the Päägä's emission should be mapped, and Päägä has found ways to neutralize them, in a transparent way. It is important that the goal is not too easy to achieve, because then this change may not be given its full potential.

It is good to track at least material flows and reuse times. For reuse times, the bookkeeping system should be light and easy to maintain, and of course, easy to fill. A simple excel file, that is modified by authorized employees via link, can at least be a good start. In the file

they could report the times an item is reused by category, like carpets, wall frames, wall coverings, T3 tubes, iron angles etc. These amounts are easy to communicate, for example in an annual sustainability report. In the same system they could keep the information about the components available for reuse, based on size, colors, etc. Looking into material flows and dividing the stand to separate components and units helps the categorization work.

Example meters

- Available components to be reused per category.
- The reused components per category
- The single use components per category
- The reused materials percent per stand (by units)
- Interested designing agencies (helps to track the systemic change)
- The amount of at least partly circular stands sold.
- Incoming material flows
- Outgoing material flows / waste (if trackable)

It would be nice to know how many times a component can be reused. It was stated in the interviews, that the T3 tubes are almost eternal and wooden wall frames can be used up to five times. It might be too hard to keep on track how many times individual wooden wall frame has been reused and the same thing for can be tough for a single angle iron. Can the communication be open and honest without this information? Stakeholder feedback about the communicated data should be collected for developing the metering system.

Circularity index is one approach, which requires competence and time. With circularity index an organization represents the degree of circularity potential of a product throughout its lifecycle. The potential is measured with one or more circularity indicators. Circularity index can also be used for the improvement and measurement of circularity in material flows. (Normec OWS 2023.)

In the interviews it was pointed out that some customers have special effects they want to use repeatedly. Maintaining a good customer database, hereafter CRM (Customer Relationship Management) Pågå can keep up with the special effects and other units' customer already has, like branded fabric. CRM is a way to keep up what solutions are promoted to the customer and what are their interest. In the interviews we did not talk about customer register databases. Long term relationships with the customers helps to have a partner to try out new solutions with (Geissdoerfer et al. 2020, 10-11).

If Pågå wants to take the metering to the deeper level, the idea of scope 1, 2, and 3 metering system can be utilized. Scopes belong to the Greenhouse Gas Protocol (GHG), which is globally the most used standard for metering greenhouse gas emission. Scope 1, 2, and 3 are the

classification of the climate impact of business activities. The classification reduces the risk of double counting between companies, and it helps the company and its stakeholders to see the most significant sources of emissions in its own and the value chain's operations. Most of the companies also report the emissions from the value chain based on fifteen different categories. Scope 1 includes all direct greenhouse gas emissions resulting from the activities of the company. Scope 2 includes greenhouse gas emissions from the production of purchased and consumed energy. Scope 3 includes all other indirect greenhouse gas emissions that are generated because of the company's activities, but the sources themselves are not owned or managed by the company. Such emission sources include emissions from primary production of supplies and emissions from travel and transport. Scope 3 emissions are broken down into fifteen different emission categories. (Ecobio Oy, 2023)

The direct greenhouse gas emissions for scope 1, are those emission generated from the resources that are owned or managed by Päägä. There are four different categories in scope 1. These emissions are generated directly from Päägä's activities, and usually these emissions are easily controlled. These emissions are process emissions, from Päägä's own functions. If Päägä would create usage energy for the use of their own or someone else, this would be included to scope 1. This scope also includes the fuel usage in the machinery, equipment, and vehicles that Päägä either own or manages. In scope 1 there is also fugitive emissions. Fugitive emissions are so-called leakage emissions, which are caused by leaks in pipes and equipment, among other things. Fugitive emissions occur not only in industry, but also in normal domestic conditions, such as from malfunctioning refrigerators and air conditioners. Fugitive emissions can be reduced or avoided by proper maintenance and servicing of equipment and by repairing or replacing faulty equipment. (Ecobio 2023.)

In scope 2, there are the undirect emissions of energy usage. Scope 2 emissions include all greenhouse gas emissions from the production of energy purchased from another party. This includes emissions from the production of purchased energy. Purchased energy can be electricity, heating or cooling, and steam. By mapping the points where most of the energy is used, a company can lower their scope 2 emissions. (Ecobio 2023.)

In Scope 3 there are indirect emissions from the supply chain. These are all those greenhouse gas emissions, that are created by the company's operations, but the emission sources are not owned or managed by the company. Along with the supply chain emissions, the transportation, emissions from the sold products and the waste management emissions. Supply chain can be divided to upstream and downstream. In upstream there are those emissions, that are created in the value chain until the stand dismantling stage is over. (Ecobio 2023.)

Scope 1: Process emissions, fuel usage, energy creation, fugitive emissions (Ecobio 2023).

Scope 2: Purchased energy (Ecobio 2023).

Scope 3 Upstream: Purchased products and services, fixed assets, other functions related to energy or fuel usage, which are not included to scope 1 and 2. Upstream transportation and distribution, the management of operational waste, business travel, commuting, assets leased by the company. (Ecobio 2023)

Scope 3 downstream: downstream transport and distribution, handling of products sold, emissions from the use of products sold, emissions from final treatment of products sold, downstream leased assets (franchise business emissions), emissions from investment activities. (Ecobio 2023.)

5.6 Design

Designers are one of the key players in the circular economy transition. As Neidoni and Buzdugan state, the designers are aware of the limits of natural resources and the designing is the phase where most of the circularity choices are done. (Neidoni & Buzdugan 2017, 184.) In the interviews it was stated that the modularity comes naturally for the designers. Designers can transfer the linear usage of materials towards Cradle-to-Cradle design (Newton et al 2014, 13), enabled by the changes in internal processes. The dividing the stands in the individual accessories helps the designer to decide the reusable parts, like one large wood panel or one little nut. In other words, the design must notice manufacture, use and disposal phases (Newton et al 2014, 11).

The first phase is that Pågå has communicated proactively to the customer about their sustainability options, as the rapid sales phase creates challenges to present any sustainability options in that point. It is important that more sustainable alternatives are readily available, and the design agency is aware of them. Newton et al presented the hierarchy of sustainable design, the second step of it suits Pågå at this point. It was eco-design, which is the standard of the product design development. In eco-design each step of the process holds add-on environmental considerations (Newton et al 2014, 11). As stated earlier, the idea of a check list of rental products was talked briefly in the interview. The opinions on it varied as the choices should have been done before the sales phase. Either way, the design should in-hold environmental concentrations, in each step of the value chain. Maybe the checklist could be combined with the proactive marketing? Braungart also suggested a portfolio for sustainable materials (Braungart & McDonough 2009, 8 & 38), so creating and maintaining a portfolio is a good start.

The core of the design should be reusable components in the stand and reusable components for branding, for example in terms of colors. In 2023, the problem is that almost none of the brands are brave enough to show circular economy values in their stands. (Neidoni & Buzdugan 2017, 187.) The awareness of rising sustainability issues has been forgotten when it

comes to stands (Newton et al 2014, 2-3) and Päägå also sees branding as a challenge. While we are waiting for a systematic change in branding, the circular solutions must be developed.

In the interviews I was told about the pilot dismantling project. In the future the dismantling phase should be included in the designer's process and all the used materials, and components are checked, and their reuse, as in will they go to reuse, donations, customer, waste, etc. is reported. The dismantlers should be aware of the different units, components, and accessories, and what will go to Konala and which ones to Kiitoradantie, and which ones go to waste or to the customers. As it was pointed out in the interviews, the unplanned dismantling creates additional workload to the Konala warehouse. It is better to plan as much as possible in the beforehand, as the dismantling phase is also rapid, and the materials should move fast. Good and cautious planning with the logistics also reduces the emission. It was also mentioned in the interviews that they make a long-term effort to find solutions, and they do not give up after one try. Even if Päägå had multiple different containers for different kind of waste, it is notable that materials will lose their value once they are in a recycling process (Newton et al 2014, 5).

Extension is one of the circular economy's strategies (Geissdoerfer et al. 2020, 10-11) and that can already be seen in Päägå's wooden wall frames that can be painted over up to five times. Päägå have also multiple modular solutions, like T3 tubes, wooden wall frames and piece floor carpeting. They were also trying to find a good alternative for tapeable LED strings, that can only be used once. There was also some wall covering possibilities with rental components. Design needs to be flexible enough so it can be used with multiple customers. Branding, like shapes and colors creates issues with reusability. Päägå could check can the branding be easily hidden? (Newton et al 2014, 11.) Individual graphics must be easily removable so the core elements can be used again.

In the interview we talked about changing the taping. The challenges there was that taping is manual labor and may harm the core structure (Newton et al 2014, 11). Customers should be nudged towards reusable coverings that they could store themselves for reuse. In the interviews it was stated that they already advise customers on having a neutral solution, like no date or year to be printed with the logo. Special elements have also been mentioned in the interviews. Creating branding via them, they could both have the "wow" reaction and end customers could be more willing to store the special elements.

The different departments could innovate different modularity options together. First step could be mapping the points of the stand which are usually made from virgin and or single use materials. Creating own metering system for the most popular selections can help to innovate new modular products. Picture bank from previous works should be kept up, where the similarities between stands can be easily discovered. With these steps they could find the most

challenging units of the stands and concentrate on them more. It may take a while before the ideas start to come up, so it is good to start early enough. Well planned meters do not lie, so metering also helps to find out the points that have single use issues. Metering could include the most common colors, special materials, and parts, like angle irons, that do not wear out so much in use. A picture bank of previous works could obviously also help to find similarities between stands. It is good to give time for this phase, as good ideas might need a while and lots of testing can be needed. They could utilize AI image recognition for the picture bank to find similarities and utilizable exhibition stand parts.

A new storage area for reusable items can help to innovate more units to the reusable portfolio. Having good bookkeeping and awareness about the available units, helps the designers. By making reusable items the new normal, it also helps to develop the offerings. Open communication between departments, brave experimentation and atmosphere of free innovating helps the development work too.

Pågå also builds stages to outdoor events, like festivals. Could it be possible for Pågå to utilize end of life wood structures in those? It can be assumable that it rains in Finnish outdoor events, and there might be some restrictions for using those components again.

While thinking about the material choices, it is good to summarize all purchases and categorize them. This categorization is a good foundation for the material flow meters too. In the interviews we talked at least about LED strings, tapes, fabrics, foam boards, MDF, wood, floor carpeting, screws, paints and foam boards. There might also be chemicals like glues, foams and so on that apply here.

Good guidance while making purchases is to check does the product have a reliable eco label, like the Nordic Swan. Companies also use their own eco labels, which might only have their own opinion about the product sustainability, and the production process is not third-party verified. As Braungart and McDonough said, it is important to make a positive change, not only change to another product with similar environmental impacts. Reusability, durability and toxicity issues should be noticed. (Braungart & McDonough 2009, 12.) By changing uncertified product to a reliable certified product is a good start. Closing the loop might be a bit unrealistic goal while using materials like glue. If glue is changed to single use screws, it should be noted that manufacturing and recycling the screws also takes energy. The knowledge of LCA calculations might help. While chemicals were mentioned in the interviews, only their features were mentioned, but no one mentioned their possible impact on health. Using as little chemicals as possible reduces exposure, therefore within the environmental impact, it is good to think about the work safety too.

Materials choices should support the modularity too. Durable and reusable materials cut down the purchase cost, even though they also increase the logistical cost. The problematic

materials like floor carpeting and foam boards were a large topic in the interviews. The taping over the foam board is a cost that should be taken in to consideration. Could they train one of their employees to tape over the foam board? Tape itself could be either purchased, or if they see taping as a valuable choice, they could buy their own device for tape printing.

Screws are usable for only one building and dismantling, as stated in the interviews. The people in Pågå have a better knowledge about the screws than what I can offer. It is notable to try different kind of screws and test their durability. The building phase can also be reimagined, for example can clamps replace screws? They could be easily detached, and they would not harm the materials that are combined, like a fabric to a wood frame. Other metal accessories could be collected and be reused. If there are corner irons in the wood frames, they should be detached from the frame before the wooden parts go to waste. Dividing the used component in the smaller separate parts helps to see all the different accessories that are used.

There can be two different types for piece floor carpeting. The most used colors could be bought with the highest durability and be treated well to keep them in a loop as long as possible. The other solution is to save the pieces that are clean and as good as new to be used again. Those both solutions can also complement each other. The most used pathways could be covered with the higher quality carpet and the sides with the common carpet. As long as the colors and materials match.

Wall covers can also be made by cardboard instead of foam board. Of course, it is not ideal to have single use cardboard covers in the stands, but the renewable materials are still better than oil-based plastics. Pågå could contact their printing house to discuss about the more sustainable alternatives.

5.7 Donations

Donations with the handcraft materials can make a difference to a small foundation. Finding new ways for utilizing side streams and leftovers and donating unneeded material Pågå can create social value (Bocken et al. 2014, 48). Donation plan could be an easy way to get leftovers utilized in different operations. The side streams and leftovers should be written down, so that once all different leftover materials are counted for Pågå's representative could approach different parties to offer them.

Art, design, or architecture schools can also benefit from the leftovers. Contacting Kierrätyskeskus can be one way to get more information about this possibility. Donating surplus materials for educational purposes, such as creating prototypes, supports the sustainable educations.

Donation destinations can be found in a place like Tori.fi, Facebook and Materiaalitori. There is a possibility to find a long-term partner, who is willing collect the materials for their own usage. Päägå already donates paints and floor carpeting. Materials like wood is going to waste. Päägå should find effective ways to donate as much as unneeded leftovers as they can. According to the idea of circular economy and European Union's waste hierarchy the product should stay in a same level usage as long as possible (Huilaja et al. 2019, 22; Ellen McArthur 2023a). By donating leftovers and side streams Päägå can also lower both the cost and the amount of waste. Wild card could be that an amateur theatre could be interested in using parts of the stands as their stage pieces.

Päägå could consider creating their own Facebook page or similar where they offer leftovers to another parties. The negative side here is that it takes time and effort to make the ads or posts and manage the storing and distributing the goods. The positive side is the reduced waste cost and having sustainable practices. Good reputation cannot be bought with money. If Päägå is interested about being a hub for rental stand components, this donation process is natural continuation for it. Päägå can create a strategy around donations.

5.8 Suppliers and Procurement

It was mentioned in the interviews, that Päägå had requirements towards suppliers. The expectations towards suppliers should be written up to their own supplier policy, where the requirements are easily found. As a small player Päägå could follow up bigger companies' supplier code of conducts and supplier expectations which are often found online.

Supplier should aim towards carbon neutrality, act ethically, respect human rights and have a quality product. Suppliers should communicate openly with Päägå and develop the partnership together. Suppliers should minimize the environmental effects of their services and products and use renewable energy if possible. Supplier should pay the taxes and act better than the minimum requirements in the law. Päägå has requirements from their own customers, and those requirements can be utilized all over, as it also helps their own customer reporting.

A comprehensive procurement plan or policy can serve as a guiding framework for all purchasing decisions. This should include at least the pool of vehicles and used fuel type, the type of purchased energy, possible certificates or ecolabels of the products or services. The development of this plan requires checking the purchases made by the company. It should start from the biggest expenditures and move towards the smaller ones. It can be assumed that the bigger purchases have the biggest effect. There are surprising sustainability decisions along the way small stuff, like is the toilet paper made from virgin or recycled paper.

Moreover, exploring innovative networking opportunities can yield promising sustainability initiatives. For instance, initiating discussions with real estate entities about harnessing excess

heat generated by devices presents can be useful. By collecting and repurposing this surplus heat to warm Pågå's facilities, the company can not only reduce energy waste but also demonstrates a commitment to maximizing resource efficiency.

The whole development plan is presented in figure 8. The most important actions are mentioned in the picture. Picture should give a summary of the topics mentioned in chapter 5 and give a glance to the reader of the proposed measures.

5.9 Development Plan in a Nutshell

VALUE CHAIN AND SYSTEM THEORY

Divide the value chain to smaller points.
 Try to add sustainable value, reusability and eco-design all points possible.
 Analyze uncaptured value from all points.
 Create new partnerships and value networks.

MACRO AND MICRO LEVEL CHANGES

Create a strategy that aims closing the loop. Innovate new ways to work and test them. Create new partnerships and networks.

Check that the daily work by departments, teams and individuals supports the strategy. Train employees, utilize their skills, passion and knowledge.

BUSINESS MODELS

Analyze and test the possibility of adding circular economy business models to the business: component rental, extending product life cycle, resource efficiency and recycling.
 Workshops and innovation between departments.
 Value capture and value creation.

COMMUNICATION AND GREEN WASHING

Internal and external communication.
 Proactive presentations to the customers, supported by the check list to the sales phase.
 Sustainable offerings portfolio.
 Marketing plan, #CircularStands, based on actual facts, not the desired goal.

METERING AND TRACKING SYSTEM

Create relevant and comparable meters, which promoter development and external communication.
 Track the amount of reused components and have a tracking system for available components.
 Have goals, which are trackable by the meters.

DESIGN

Support modularity and reuse.
 Develop the rental offerings, keep them in a core of every design.
 Design stands so, that the components can be reused.
 Have a picture bank of made stands, look for similarities and places to encourage reuse in branding. Use side streams and left overs in creating shapes to the stands. Storage branded special effects for the customers.

DONATIONS

Small foundations can really benefit from the side streams and leftovers.
 Look new partnerships via Facebook, Tori or Materialitoni, or create own platform and donation strategy. Via donations there is savings in the waste costs and also there is less waste to report.

SUPPLIERS AND PROCUREMENT

Create supplier / purchasing policy.
 Develop sustainable practices with current suppliers.
 Create procurement plan.

Figure 8: Development Plan in a Nutshell

6 Reflective Thoughts

The goal of this work was to help Pääga to develop their circular economy related functions. It was soon noticed that circular economy cannot be seen as an individual function under the company's policies, it is part of a bigger sustainability breach. In the first meetings the interest circled around individual items like the carpets that they wanted to replace with more sustainable material. Instead of giving one to one replacement suggestions, this thesis turned to include bigger systematic change inside Pääga. I hope that this thesis will be useful to Pääga, even it draws a wider picture. The wider point of view in this thesis reflects many topics, that the degree of leading sustainable growth is about. I recommend that people at Pääga read through the work and highlight the points they consider to be potential areas for development. And when it comes to the carpets, I encourage them to develop the rental piece carpets offering.

I hope that Pääga will openly try new innovations and implement the reuse to the core of the design. I assume it can easily be implemented to the basic components, like carpets and wall frames, but it would be important to have the branded components included. Collaboration is important. It will be time taking work to find channels where to distribute the leftovers, but it will also reduce the waste cost and creates a social value. Externally communicated donation work creates a reputation as a good corporate citizen, but it may also encourage other players in the field to start similar work.

I wish to see that Pääga starts a communication campaign about this transformation journey. Sharing ideas and the failures. Goals must be set too high, so that the development will receive all the possible effort. Pääga should pay attention to different kinds of communications. They could advertise like "Wow, this stand has 30% reusable items... it means we still have 70% cap to close". It is important to have consistent communication, which has recurring clear terms, and the communication should support the transformation strategy (Korhonen & Bergman 2019, 51) and the communication should be given via different channels (Korhonen & Bergman 2019, 115). Transformation should of course happen inside, but it also happens outside as the provided products changes. This internal and external change should happen together, side by side (Korhonen & Bergman 2019, 127) not as separate projects.

Finland's Chamber of Commerce promotes International Chamber of Commerce publication ICC Advertising and Marketing Communications Code. In that publication, section D is dedicated for guidelines on how to use environmental claims in marketing. Environmental claim is a claim which refers direct or indirect environmental or ecological matters that concerns production, packaging, distribution, usage, or disposal of product. More guidance is found on ICC interpretation guide Framework for Responsible Environmental Marketing Communication. Notable is that marketing should not utilize the concern that a consumer could feel about

environmental aspects, or benefit from the lack of environmental awareness. It is also good to understand, that if the effect of the action is small, it should not be over promoted. If the part of the used materials is doubled from one piece of plywood to two pieces of plywood, the overall effect is not that large in the total amount of used wood. The facts behind the claim should be easily found, for example from the internet pages. It is good to have a look at this publication, while planning the communication based on the new circular economy and sustainability actions. (ICC 2018, 38-39.)

When Pägå is visiting the customers to inform them about their rental solutions, they have a good opportunity to present some facts. By providing actual numbers, they can make an impact on customers thinking. For example, instead of saying that they have rental wall frames and piece floor carpeting, they should tell that with this and this solution you can have up to X percent of recycled materials. Show the consequences of decisions, like if they choose unbranded wall covering, they can save up to X CO2 emissions as the covering can be used for X times.

There must be one wild card involved. If the reusable carpets need to be cleaned, Pägå could buy a powerful textile cleaner, and hire a part-time worker for the cleaning. They could get pay subsidy for employing unemployed people. If they hire someone with a reduced capacity for work, they can have an employment subsidy for 70% of the salary from the government. (Tem.fi 2023.) Of course, the daily job cannot be too simple and unsatisfying, and other responsibilities could be added to the position too. (This chapter is based on the situation that is valid December 2023. Future laws can bring changes to the pay subsidies of employing unemployed people.)

Possible topics for future studies are concentrating on creating the metering system, marketing plan and doing an actual business plan around the rental stands. How to use the current CRM system for bookkeeping of customers branded materials and special effects, and how to share this data with the designing agency. Value chain, the supplier evaluation, and the creation of purchasing policy are a good topic for future study also. I presented an idea that Pägå would start renting stand pieces to other players in the field, and a business plan and market research could be done for that topic too. It would be important to have further research from the customers (design office) and end customers (the brand) point of view. The brands want to be sustainable, but how many changes are they willing to do for that?

At the end of the thesis, it is good to reflect on how this research-oriented development study and the writing process went. Defining the topic was challenging, and the direction of work changed a few times, even though the core idea did stay the same all the time. One thing that I would have done differently, is that I would have interviewed a designer too, as they play a big part in the change, although the committed executives determine the design

framework. It is a team work to enable the use or reusable items available so they can be in the core of every design. Because of the tight time schedule, I did not ask more employees to be interviewed. If I would do this process again, I would have two sets of interviews. The first set of interviewees would have given me a good understanding of the current situation, and with the second set I could have started innovating the new business opportunities. If there would have been more time, a pilot workshop for innovating should have been arranged. All the interviewees also had positive mindset about the sustainability issues and a wider range of interviewees could have given me opinions that were not so “sustainability friendly”. I do not have a personal relationship with the interviewees, so one can assume that they were not completely like an open book. I also left out comments, which could have been directly attributed to a specific person. I am aware that these issues did not give me the most truthful picture of the current situation. Best way to gather the silent knowledge from Pågå, is to have circular internal audits and observation inside the company as a long-term project.

This research-oriented development study was not targeted to human behavior, so no essential ethical issues raised during the process (Arene 2019, 9-10). The main concern was to keep the interview answers anonymous, and the anonymity of interview responses was treated with care and caution. I also used ChatGPT for clearing some terms and concepts for myself and for naming chapters and language checking. Pictures were made on Canva (www.canva.com), where I modified the free templates. Chapter four and five had a picture reference (www.reallygreatsite.com), but the timeline did not have a reference.

As there was working time for 30 ECTS worth, there was enough time for data collection for this work. This thesis also covers wide range of issues and gives opportunity for Pågå to select the ones that fit them the best. The best way to do this thesis was to have interviews and qualitative approach. The context was wide, but the current working life requires broad perceptiveness. I am also educated to have a wide perspective, and the system theory point of view especially requires it. I am happy with the context, and it served this thesis well. The research questions were also cross-sector and they partly overlapped but also partly complemented each other, helping me to move in the direction I wanted to go with my thesis. This thesis utilized development-based learning which helped to make this thesis authentic, and its goal is to create new solutions and innovation for Pågå to use. Experiments of suggested models of operations are important to check the effectiveness and functionality of various solutions. This thesis utilized existing peer-reviewed studies, which emphasized its research-oriented development study nature. Based on the collected information, this thesis aimed to be creative and to answer future challenges. (Ojasalo et al. 2014, 16.) This thesis may not give one correct solution for new sustainable, circular economy business models, and the actions and strategy might need to be adjusted and modified along the way. Hopefully this thesis at least gives a clear direction which way Pågå should aim to. The idea of proactive marketing was enthusiastically received, and I assume it was the one of the biggest development

proposals I offer that can be implemented. I had total freedom with the writing process, and I was told that my expertise is trusted. Of course, I get an approval from the commissioner once I made some changes to my approach. I informed the commissioner about the timetable changes and updated him on a regular irregular basis where I was with the project. The concepts that are used in this are a part of general information, and based on the feedback of the proof-readers, their descriptions were left out.

The development work of this thesis is to gather the guidelines to Pågå how they can start to do the strategic change towards more sustainable business. This work can be generalized to different business sectors, as the main idea stays the same. Organizations can think their circular economy and sustainability related issues by mapping their value chain and dividing different processes to smaller units and utilize the ideas presented in this thesis. The small pieces help to see individual development points, and little strokes fell great oaks.

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Figures

Figure 1: Thesis Timeline.....	25
Figure 2: The Interviewees.....	26
Figure 3: Internal processes that should be developed to promote the circular economy?....	32
Figure 4: Current reusable offerings that can be included in the stand design.....	34
Figure 5: Materials with challenging reusability.	35
Figure 6: Current left-over donations	36
Figure 7: Waste Management	36
Figure 8: Development Plan in a Nutshell.....	56

Attachments

Attachment 1: Kutsu opinnäytetyö haastatteluun	69
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Attachment 1: Kutsu opinnäytetyöhaastatteluun.

Hei,

Olen Ilona Peltomaa ja opiskelen kestävän kasvun ja yhteiskuntavastuun johtamista Laurea ammattikorkeakoulussa. Teen opintoihini liittyvää YAMK opinnäytetyötä yrityksellenne. Työssäni tutkin konkreettisia keinoja, joilla ainakin osa yrityksenne toimintaa voitaisiin siirtää kiertotalouden liiketoimintamallin mukaiseksi.

Opinnäytetyöni on laadullinen tutkimus, jonka työstämiseen kuuluu osana haastattelut.

Pyydän sinua osallistumaan noin tunnin pituiseen haastatteluun.

Mikäli ehdotettu aika ei käy, pyydän sinua ehdottamaan uutta aikaa.

Tällä hetkellä minulle käy myös

Maanantaina 25.9. klo 9-11

Keskiviikkona 27.9. klo 9-13 sekä 14-15.

Perjantaina 29.9. klo 13-15.

Maanantaina 2.10. klo 9-15

Toivottavasti löydetään yhteinen vapaa aika 😊

Haastattelu olisi puolistrukturoitu teemahaastattelu. Esitän sinulle noin seitsemän pääkysymystä, joiden ympärillä voimme vapaasti keskustella aiheesta (eli kiertotalouden mahdollisuuksista toiminnassanne). Kysymyksiä en mielelläni jaa etukäteen, sillä kaipaan spontaaneja ja avoimia vastauksia. Aiheeseen ei myöskään tarvitse tutustua etukäteen.

Haastattelut pidetään Teamsissa ja nauhoitetaan myöhempää analysointia varten.

Nauhoituksia, sekä niiden litterointeja säilytetään pisimmillään kaksi vuotta Sharepoint-kansiossa, eikä niitä ole tarkoituksena näyttää ulkopuolisille. Tarvittaessa viitataan yksilöllisiin vastauksiin titteliin viitaten.

Jos tittelin mukaiset viittaukset eivät tunnu sinusta hyvältä ja haluat säilyttää anonymiuden, voidaan sopia, että käsittelen vastauksia vain massan mukana, ilman yksilöiviä viittauksia.

Vastaukset käsitellään hyvän maun mukaisesti, eikä mistään vastauksista koidu minkäänlaista mainehaittaa Pågålle.

Kiertotalous:

Lyhykäisyydessä kiertotalouden ydinajatus on se, että ”there is no waste to waste”. Tavoitteena on tukea ja turvata luonnon monimuotoisuutta neitseellisten raaka-aineiden käyttöä vähentämällä. Pågåssa tämä tarkoittaisi muun muassa materiaalien mahdollisimman tehokasta uudelleen käyttöä. Ensisijaisesti niin, että materiaali pysyy saman tasoisessa käytössä, esim. samaa vanerilevyä voisi käyttää useammassa eri messuständissä, vain päällystämällä levy uudelleen.

Ystävällisin terveisin,

Ilona Peltomaa

Check list:

- Mainitaan vielä, että haastattelu nauhoitetaan
- Kysytään saako viitata työssä titteliperusteisesti vastauksiin (tätä mahdollisuutta ei välttämättä käytetä, mutta haluan huomioida mahdollisuuden etukäteen).
- Muistutetaan, että rakentava kritiikki on hyvästä (esim. mahdollisista ennakoasenteista), ja sitä ei työssä esitetä
- Ennen kysymyksiin menoa, kysy mitä heidän päivätyöhönsä kuuluu
- Lopuksi kysy, saako tarvittaessa olla yhteydessä, jos ilmenee tarkentavia- / lisäkysymyksiä