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Abstract

This thesis investigates how a service design approach can support cultivating a community in a creative hub. The exploration is based on a case study of BetaFactory, a recently established makerspace in Copenhagen. The makerspace already has a community of members; however, they lack a systemic approach to ensure a healthy and resilient community. Through the research conducted, factors contributing to nurturing communities in creative environments were identified and adapted to the needs of the examined makerspace and its members.

The research uncovered that the key to a resilient community is getting the right balance between the people involved in the makerspace, the way its system functions and the experience it provides. A proposed framework to cultivate a community in a makerspace examines each of these categories. It aims to equip the BetaFactory management with an overview of the most important elements necessary to consider when growing a community. Moreover, the framework offers strategic advice for achieving these goals, an evaluation tool to assess the relevancy and feasibility, and invites the management to implement specific solutions.

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PROJECT CONTEXT

This thesis concludes a master's programme in service design. Written over the course of one semester, it investigates the impact of a systemic approach to community cultivation in the context of creative environments, such as makerspaces.

Starting point

The starting point of this thesis was driven by my desire to work with a service design challenge grounded in the real world. In addition to that, I was motivated by my interest in working with creative communities that I acquired through my past work experience. This ambition resulted in collaboration with a Copenhagen based makerspace which provided a design case for my thesis.

Learning goals

OFFICIAL LEARNING GOALS

The Service Systems Design master's programme curriculum at Aalborg University Copenhagen requires its students to "demonstrate the acquisition of competences, skills and knowledge that allow them to master the profession of service design" (Aalborg University, 2021). Upon the completion of the module, the students will obtain the following qualifications:

Knowledge

- Must have knowledge about the possibilities to apply appropriate methodological approaches to specific study areas
- Must have knowledge about design theories and methods that focus on the design of advanced and complex product-service systems
- Account for the scientific foundation, and scientific problem areas, of the specialisation
- Describe the state of the art of relevant research in the specialisation

Skills

 Must be able to work independently, to identify major problem areas (analysis) and adequately address problems and opportunities (synthesis)

- Must demonstrate the capability of analysing, designing and representing innovative solutions
- Must demonstrate the ability to evaluate and address (synthesis) major organisational and business issues emerging in the design of a product-service system
- Master the scientific methods and general skills associated with the specialisation.
- Produce a project report according to norms of the area, apply correct terminology, document extensive command over relevant literature, communicate and discuss the research-based foundation, problem and results of the project orally, graphically and in writing in a coherent manner
- Critically evaluate the results of the project in relation to relevant literature and established scientific methods and models, evaluate and discuss the project's problem area in a relevant scientific context.
- Evaluate and discuss the project's potential for further development

Competences

- Must be able to master design and development work in situations that are complex, unpredictable and require new solutions (synthesis)
- Must be able to independently initiate and implement discipline-specific and interdisciplinary cooperation and assume professional responsibility (synthesis)
- Must have the capability to independently take responsibility for own professional development and specialisation (synthesis)
- Participate in, and independently carry out, technological development and research, and apply scientific methods in solving complex problems.
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for independently

carrying out, potentially cross-disciplinary, collaborations

- Independently assume responsibility for own scientific development and specialisation
- Independent identification of a problem
- The use of appropriate design methods and theory to research the problem area
- Designing and presenting an innovative problem solution

PERSONAL LEARNING GOALS

My personal goals to achieve through this thesis are:

- Expand knowledge of and gain hands-on experience with design research methods.
- Refine research synthesis skills and explore techniques that can be used in this process.
- Apply service design principles to identify an appropriate solution that provides benefits for both service users and providers.
- Deliver a solution using a systemic perspective.

Methodology

To structure my project progress, I utilised a Double Diamond process methodology that allowed me to explore the research question and design brief and navigated me towards the outcome.

The Double Diamond model was developed by the British Design Council in 2005 as a visual representation of the design process in response to a lack of such models at the time (Design Council, 2007). Since then, the Double Diamond has been well-established as a strategic

framework for the design process, along with several other process models, such as the Design Thinking model developed by the Hasso-Plattner Institute (e.g. Leifer et al., 2018) or the HCD model created by the design agency IDEO (IDEO, 2015).

The Double Diamond consists of divergent and convergent stages of the design process, giving the model its name. In the divergent phase, the process helps to explore the issue widely and in the convergent phase to narrow it down. In other words, the first diamond addresses the initial challenge, the definition of the problem is discussed in the centre, and the solution is developed in the second diamond.

The model consists of four stages: Discover, Define, Develop and Deliver (Design Council, 2015). The first quarter of the model - Discover - tackles the start of the project, focusing on gathering insights and understanding the problem. The second quarter - Define - stands for the definition phase, in which insights are framed into a design challenge. In the third quarter - Develop - the initial design brief is developed into a product or service for implementation. In the last quarter - Deliver - the product or service is finalised and launched.

The Double Diamond has been criticised for several reasons, primarily for presenting the design process as linear, which does not typically correspond to most design processes (Drew, 2019). The Design Council updated the model in 2019 into a Framework for innovation (Design Council, 2019). The evolved Double Diamond responds to the criticisms of the original model by stressing out its iterative nature and adding four core principles (1. put people first,

2. communicate visually and inclusively, 3. collaborate and co-create and 4. iterate). Additionally, the framework structured design methods in three areas to help them use the design process (1. explore, 2. shape or 3. build) and highlighted the significance of creating a culture for leadership and engagement to ensure the

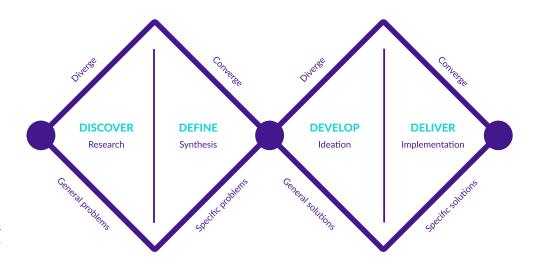


Fig. 1: Double Diamond process model

success of the design project (ibid.) For the sake of simplicity, the original Double Diamond will be used in this thesis, having its weaknesses in mind. The model allows the designer to navigate a complex project by structuring the process, thus making it easier to plan and choose appropriate methods and tools.

The research question helped me outline the initial areas of research, which will be elaborated on in the following chapter: Service design, Creative hubs & Makerspaces and Community.

Conceptual foundation

To guide me through the research process, I formulated the following research question:

How can a service design approach help cultivate a community in a creative hub?

SERVICE DESIGN

There is no one definition of service design. It is often described as multidisciplinary (Polaine et al, 2003), user-centred and co-creative (Stickdorn & Schneider, 2017). To understand the service design practice, it is essential to distinguish what services stand for. Generally, services help their users to reach an outcome that they need or intend to do. The Copenhagen Institute of Interaction Design (CIID, 2017) describes services as accessed or experienced, not owned or possessed. Furthermore, according to CIID (ibid.), services mediate our experience of complex systems. In other words, services create a connection between a user and a service provider,

EVOLUTION OF SERVICE DESIGN

All major innovation consultancies are offering service design (IDEO, Frog etc.) Digital and marketing agencies are embedding it in their offering (RGA etc.) Educational courses are expanding beyond traditional design school training through organizations like general assembly and hyper island Large organizations have dedicated in house teams (capital one, MSK, Tesco) It's heavily being applied to international development

1982

Service Design coined by Linda Shostack

1991

Service as Design Discipline is published by Dr

2001

Livework the first Service Design consultancy is

The Service

is launched

Service Design in Public Sector: Digital Design Network Government Services is formed in the UK

and social impact work

2012

The first accredited Service Design BFA

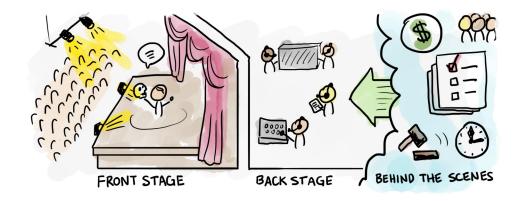


Fig. 2: Evolution of service design by CIID, 2017

"We can consciously design how a service works and how it meets outcomes and user needs. From the steps and the order they are in, to how accessible it is, how it looks and feels to the content and instructions on how to use it." (Drummond, 2021)

As all services have a user experience, service design aims to address the interactions that shape these end-to-end experiences. It is important to note that experiences are individual, depending on many factors, such as personality, goals or situational context. Another significant area of focus in service design is understanding relationships that form the service, as illustrated by Kimbell (in Stickdorn & Schneider, 2017):

"Understanding value and the nature of relations between people and other people, between people and things, between people and organisations, and between organisations of different kinds, are now understood to be central to designing services."

Overall, service design helps its practitioners to understand the broad ecosystem of stakeholders, systems, relationships, experiences and business factors involved in designing a solution. Using service design to create or re-create services benefits both the user, as the service is designed from a user point of view, and for the organisation since it improves its support structures.

CREATIVE HUBS & MAKERSPACES

Guided by my research question, I wanted to understand how communities are formed,

Fig. 3: Service design depiction by Megan Erin Miller, 2016

structured and sustained in creative hubs. The term creative hub describes a place, either physical or virtual, which brings together people within the creative, cultural and tech sectors to provide them space and support for networking, business development, and community engagement (British Council, 2015). These types of ventures can have many forms: coworking spaces, collectives, co-operatives, fablabs, makerspaces, hackerspaces or incubators. Creative hubs can have either for-profit or non-profit structure and can focus either on a multi-disciplinary sector (members are representing diverse interests) or be sector-specific (members gather around a specific focus only). The British Council (2015) distinguishes their most common features based on physical and digital properties.

For the purpose of this thesis, I will refer to creative hubs as to makerspaces.

A makerspace is a place where people interested in technology come together to work on projects while sharing ideas, equipment, and knowledge (Oxford University Press, 2021).

Another definition describes a makerspace as an open-access space (free or paid), with facilities for different practices, where anyone can come and make something (Sleigh et al., 2015). Aside from sharing office space, technology and knowledge, makerspace members engage in socialising and forming professional relationships through the spatial proximity of other members and facilitated encounters. Froes (2021) argues that:

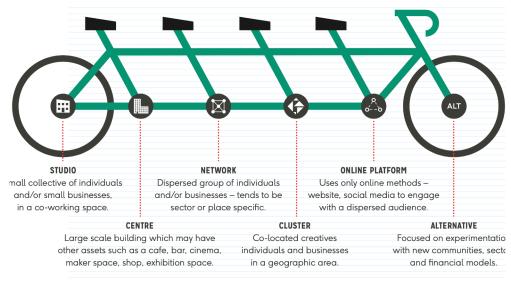


Fig. 4: Creative Hub Models depiction by the British Council, 2015

"There is no standard model for a community makerspace; rather, we are required to acknowledge there is a wide variety of spaces that operate according to their own sets of principles, which consequently define their own community culture."

There are various kinds of makerspaces, differing in size and focus. All of them have access to space, community, and tools to make it possible for their members to produce physical or digital products. Makerspaces are also often described as places for creativity, innovation and learning. Concepts like Gee's (2004) "affinity spaces" and Lave and Wenger's (1991) "communities of practice" describe learning practices that take place in creative hubs. Such learning is collaborative, informal and participatory (Willet, 2016).

Criticism

Along with acknowledging positive traits of makerspace culture, such as new forms of entrepreneurship, learning opportunities, and community engagement, critical voices argue that makerspaces are dominated by "affluent men" (Dunbar-Hester, 2014) or "privileged hobbyists" (Willet, 2016). Even though makerspaces have been set up in diverse environments and strive to be open to anyone, there seems to be a lack of racial and gender diversity within many of them (Dunbar-Hester, 2014).

Role in the creative economy

Markespaces have been initially dedicated to hobbyists and tinkerers. However, in recent years, makerspaces have become more entrepreneurial, integrating current and upcoming technologies and allowing businesses to grow (Hui & Gerber, 2017), such as in the case of BetaFactory.

Makerspaces represent new forms of collaborative working practices that have emerged along with the rise of the creative economy and the sharing economy paradigms (Avdikos & Iliopoulou, 2019). Authors such as Hatch (2014) argue, in relation to makerspaces, that accessible technologies and changes in economic conditions have brought "the largest explosion of creativity and innovation the world has ever seen".

The British Council (2015) outlines the following ways in which creative hubs, such as makerspaces, play a significant role in developing creative economy and supporting individuals, organisations, businesses and projects:

- Facilitate collaboration, networking and skills development.
- Reach out and collaborate with research and development centres, institutions, creative and non-creative industries.
- Communicate and engage with a wider audience and build global digital opportunities.
- Champion and celebrate emerging talent.
- Push boundaries by taking risks towards innovation.

Marsh (2017) notes that the contemporary maker culture is less focused on acquiring specific craft skills through a long period of apprenticeship and more directed towards a learning-by-doing approach in which anyone with access to the right tools and resources can create. San Diego (in Shivers-McNair, 2021) suggests a revision of this common understanding of the maker movement according to which with the right tools and skills, anyone can make anything:

"If you design the right kind of community, any community can make anything."

COMMUNITY

Historically, communities represented groups of people living in a shared location. In the 21st century, this primary notion of community has changed into one having no geographical boundaries. Community is not something that one fits into; it is something one chooses for oneself through a process of self-discovery (Garber, 2017). Bishop (in Garber, 2017) points out that:

"It used to be that people were born as part of a community, and had to find their place as individuals. Now people are born as individuals and have to find their community."

 $\label{eq:atomics} \mbox{AT\"{O}LYE} \mbox{ (n.d.) describes 3 fundamental shifts in a community:}$

1. Default tribe → chosen tribe

Communities used to gather for safety and survival. Now, they come together around purpose, identity, and impact.

2. Seeking survival \rightarrow seeking thrival

The community has shifted from being based on blood and belief to being based on professions, interests, and passions.

3. One, location-based community → multiple, fluid communities

The complex connectivity of the globalization era invites individuals to be part of multiple virtual or location-agnostic communities.

Defining "community"

A community is a group of people that care about each other & feel they belong together.

1 Human

2 Relationships



3 Shared Identity

Fig. 5: A definition of community by Pfortmüller (2017)

This shift in community association highlights that communities are created based on shared values, interests, or needs, and anyone can choose to join them. Pfortmüller (2017) offers the above pictured definition of community. His straightforward description emphasises the three key elements of a community: people, relationships and shared identity. The description underlines a difference between a definition of a community as a group of people that share the same goals and a relationship-based community. People coming together for a shared goal strive for an external output to achieve collective goals, e.g. a project team or political movement, while communities optimise for internal purposes to optimise relationships and shared identity (Pfortmüller, 2017).

Makerspace communities

For the sake of further conceptualising the notion of community in the context of a makerspace, it is

relevant to make a distinction between a spacedriven venture and a community-driven venture. Both ventures have communities, as they consist of members, but the purpose of these communities is different. In a space-driven venture, such as a coworking space, makerspace or incubation centre, space comes first and community after. In a community-driven venture, the community is built first, and the space to fulfil its needs is sought next (Ayaz, 2017). Ayaz (ibid.) argues that, in the first case, it is rather challenging to build a resilient community from the ground up, as it requires a thoughtful approach and expertise. This argument indicates that a community in a space-driven venture such as a makerspace requires a dedicated strategy. Likewise, San Diego (in Shivers-McNair, 2021) points out that to create meaningful practices of making, it is essential to cultivate a community. Similarly, makerspace founders worldwide agree that community is what shapes and upholds these places (e.g. Baichtal, 2012): they are places where making happens in a community.

As apparent from the literature overview on makerspaces, a community within a makerspace represents its foundation and needs to be cultivated to ensure its healthy functioning. At the same time, every makerspace is different, and so is its community. Community architect, community builder, community manager - these are all common job descriptions for nurturing resilient communities at makerspaces. I summarise the best practices of these roles in the Develop chapter.

Partnership

As I sought out project opportunities that would reflect these preferences, I was approached by a co-founder of a recently created makerspace located in Sydhavn, Copenhagen, called BetaFactory (BF). The BF founders have worked with me in the past and, through mutual contact, have heard that I am looking for a case. In an initial meeting, we spoke about the current situation at the makerspace and my motivations to collaborate with BF. As the design challenge was open for proposal, I suggested focusing on the community of the makerspace. This proposal was guided by my unfounded hypothesis that a community should be cultivated in order to be healthy and functional, and driven by a curiosity to uncover the community status of BF. I hoped to find design opportunities in this process that could be implemented by the makerspace.

BF has agreed to the broad project focus and we initiated our collaboration. I gained access to the space and its members and thus had an opportunity to work with a rich context.

Moreover, I had the advantage of having had trust from the partner's side thanks to our previous professional experience.

ABOUT BETAFACTORY

BetaFactory defines itself as:

"Tomorrow's prototype and production facility where traditional craftsmanship is combined with modern digital production technologies. It is a meeting place for people with different professional backgrounds, skills and interests" (BetaFactory, 2021).

The co-founders have been experimenting with various makerspaces over the past couple of years. They have settled in a former milk factory in 2018 in Copenhagen and have been refurbishing it and developing BF there since. Due to a large amount of space available, the space is well suited to small and medium companies who are needing industrial production capabilities and office spaces. Currently, there is a large part of the building being reconstructed to build office spaces for rent. BetaFactory defines its vision as following:

"To empower individuals through technology, education and democratic access to manufacturing facilities and shared knowledge" (BetaFactory, 2021).

In addition to this, it is their mission to be the leading makerspace in Denmark, with the largest selection of machines and facilities. Their goal is to attract a diverse, creative community through offering a wide variety of facilities available, with more being planned, combined with setting up office spaces for new companies. Currently, BF has 108 members in 45 companies, out of which 30-35% are female.













BetaFactory

DISCOVER

The purpose of the Discover phase was characterised by exploring the project topic by various research methods. The phase started with an initial interview with the COO of BF and continued with preparatory research (Stickdorn & Schneider, 2017) consisting of formulating an initial problem statement and gaining insights through autoethnography. Based on insights from the preparatory activities and following the Double Diamond methodology, I conducted several interviews to learn about particular experiences, problems, needs and ideas of BF's members and staff.

Initial interview

To understand the client's perspective of the research problem, an initial interview with the Chief Operating Officer (COO) of BF took place, who will be further referred to as the client. This conversation revealed that the internal perception of community is primarily centred around knowledge sharing, e.g. conducting workshops for members, but a framework for building a community in the makerspace is not yet defined. The ambition of the space is to open up various workshops and bring in diverse people who could use them. There are many ideas for activities, but they have to "compile them somehow to make them operational." Moreover, the COO had several preconceptions about the need for managing the community, such as that the members are always busy and do not have time to attend events.

Following our discussion, together with the COO we ideated on a design brief and, after several iterations, a following formulation was agreed upon:

How might service design support the BetaFactory makerspace in cultivating a community around their services?

Autoethnography

As I set out to understand BF and its culture, I arranged a desk in the coworking space and came there as a member for several months. This personal experience with the space, autoethnographic research (Amon, 2018), has given me valuable insights that helped me interpret behaviours when observing the members and the staff. Moreover, the

observations allowed me to construct an interview guide and conduct interviews based on relevant context.

I experimented with overt and covert approaches (Stickdorn & Schneider, 2017). I have exposed myself to several members as a researcher (overt) through an informal conversation, while most of the other members did not know who I am (covert). In my experience, those to whom I was introduced by the management, and who knew my research purpose, had a friendly attitude towards me. My encounters with those who did not know me, and to whom I did not actively introduce myself, would typically not greet me or initiate any contact. Even though we have seen each other several times, I would not be greeted or interacted with. Upon attempting a conversation, I would be met with a mixed attitude. I often felt that the members did not want to be disturbed and were not open to starting small talk.

In reflection, I believe that the main difference in attitude was trust based; when I was introduced via a trusted third person I could follow up on the encounter, opposed to approaching the members without any official introductions. This experience made me realise how much trust is vital in building new relationships in the context of a makerspace and how important it is to have a proper onboarding process.

Further goal of my observations was to understand the current community behaviours at BF. I became a member of the community Slack group to survey the public communication between the members themselves and the members and the management. I noticed that most messages were of practical nature (e.g. reporting something missing or broken). The tone of the communication was also rather informative. What stood out was that most posts usually had none or very few reactions. Overall, my observation was that if the Slack group should reflect the community at BF, there is not much collectiveness, initiative, knowledge sharing or

spontaneity involved. I tried to remind myself that this assessment is based solely on my sentiment and, therefore, can be considered biased. My reflections on the community will be re-evaluated through interviews with members.

Lastly, I attempted to observe the community initiatives. I noticed that there are no regular events in the planning, as well as no community rituals. It is important to mention in this context that during the writing of this thesis, there were severe limitations to social gatherings related to the COVID-19 pandemic.

Interviews

The next step in my research process was to conduct in-depth, semi-structured interviews (Bjørner, 2015) in the makerspace with the aim to understand the BF community from the member's point of view. In this qualitative research, 9 semi-structured interviews were conducted with the 3 BF staff and 6 members.

To guide the direction of the interview process, a research objective was formulated:

"Gain a deeper understanding of the ways members of the BetaFactory maker space use and perceive the space and its facilities, the motivations driving their decision to be members of the space, and what are the factors that contribute to creating a sense of community in this collaborative environment."

An interview guide has been created based on this objective, as well as based on previous research on makerspaces and communities.

PARTICIPANTS SAMPLING

The participants were sampled using a non-probability sampling method (Bjørner, 2015), in which pre-specified characteristics are used to define the selection. The aim was to talk to both the members and the staff. I have asked the client to help me identify members I could talk to using the following criteria:

- · someone who started recently
- · someone who will be leaving as a member
- someone who has been a member for a very long time.

Moreover, I wanted to talk to members from the different areas of BF

- · someone primarily using the workshop
- someone primarily using the dedicated office space
- someone using the open space.

When those members have been identified, I and a staff member approached them in person and asked if they would be willing to talk to me in a research session. All members responded positively. In conversation with the members, I used the term 'research session' rather than 'interview', as, to me, interview can sound more intimidating and can bring up the association with, e.g. a job interview, where one can feel judged.

In addition to selecting members, I arranged to talk to the relevant staff members:

- · one responsible for facilities
- · one responsible for communication
- · one responsible for business and strategy.



Fig. 6: A research session with a member of BetaFactory

INTERVIEW GUIDE

Once interview participants have been appointed, an interview guide (appendix A) has been created. This document helps the researcher stay focused on the topic and get all of the needed information. The guide contains a brief description and goal of the study to share with the participant, warm-up questions to get the participant talking and questions or topics that are the primary focus of the interview (Hall, 2013).

A beneficial aspect of having an interview guide is to be reminded of certain practicalities, such as confirming interview timing and giving out a consent form. The guide was used primarily in the beginning of the interview process, as I was getting familiar with it, and at the end of the research session as a checklist for the questions. The more interviews I ran, the easier it felt to navigate the sessions without the guide.

INTERVIEW PROCESS

In order to create the interview guide and to help me plan and conduct the sessions, I have researched best interview practices. Below I present a collection of practical suggestions that anchored me in my practice. These were collected from sources available online (various), from literature (Hall 2013, Portigal 2013, Kvale 2007) and academic materials (CIID, 2017).

- Have a goal in mind
- · Aim for breadth and depth
- · Hear from multiple perspectives
- · Plan for 1 hour or more
- Create a welcoming atmosphere to make participants feel at ease
- Spend 10-15 minutes on getting to know your subject
- Avoid leading questions and closed yes/no questions.

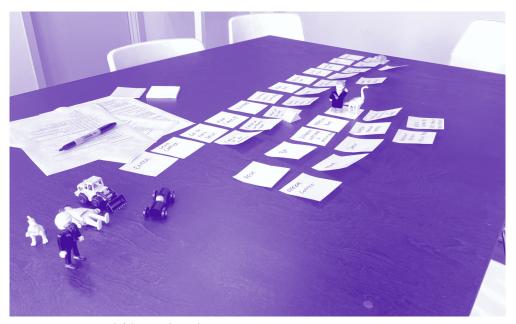


Fig. 7: An exercise mapping BF member's day as part of a research session

- Use transitional phrases to move from one topic to another
- Follow up on a question using different types of questions
- · Ask how
- Ask why. Keep asking why
- Probe without presuming
- Make quick notes on about what to come back to
- · Use interview guide only if needed
- Ask the shortest question possible
- Be silent
- When possible, take photos of interesting things and behaviors
- Reflect back the language and terminology that participant used
- Repeat and mirror
- Pay attention after recording has stopped to capture valuable revelations ('the doorknob phenomenon')

figures to represent the participant that they could choose from. By choosing a playful character to symbolise themselves, the participants warmed up and appeared excited about the task. As a second step, the participants were asked to talk about their day from the moment they arrive at BF to the moment they leave. As they talked, I used two colour-coded post-its to note down the activity and the place. The participants moved with their figures along these steps. If needed, an additional figure was used to represent another person that they interacted with on their journey. This exercise helped create an overview of their typical day at BF and served as a backbone for our following discussion. Moreover, it opened up space to ask about details that would have otherwise not been apparent and, therefore, it served as a convenient exploratory tool.

After each interview, I wrote down or voice recorded observations that I noted during the session. These would be later used in the Define phase to complement what has been said by the interviewees.

Interview setup

Most interviews were held at BF, one interview was conducted at a place of choice of the participant outside of BF, and one interview was conducted while walking outside of BF as per the choice of the participant.

To start each session off, I introduced myself and the purpose of the session, handed out the consent form, confirmed the timing and started an audio recording. The first part of the interview was dedicated to getting to know the participant, which was followed by questions focusing on the topic, and concluded by leaving an open space for additional thoughts.

Day mapping exercise

To establish a relaxed atmosphere with the participant and to create a platform for discussion about the makerspace, an exercise took place as part of the interview. I prepared several small

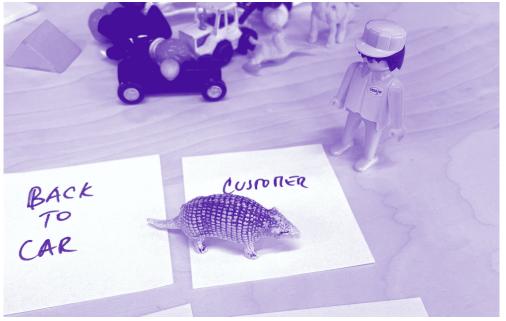


Fig. 8: A detail of a day mapping exercise

DEFINE

The Define phase was dedicated to synthesising the outputs of the Discover phase. This phase aimed to channel the research findings towards a design challenge that will be addressed in the following part of the design process. In this phase, the goal was to find relationships or themes in the research data and uncover meaning in these outputs applicable to the design challenge. Kolko (2010) defines the process of synthesis in design as sensemaking. Klein, Moon, and Hoffman (in ibid.) further define sensemaking as a motivated, continuous effort to understand connections, which can be among people, places, and events, in order to anticipate their trajectories and act effectively.

I used various data synthesis and analysis methods to gain a bird's-eye view of all the gathered material, structure it and narrow it down into insights that will inform design challenges. My overall goal was to 1. find values, motivations and needs that matter to the members and the management, and 2. identify opportunities and domains that will form the basis of the final outcome.

Interview analysis

When I interviewed the various subjects, I was limited by the fact that I was the sole researcher in the project. I did not have a note taker or someone helping me document the sessions. I recorded all interviews with the participants' permission so that I could revisit them later for the purpose of synthesising what has been said.

An advantage of having the interviews recorded was that I could utilise tools that allow for automatic transcription. Throughout the project, I used Dovetail, cloud-based software that allows for recording transcription and data analysis. I would usually upload the interview recordings right after the research sessions and have them transcribed. As I went through the interview transcript, I used the software-enabled feature to create thematic tags that I could add onto quotes. Initial thematic tags emerged naturally as I went

through several interviews. Later in the process, I would rephrase and regroup these tags in a way that made the most sense to me.

To ensure data protection, I anonymised the interviewees' names by assigning them different names. Moreover, as I spoke with four men and two women, I kept this gender balance but assigned it to random participants.

Furthermore, I divided the tags into four categories. Workshop & Office space, Community, System and Miscellaneous. The Workshop & Office space category accounts for Office space and Workshop experience, Community category contains Community reflections, Community pain points, Social interactions and Knowledge sharing. Under System I gathered quotes related to Management and Suggestions for improvement. Finally, Miscellaneous covers Things that are valued and General pain points. The graph (below) gives an overview of how many highlights (annotated interview quotes) are represented under each tag.

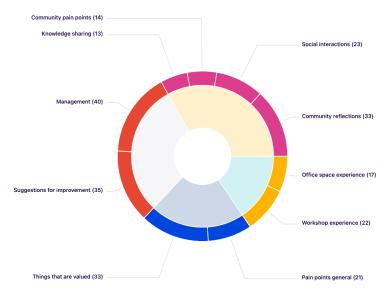


Fig. 9: A visual representation of tags and their count

LIKES & DISLIKES

As a next step, I synthesised all pain points that were mentioned in the interviews, as they are a valuable input for creating insights, member's journey and optimising the community cultivation efforts in general:

Dislikes

Community-related

- · general lack of community vibes
- management does not listen to members' needs
- the tone of communication from management is sometimes not nice
- · members don't follow the rules
- · not knowing the other members personally
- not knowing about others members' companies
- not many initiatives for cross-collaboration
- not knowing the vision for the makerspace
- not having enough opportunities for socialising
- not feeling interest of the management in developing the community

Logistical & systemic

- personal things get damaged or lost
- not having an overview of the planned use of the workshops by others
- not having a dedicated CNC staff
- not having a showroom to showcase each other's products

Space & equipment related

- inefficient logistics in the workshop
- The noise level in the office space

- air conditions in the office space
- lighting conditions in the office space
- platforms stability
- not enough social space to relax
- · having too little space
- hard to use workshop booths for office work

Not all pain points seemingly correlate with the design challenge, which is focused on community. However, I believe that even the points that relate to logistics and space indicate a need for better collection and reflection of members' input.

Similarly, I created a collection of factors that were mentioned as valuable to the members. These points help me understand the motivation for being a BF member and things that work well:

Likes

- · Community-related
- using break time to get inspired in the workshop
- access to people who possess knowledge or can help

Logistical & systemic

- possibility to scale up a company in the makerspace
- having an office close to the workshops
- having access to functional machines in a space maintained by someone else
- financial flexibility of the tiers allowing to adjust membership based on the company's monetary situation, bringing security to new, small business

Space & equipment related

- · the large scale of the makerspace
- the CNC workshop is the best in Copenhagen

Insights

Having a complete list of likes, dislikes and all research data coded with tags, I created insights. Insights help researchers to summarise their main findings. They should be carefully phrased as they will be used as the basis for ideation in the further design process (Stickdorn & Schneider, 2017).

I followed a research analysis methodology by CIID (2017) that suggests insights should be actionable, and this is achieved by answering two key questions:

- · What is happening?
- · Why is it happening?

Research that is not actionable answers only the first of these questions. If the researcher doesn't know why something is happening, she is not well equipped to consider what action she should take. In this view, the final insight should convey a sense of new perspective or possibility.

I created the insights using Dovetail, as the tool allowed me to relate the insights to direct quotes. An advantage of this approach is that it provides transparency to the reader, since the insight links to the sources of research information and the reader can thus understand how it was established.

The insights containing the direct quotes are included in the appendix (appendix B), the individual insights are listed below.

The interviews uncovered reasons that make the members feel disconnected and prevent them from fully using the potential of the place. The members need to get to know each other first to trust each other, share their knowledge and enjoy socialising. There are apparent frustrations towards management regarding not being aware

of specific issues and members' needs, wishes and ideas. Furthermore, there are frustrations from both the management and the members' side concerning not respecting house rules, resulting in discomfort on both sides.

The interview analysis and insights formulation thus highlighted a solid need to cultivate a community at BF. The process also confirmed my initial hypothesis, according to which community cultivation needs to happen in a makerspace to achieve a healthy community.



Members want to discuss their needs and give feedback to the management but the current setup for sharing this input does not work for them



Members are not comfortable in starting a conversation with other members without knowing them well enough first



The members wish for more interaction, but there is no effective system in place that would enable and encourage social initiatives



New members are not introduced well enough which makes it hard to feel welcomed to the community



The BetaFactory community culture and house rules are not fully understood and embraced, which creates a lot of practical issues on a daily basis



Members look for ways to transform their project-related issues into opportunities for meeting new people and gaining new knowledge

Design challenges

Having chosen key insights, I moved on to composing design challenges. Framing the challenge as a How Might We question provides a framework for ideation and the possibility to create new design opportunities (CIID, 2017). A design challenge is formulated as a question and is based on insights. A good question is (ibid.):

- Framed in an optimistic tone.
- Not too big or broad
- Not too specific
- Framed to inspire a lot of ideas

As a first step, I identified main keywords from the insights:

- · Knowledge sharing
- Sense of belonging
- · Members' needs
- Rules
- Culture

Next, I chose three main topics based on the insights and the keywords that I wanted to translate into design challenges:

- · Strengthen community feeling
- Embrace house rules
- Listen to members' needs

After several iterations, I arrived at four design challenges:

- 1. How might we enable the management to better understand members' needs, wishes, and ideas?
- 2. How might we facilitate opportunities for casual social interactions to strengthen the sense of belonging within a community?
- 3. How might we create the conditions for the community to be able to maintain itself?
- 4. How might we transform the existing house rules into a culture that BetaFactory's members embrace?

I used these design challenges to guide me through the upcoming phase of this project.



Fig. 11: An upcoming ideation on the design challenge questions

DEVELOP

At this point in the project process, I had a solid basis of initial research and concept directions. The Define phase made it clear that community cultivation initiatives at BF need to happen systemically and not through fragmented events, moments and touchpoints, to strengthen a community culture and a sense of belonging. The objective of the Develop phase was to find answers to the design challenges and come up with a solid concept to be presented to the client.

I addressed the How Might We questions by organising an ideation workshop for the BF members and staff. Other activities conducted in this phase included additional research where I conducted an expert interview and an interview representing analogous experience. Moreover, I synthesised best practices in community cultivation, created member profiles and mapped out a members journey. To achieve a visual overview of the gathered data, I developed a concept map. Lastly, I developed the final solution, the community cultivation framework.

Ideation workshop

As I wanted to involve both members and the management in the ideation process to discuss and co-create solutions, I set out to prepare an ideation workshop. A secondary purpose of this workshop was to review the design challenges to make sure they resonate with the members and the client.

I invited the client, two staff and 2 BF members, and a fellow researcher to help with cofacilitation. The management only had 2 hours available, which set the time limit for the workshop. The aim for the workshop participants was to:

- have a strong understanding of the challenge,
 generate ideas to solve the challenge,
- 3. prioritise ideas by effort and value.

As I had a co-facilitator to handle the timing, document the session, and organise people's ideas on the board, I could participate in the ideation session myself. I found this valuable as, until this point, I did not have a chance to properly think about possible solutions, despite having a lot of research knowledge at my disposal. At the same time, I was aware of my potential bias, and I tried to mainly build on the ideas that others presented, opposed to offering my own.

To initiate the workshop, everyone was introduced and invited to participate in a small ice breaker ("sketch the person next to you & write their name with both hands in a mirrored way"). As a next step, I presented the community situation at BF and described why cultivation is an essential part of building a makerspace. Furthermore, I explained the rules of brainstorming (attached as part of the Workshop guide in appendix C) and encouraged everyone to be as visual as possible.

To help the workshop participants immerse themselves in the problem area, I printed out all insights with the corresponding quotes and placed them on the workshop room walls. I then invited the participants to spend a few minutes reading through the insights and making notes.

Subsequently, I introduced the design challenges. I invited the participants to discuss whether the challenges make sense to them and to select two or three challenges to go forward. The group suggested removing number 3 (How might we create the conditions for the community to be able to maintain itself?), as this was hard to comprehend. The group then voted to start with number 2 (How might we facilitate opportunities for casual social interactions to strengthen the sense of belonging within a community?), followed by number 1 (How might we enable the management to better understand members' needs, wishes, and ideas?). Due to time constraints, it was not possible to ideate on the remaining question (4. How might we transform the existing house rules into a culture that is embraced by BetaFactory's members?) However, the group agreed that this question is closely related to the ideas that were brainstormed on in the previous sessions.

After ideating on the two challenges, I asked the participants to vote for five favourite ideas with voting stickers. We voted for the ideas and created an impact-feasibility matrix (figure 13) and collaboratively arranged the concepts within this framework.

When the workshop time ran out, most members decided to stay and kept discussing the concepts and the issue in general without any pressure of time or frame. I noted down the discussion points and added them n top of the concepts in the matrix.













Fig. 12: Ideation workshop with participants from BetaFactory

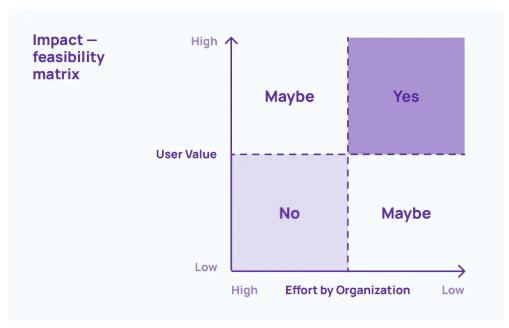


Fig. 13: A feasibility matrix describing the proportional level of user value compared to the effort a particular task will require

WORKSHOP REFLECTIONS

Retrospectively, I believe that it would have been beneficial to have more time for this session, allowing more time for establishing a relaxed and creative atmosphere. It seemed that the participants felt rushed into ideating initially, and it took a while for them to get comfortable with the process. In addition, the participants would have liked to spend more time discussing the topics and concepts, which we, unfortunately, did not have space for. It would have also been helpful to bring in more BF member participants to represent different views. It was especially valuable to have a member who recently started in BF to provide their fresh perspective on the issues.

Moreover, I noticed an unenthusiastic attitude from one of the management regarding suggesting new ideas. In their opinion, they have already tried everything, and it did not work. Despite my and others attempts to explain that it was done in a different context, the slightly pessimistic perspective of that participant persisted. However, it did not seem to have prevented the others from coming up with new ideas and being generally excited about the ideation process.

Another workshop aspect that I believe would have been valuable to address was that the participants were not coming up with seemingly unrealistic ideas, even though they were encouraged to do so, according to one of the brainstorming rules. Instead, most of the concepts were grounded in reality.

WORKSHOP SYNTHESIS

The outcome of the workshop was a collection of concepts organised by priority. I later applied the method of affinity mapping to synthesise the

into groups or themes based on their relationships. The resulting affinity diagrams offer a way to filter qualitative data to see what patterns and trends emerge. Following this approach, I sorted the ideas into categories to achieve an overview of the most common topics. Furthermore, I coded this overview based on priority positioning and identified those ideas that were voted for (figure 14).

The affinity mapping revealed the following categories:

- New services
- Knowledge sharing
- Expressing and registering needs & wishes
- · Who is who & who does what
- Social activities, Social events
- Involving the management
- Involving the members
- · Finding help in-house

Each category contains multiple concept ideas that answer the challenges posed in the ideation workshop. Later in the process, I used these categories and the individual ideas as a foundation for the final concept.

One benefit of having the ideas assessed based on the possibility of executing them shows that several concepts could be realistically developed. However, I believe that also the ideas that were not considered realistic by the group still contain valuable insight and a notion of possibility and thus should not be discarded. In addition to that, the process of affinity mapping allowed me to merge the concepts that resembled each other.

The concepts that were voted for as feasible were the following:

Beta fond for social events: a fond where members can apply for funding for their social initiatives **Reward system:** for members who deserve a reward for their initiatives and to make their efforts visible

Show Beta: showroom of products made by members

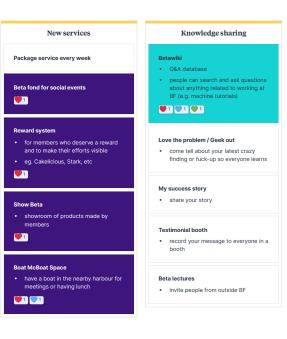
Boaty McBoat Space: have a boat in the nearby harbour for meetings or having lunch

Friday bar: a regular casual social event, potentially hosted by different companies, with the possibility of short company presentations

BF competitions: competitions across BF with score info for each company, e.g. in fussbal

Beta Welcome: welcome package for new members with all essential info, introduce new members in person, introduce new members via company presentations

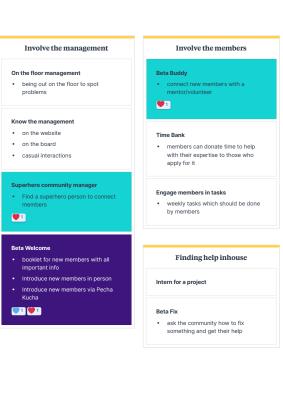




Expressing and registering needs & wishes Wish board / Idea board / Needs board · for people to write down their ideas · matchmaking of members who have the same wishes · mark ideas that have been seen · create a catalogue of needs for the management Who is who & does what Companies board overview info about people, photos, their project · ask me about: . skills - tags to identify what others can ask you about • music member news new members **V**1 **V**1 Beta TV what is happening in the house

1 1 1 1





Additional research

Even though we have ideated on the design challenge and I have collected many ideas from the members and management, I still felt that additional input would be useful to set the concepts in perspective. CIID (2017) recommends gathering research input from not only stakeholders but also from experts in the field and those who could represent an analogous experience. Following this approach, I ran two more interviews: one expert interview with a makerspace space founder and one with an active member of a professional sports community.

EXPERT INTERVIEWS

Analogous experience

In an interview with a captain and community initiator in professional sports, I learned that a core group of members who motivate and lead by example is crucial for the community's success. Furthermore, it was pointed out how significant the role of creating an incentive system that rewards volunteering activities or personal initiatives plays within the community. Another point that was reflected in the interview was the importance of members' bonding in the community through organised events.

Expert interview

To hear about an expert experience on community cultivation, I invited a co-founder of an Istanbul based, community-powered creative hub ATÖLYE, Engin Ayaz. ATÖLYE does offer a workspace and access to prototyping facilities, like BF, but its focus is more on member interaction and joint projects in a single location. I learned that one of

the major successes of their community is carefully crafting the creative community and having assigned dedicated roles to manage the community:

"The community is kind of a social science between those who connect dots, the extrovert types and so on. You need someone who selects the members, the curator, and someone who engages, who does all the events, and someone who mobilises, which is making partnerships, creating alliances across organisations, seeking funding for ventures, to cover all of those different goals." Ayaz, 2021

Moreover, Ayaz introduced me to a toolkit they have developed to grow their community. The Creative Community Toolkit (ATÖLYE, 2020) defines guidelines for fostering a purpose-led community. At ATÖLYE, its members work together to form a creative services organisation that strives to create impact through strategy and design work. The toolkit suggests that to grow such a creative community, the following questions need to be answered and implemented:

- Who is the community for?
- Why does the community exist?
- · How does the community work?
- How does the community feel?
- How does the community evolve?

Even though these questions are aimed at communities in which its members, for the most part, collaborate on impact-focused projects, I believe that answering these questions is highly relevant for a community at BF.

BEST PRACTICES IN COMMUNITY CULTIVATION

From the beginning of my research endeavours, I strived to learn the best practices of community cultivation within established creative hubs. This exploration has been performed continually throughout the project, as I uncovered new, relevant practices and examples. Having had a clearer idea of finding these answers, I accelerated these efforts at this stage. For this purpose, I investigated various sources about real-world examples available online, in literature (e.g. Groves & Marlow, 2016) and several toolkits on the topic (ATÖLYE, 2020, British Council, 2015 IDEO, n.d., European Creative Hubs Network, 2017). This research results are a summary of recommendations for achieving a healthy community in a creative hub introduced on the following page. The list is in random order.

To give more context to my findings, I below present selected quotes from managers of creative communities worldwide.

"The most important thing is attracting and retaining the people you want to work with, and not just thinking that the environment itself is going to create the teamwork, collaboration or innovation."

Becker in Growes & Marlow, 2016

"Anyone can hot desk with us on Fridays to reinvigorate the community, which also helps us find new interesting people." Reddington in British Council, 2015

"The reason that we try to handle application processes diligently is to communicate our purpose from the first day, explain our expectations and sign a -kind of- social contract together. Even if people apply in teams, we would like to meet not only with the leader of the team but also with each team member in order to be on the same page altogether." Şahin, 2018

BEST PRACTICES IN COMMUNITY CULTIVATION

- 1. Constitute ownership and trust among members
- 2. Create spaces that promote a sense of community and enable knowledge sharing
- 3. Find ways to understand the real needs and challenges of the community
- 4. Identify what kind of support will be most valuable to the members
- 5. Keep asking, listening and responding to feedback
- 6. Ensure that members can coexist harmoniously in the same space
- 7. Facilitate collaboration, networking and skills development
- 8. Employ a community manager role to maintain and grow a healthy community
- 9. Collect and share data and stories about the community

- 10. Develop external collaborations and partnerships
- 11. Build community through a careful curation process
- 12. Organise regular events and other opportunities for meeting potential members
- 13. Share vision and values through authentic and consistent communication

Member Profiles

As I arrived at a point where I needed to start thinking about a systemic solution that would integrate the various concepts and best practices, I wanted to make sure that I genuinely consider the user's needs. Therefore, I went back to the individual interviews and created a profile (figure 15, 16 and 17) for each BF member I spoke with. In this profile, I highlighted the members' likes and dislikes, needs and memorable quotes.

Building these profiles helped me reconnect with the service users and keep them in mind while working on a solution. Another possible way to do this would have been constructing personas. However, I decided to use the profiles instead to avoid creating a potential bias for which personas are often criticised (e.g. Salazar, 2018 or Microsoft Design, 2018). Moreover, I believed it would be more likely for the client to connect with these profiles rather than with constructed ones. I did not want to risk that the outcome of these findings would be considered artificial since the client knows the members and can, in theory, empathise with them

Even though we have ideated on the design challenge and I have collected many ideas from the members and management, I still felt that additional input would be useful to set the concepts in perspective. CIID (2017) recommends gathering research input from not only stakeholders but also from experts in the field and those who could represent an analogous experience. Following this approach, I ran two more interviews: one expert interview with a makerspace space founder and one with an active member of a professional sports community.









Research session participants

21



"You can always develop this to be the best fucking place. Cause it's nice. There is a lot of nice things about this place. You just have to work for members and then they will stay. It's not you deciding what the members needs are. It's actually the members because they're using it on a day-to-day basis."

Fred runs a successful carpentry company on her own. He prefers to work here as opposed to work on his own, as that would be too lonely. As BF and its members' base grew, there's a lot of people he doesn't know, so he mostly talks to the old members and comes here to work

Likes

 generally likes the place and prefers to see it working rather than moving to another place

Dislikes

- doesn't feel like he is being heard by the management
- people don't follow the rules, causing a mess in the workspace
- people don't follow the rules, causing a health hazard
- the tone from BetaFactory is often not nice

Wishes

- for everybody to know a bit more about each other and each other's work
- having a dedicated wood workshop employee
- have a showroom to showcase everyone's work
- to know the vision for BetaFactory
- to feel the interest of the management in developing a community
- to gather a group of people representing different areas and communicate their needs to BetaFactory



Asger

Profession: **Engineer, Designer**Uses BetaFactory mainly for: **office space**Length of membership: **short**

"I'm a bit disappointed by the community, there's really no community here. There's no interaction across the companies. I think everybody is very hard working, they want their start up to grow. It just doesn't seem like people are interested in getting to know others. If you get this feeling at first, it's difficult to break down the barrier because even now I'm like, can I disturb them or not?"

Asger graduated as an engineer and designer. For the past couple of years, he has worked in a large multinational corporation, until he decided to quit and found himself as an intern for a small startup at BetaFactory.

Likes

- the energy level of the creative community
- seeing people making products and seeing the process behind it
- many young people
- different to a typical office set up

Dislikes

- people seeming too busy to interact
- working conditions in the office, such as noise from construction work, people walking through, not enough air and light
- no response when saying hi to people

Wishes

- more or at least some interaction across the companies
- initiatives to nurture the community, such as social events to get to know people, be in contact with each other so he can feel more at home
- to know the people who run this place
- to know more about the workshops in the makerspace
- help with setting up the office space with e.g. room dividers and office furniture



"I think that when you get to a certain point, you don't fit in into this environment anymore. And I think they could grow their business even more if if they had some areas of focus."

Rune is one of the longest BF members. His company has grown to the point that BF does not satisfy his needs for efficient production. He prefers to work at night to have the space for himself. He is focused on working and doesn't have the need for socialising. His company has an office in the city, where they do office work. They will be leaving BF and setting up their own place outside of Copenhagen.

Likes

- it is a great place to be able to have a workshop that one doesn't have to get oneself
- other places don't have space around the CNC like BF does

Dislikes

- the way one needs to set up for working in the workshops is inefficient and annoying
- doesn't like Slack and doesn't care about it, prefers in-person communication
- thinks that the idea of having so much space for offices is stupid
- having things accidentally damaged or lost by other members
- checking and fixing machines before using them

Wishes

- having a larger workspace
- a dedicated person who would be responsible for CNC
- having an overview of other people's projects and their planned use of the workshop
- an assembly hall



Lisa Profession: Architect Uses BetaFactory mainly for: wood workshop Length of membership: long

"Everybody knows the importance of helping people out in difficult situations. So people are really helpful, which is nice. You don't get that if you had your own space."

Mette is a relatively new member at BF.
She has experience in running a creative collaborative space. At the same time, she is establishing himself as an entrepreneur, using BetaFactory as a space for thinking, inspiration and prototyping facility.

Likes

- having a good relationship with the management
- the amount of space and people
- the convenience of having access to functional machines in a space run by someone else
- the flexibility of the tiers, where one can scale up and down based on their monetary needs, which is big security for new, small business
- there are always people to ask for information or help

Dislikes

- people don't introduce themselves on Slack
- people finish coffee pot and don't make a fresh one for the others

Wishes

- to attend the common meetings but does not have the time
- for members to understand the importance of being here when their materials arrive



"There's a lot of people that I don't know, even though I've seen them for more than a year, I have no idea what they call them, what they're doing. I'm not the most talkative person as well. It's not easy get to know them, especially if you have been seeing someone for such a long time"

Kristian is a designer who, together with a colleague, runs a successful company producing custom made interior design. They have grown considerably over the last year which resulted in them requiring more space and efficiency at the production line. For these reasons they are leaving BetaFactory and starting up their new place together with a few other companies from the community.

Likes

- the CNC workshop is most unique in Copenhagen
- loves to take a break from work by leaving the computer and going down to the workshop, get inspired, chat with people and get back refreshed

Dislikes

- uses 10 to 20% of their manning time in the workshop on basic logistics, and is frustrated by that
- the noise level is an issue, because of the construction site, people walking through their office space in order to get to their office space, and because platforms are not really stable, so one can feel the vibration when people walk on them. It makes it really hard for him to engage fully in his professional work

Wishes

- a more facilitated process to get to talk to people with relevant knowledge
- more personal space
- more efficient product line
- Friday bar for people to casually meet each other



Mette

Profession: **Designer, Architect**Uses BetaFactory mainly for: **office space**Length of membership: **medium**

"Especially during a pandemic, it was really nice to come to a place where people really want to try and do things differently and are just very open to new ideas. So it was really good for a new company to come here."

Mette is establishing herself as an entrepreneur, using BetaFactory as a space for thinking, inspiration and prototyping facility. At the same time, she has experience in running a creative collaborative space.

Likes

- it is easily possible to imagine her company to grow at BF
- appreciates having an office so close to the workshops
- it is easy to get inspired by other people's workspaces by taking a tour of the space
- provides services and facilities her company needs

Dislikes

- people tend to stick to themselves
- people don't say hello back
- people eat lunch by themselves

Wishes

- a social space for people to casually interact or relax
- for the community members to be more open to interaction
- being able to ask others about their projects, in contrast to asking them only when one has an issue
- understanding how others run their businesses

Journey mapping

Once the member profiles were complete, I created a journey map (figure 18,19 and 20) populated with information based on the profiles. A user journey map grasps the user's point of view and explains their experience of the service (Design Council, 2015). I decided to map a journey of a fictional current member from joining until leaving, as I believed this experience would provide a chance to highlight various opportunities in the overall membership experience. A further goal of this map was to create empathy for the user for when it is presented to the client.

Mapping the journey allowed me to think about membership in segments. It maps a user's progress through the service, defining the key actions of the journey. As it is common for journey maps, the middle section of the map presents the member's emotional state. For this purpose, I used quotes inspired by my interviews. Each journey segment thus represents a collection of experiences, which underline possible improvements that correspond to each segment, as outlined in the Opportunities and Insights section.

Concept mapping

As I assembled various research materials, insights and concept ideas, I looked for a sensemaking tool to help me arrange this output in a more organised way. The aim was to get a good overview of the data and show the client how the final concept is grounded. I chose to create a concept map (figure 21) used in a design process as

a visual tool for organising and representing knowledge. Kolko (2010) compares the map to a picture of understanding, a formal representation of a mental model of a concept. A further purpose of this tool is that it helped me shape the mental model during the mapping process, as it allowed me to see both the scale of the concept and critical details within.

I placed the BetaFactory community in the centre and connected it to the following nodes: Current offering, Frustrations, Satisfactions, Best practices, Design challenge & Opportunities, Insights and Member's journey. Laying out the various fragments of information about the makerspace I gathered gave me more clarity about the framework I wanted to construct.

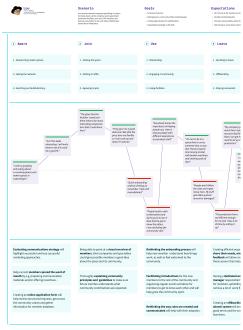


Fig. 18: A preview of a Journey map

BetaFactory User Journey Map (current state)



Scenario

Lou recently started a company specilising in custom furniture pieces. As the company needs specialised production facilities, such as a CNC machine, and because Lou prefers to not work alone, BetaFactory seems like an ideal place.

Goals

- · Growing a business
- Belonging to a community of like-minded people
- · Finding opportunities for collaboration
- Expanding knowledge in the field

Expectations

- · 24/7 access to the necessary machines
- Flexible membership plan
- Having a representative place for meeting clients
- Not having to worry about maintenance

(1) Aware ² Join (3) Use (4) Leave **Journey Phases** 1 - Researching maker spaces. 1 - Visiting the space. 1 - Onboarding. 1 - Deciding to leave. Actions 2 - Asking the network. 2 - Getting an offer. 2 - Engaging in community. 2 - Offboarding. 3 - Reaching out to BetaFactory. 3 - Agreeing to join. 3 - Using facilities.. 3 - Staying connected.

Fig. 19: Journey map header outlining context, journey phases and actions

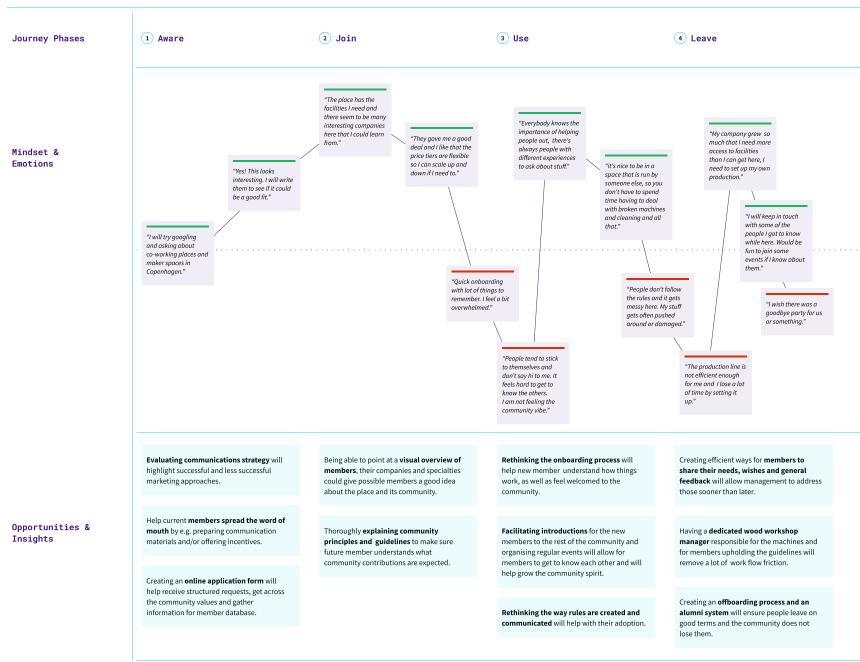


Fig. 20: Continuation of a journey map outlining the mindset and emotions and corresponding opportunities and insights

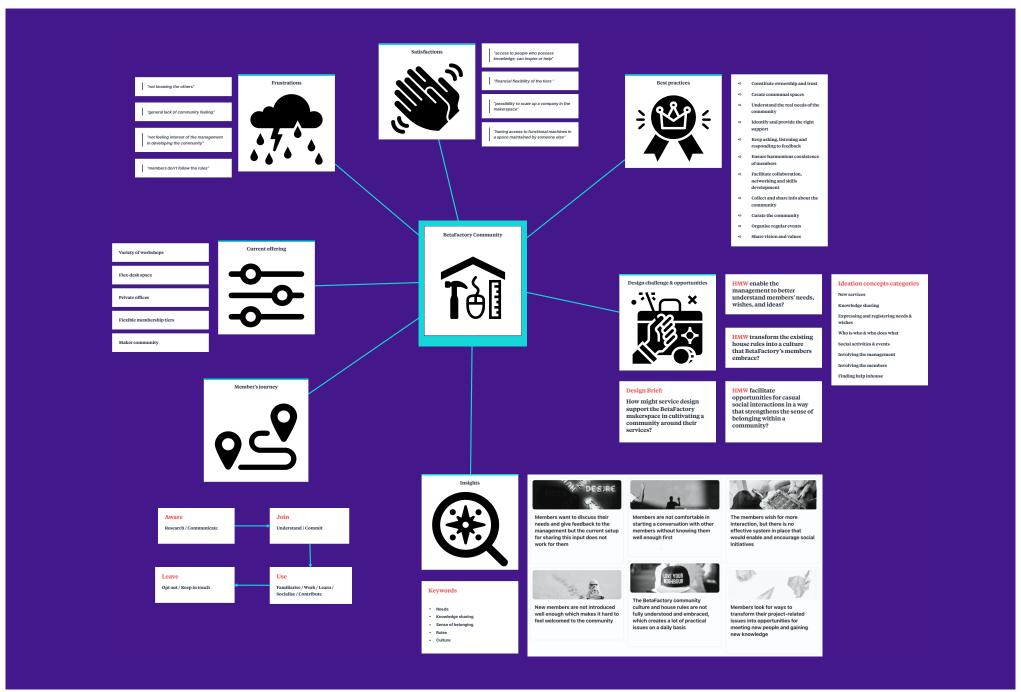


Fig. 21: Concept map visualising various nodes of research and ideas

The Framework

My next step was to turn the key learnings from the design process, as described in the Concept map, into a practical tool for community cultivation at BF. As the evidence I gathered showed, BF does not have any functional system in place that would be used for community cultivation, nor does the client have a grounded understanding of how vital it is for the success of the BF company. Therefore, I attempted to create a framework to help the client outline the right steps for action.

The framework's goal is to present a system for community cultivation that builds on the research of the BF members and the management in a way that is beneficial for these stakeholders. The framework is supposed to provide the client with an overview of the essential areas to consider to have a resilient and harmonious community at a makerspace. Moreover, I wanted to manifest that a community needs to be cultivated in the first place; that a functioning community does not happen without committing to it.

THE FRAMEWORK BREAKDOWN

As a first step, I identified three overarching categories that are the base of the framework:

People, System and Experience.

As simple as it may sound, these key areas were derived from many other options and themes after a long iteration process. I intended to keep the framework as straightforward as possible since it will be up to the client to implement it, and I was concerned that a more complex structure would discourage the client from using it.

Each category consists of three themes that present the essential elements of that category.

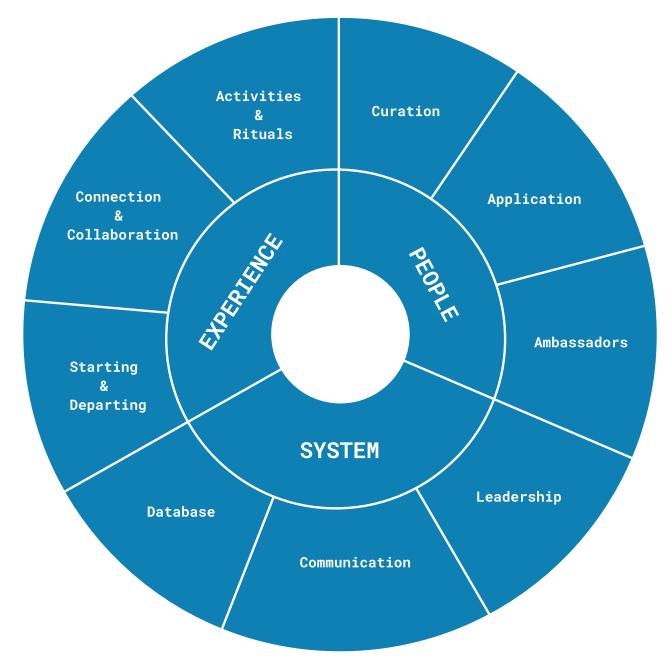


Fig. 22: Framework diagram outlining the three main categories and nine corresponding themes

Once I defined the framework structure, I started to build content for each theme, divided into three additional elements. These elements contain suggestions for action, pose questions to the BF management and offer a few ideas for inspiration. The first element, Action Steps, presents suggestions for carrying out specific tasks related to the theme. The Questions to Consider invite further refinement and add more inspiration or provocation to the theme. The final element, Ideas, represents concepts conceived in the ideation workshop, concepts based on the research in best practices or concepts derived from the interviews.

HOW TO USE

Even though the framework portrays community cultivation in a systemic way, it is designed to pick and choose themes and elements based on BF's current motivations and possibilities. Most of the themes are interlinked and influence each other. However, it is possible to develop any single theme independently of the others. BF can decide for themselves whether the individual themes make sense for them at the given point, how to alter and implement them.

The Action Steps represent guidelines that leave space for interpretation of how the individual action can be performed. Ideally, each Action Step would be ideated on in a dedicated session, using the Questions to Consider for context and Ideas to inspire other concepts.

Lastly, every theme includes a blank space for writing down comments and ideas, which can be done both in digital and printed versions of the framework.

To allow for optimal use, I created a guide for the client explaining how to use the framework. It is presented with the framework diagram as an introduction to the framework, which is part of the product report.

As a minimum, the framework should serve as an overview of the community cultivation process and of the elements that are valuable for communities in creative hubs.

EVALUATION PROMPTS

I imagined a scenario where the client reads the report, is overwhelmed by it, does not know where to start and disregards it. To avoid such passive consumption of the framework, I added a worksheet layer onto the framework themes and included prompts to have the management team evaluate the content as they read through it. Under each Action Step, it is possible to assign a value from 1 (highly relevant) to 5 (not relevant).

Additionally, at the top of each theme, it is possible to assess the priority of the theme's implementation on a scale from: consider ASAP, consider in the near future, consider far ahead, consider never. The evaluation prompts are visualised in figure 23.

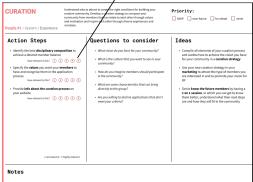
WHO SHOULD USE IT

As I have been informed towards the end of my collaboration with BF, a Community manager role will be established at BF soon. Therefore, I designed the framework with intended use for such a role; in ideal circumstances, the framework implementation should be facilitated by a community manager. Having a facilitator responsible for taking action based on the framework would improve the chances of its impact, instead of risking that the client does not commit to any activity.

The complete framework will be presented on the following pages.

 Specify the values you want your members to have and recognise them in the application process

how relevant is this? 1 2 3 4 5



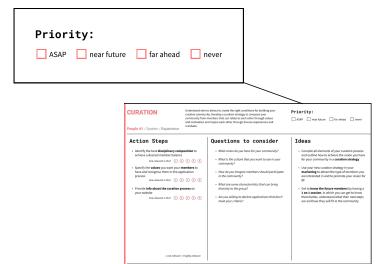
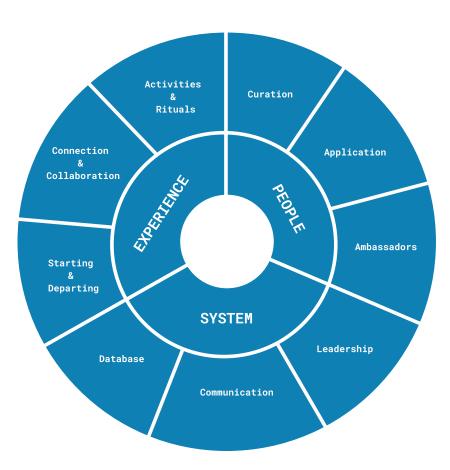


Fig. 23: Evaluation prompts as part of the framework's themes

FRAMEWORK TO COMMUNITY CULTIVATION AT BETAFACTORY



What is this:

A practical tool for creating a healthy and functioning community at BetaFactory. It presents key areas that are necessary to consider when cultivating a community.

How to use:

- 1. Look at the diagram on the left and **understand the structure** of the Framework:
 - a. Notice the 3 main Categories in the inner circle: **People**, **System** and **Experience**
 - b. The Categories each consist of 3 corresponding **Themes**
 - c. Each Theme presents the topic and brings your attention to 3 **Sections**: **Action steps, Questions to Consider** and **Ideas**
 - d. Action steps provide **suggestions for implementing tasks** related to the Theme. They represent guidelines, leaving space for interpretation of how the individual actions can be carried out.
 - e. Questions to consider invite **reflection** and add more inspiration or provocation to the theme.
 - f. Ideas present **specific concepts** corresponding to the Theme
- 2. Work through the Themes in a **team**
- 3. **Be honest with yourselves** and assign appropriate values to the Themes and the Action steps using the relevant markers
- 4. Pick and choose tasks based on BetaFactory's goals and possibilities
- 5. Assign responsibilities for the tasks and talk about implementation timeline
- 6. Use the Framework as an inspiration and **keep building it** according to your goals

CURATION

Understand who to attract to create the right conditions for building your creative community. Develop a curation strategy to compose your community from members that can relate to each other through values and motivation and inspire each other through diverse experiences and mindsets.

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ASAP near future far ahead never

People #1 / System / Experience

Action Steps

• Identify the best disciplinary composition to achieve a desired member balance

how relevant is this? 1 2 3 4 5



• Specify the values you want your members to have and recognise them in the application process

- how relevant is this? 1 2 3 4 5
- Provide info about the curation process on vour website

how relevant is this? 1 2 3 4 5







Questions to consider

- What vision do you have for your community?
- What is the culture that you want to see in your community?
- How do you imagine members should participate in the community?
- What are some characteristics that can bring diversity to the group?
- Are you willing to decline applications that don't meet your criteria?

Ideas

- Compile all elements of your curation process and outline how to achieve the vision you have for your community in a curation strategy
- Use your new curation strategy in your marketing to attract the type of members you are interested in and to promote your vision for BF
- Get to know the future members by having a 1 on 1 session, in which you can get to know them better, understand what their next steps are and how they will fit in the community

1 not relevant - 5 highly relevant

Optimise the community curation by creating an online application form. Make use of this point of contact with your future members to learn more about them and also to communicate your expectations of them.

Priority:

ASAP near future far ahead never

People #2 / System / Experience

Action Steps

 Define what information you want to collect from your members through the application

how relevant is this? 1 2 3 4 5







• Consider how can you **prepare** the applicants for **participation** in the community through the application

how relevant is this? 1 2 3 4 5







• Create an online membership application form and embed it on your website

how relevant is this? (1) (2) (3) (4) (5)







• Connect the application form with the **member** database and populate it with details about members' companies

how relevant is this? (1) (2) (3) (4) (5)







Questions to consider

- What do you want to know about your members that would make it easier to understand how they fit at BF in the long term?
- How do you process the applications? What happens after you receive it? Who reviews it and reaches out to the applicant?

Ideas

- Use e.g. Typeform to create a user-friendly application form
- Example application form questions:
- What is the name of your company?
- Tell us about your company, expertise and projects you have done
- What field(s) are you working in? We are curating our community based on a disciplinary balance (e.g. Creative Industries, Strategy & Business Development, Technology & Engineering, Other)
- Do you have a website or portfolio?
- What are your motivations to join BetaFactory?
- What facilities are you mainly interested in?
- How could you contribute to the BetaFactory community?
- What would you need support with?
- What do you like to do when you're not working?
- How can we stay in touch?

1 not relevant - 5 highly relevant

AMBASSADORS

Connect with your members from the inside by selecting core members who can represent the diverse community, their opinions, wishes and needs, and act as mentors.

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ASAP		near future	

far ahead never

People #3 / System / Experience

Action Steps

• Define a **role** that your core members can play in developing your community





how relevant is this? 1 2 3 4 5

• Recognise the members that are willing to engage in growing the community and representing its voice

how relevant is this? 1 2 3 4 5







• Appoint them as ambassadors and motivate them with an appropriate reward

how relevant is this? 1 2 3 4 5







Questions to consider

- What incentives can you offer to the ambassadors to reward them for their service to the community?
- How many ambassadors do you imagine having?
- What would be the best way of coordinating the ambassadors and communicating with them?

Ideas

• Start by asking for **volunteers** from the various workshops and office areas, and establish together what their commitment could be

1 not relevant - 5 highly relevant

I FADFRSHIP

Provide the right support, direction and information to your members to grow a motivated and engaged community. Have the right system in place to truly understand your members, their needs, challenges and what kind of help will be most valuable to them. Embrace the feedback, it is a key to improve.

Ρ	rio	ri	ty	

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ASAP		near future

e far ahead

People / System #1 / Experience

Action Steps

- Define who is the **main person** managing the community and outline the responsibilities of this role
 - how relevant is this? 1 2 3 4 5

- Specify **who else** has a role in community management and describe the responsibilities of these roles
 - how relevant is this? 1 2 3 4 5

- Ensure **house rules** make sense to your members and that everyone understands what is expected of them
 - how relevant is this? 1 2 3 4 5

- · Ensure members understand the terms and conditions and know what they can expect from BF how relevant is this? 1 2 3 4 5
- Keep your members **up to date** on your organisational decisions, plans and steps you will take in the future
 - how relevant is this? 1 2 3 4 5

- · Open up to your members' feedback and wishes and respond to it
 - how relevant is this? 1 2 3 4 5

Questions to consider

- How can you involve members in decision-making?
- How can the relevant house rules be visible in the right context?
- How can you best communicate the decisions taken by BF and their effect on the community?
- How can you know if the members feel comfortable in the community?
- What could be a constructive way of responding to members' feedback and wishes?

Ideas

- Hire an experienced **community manager**
- Use ambassadors to collect and present input from members
- Create a **depository** for collecting and processing feedback and wishes from multiple communication channels
- **Beta TV**: news from the management about what is happening in the house
- Open office hours to come talk to the management

COMMUNICATION

Connect with your community and audience through authentic, consistent and effective communication. Promote information and knowledge sharing, discussion and reflections.

Prior:	ity
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ASAP near future far ahead

People / System #2 / Experience

Action Steps

 Outline the different types of communication between the members and the management (e.g. problem reporting, announcement, introduction, feedback)

how relevant is this? 1 2 3 4 5







• Develop a strategy that you can use to address these communication situations

how relevant is this? 1 2 3 4 5







 Show consistent and effective internal. communication

how relevant is this? 1 2 3 4 5







• Evaluate existing internal & external communication strategies regularly

how relevant is this? 1 2 3 4 5





· Bring life to communication on Slack

how relevant is this? 1 2 3 4 5







Questions to consider

- What is the tone of voice you want to use for internal and external communications?
- How can you establish communication that will be efficient, reliable and consistent?
- How can you encourage members to promote BF to their network?
- How can you improve your communication space on Slack?

Ideas

- Create an easy to follow templates for communication on Slack
- Experiment with new communication tools and methods online & offline, across multiple channels
- Collect and showcase stories of the BF companies
- · Communicate on social networks not only **BF-related content** but address also industry-related topics, share news and endorse other institutions or events
- Communication types & reaction by BF examples (online & offline)
 - problem reporting: members use template, BF registers and responds
- announcement: members use template. BF endorses or
- member introduction: members use template, BF
- wishes: members use template, BF registers & responds
- feedback: BF registers & responds
- social/other: BF endorses or responds

1 not relevant - 5 highly relevant

DATABASE

Build an accessible member database to leverage the value of your network and visualise your multidisciplinary community. Allow your members to easily find the expertise they need within BF and encourage learning and collaboration.

Priority :	:
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ASAP near future far ahead never

People / System #3 / Experience

Action Steps

• Define the **purpose** of your member database and the **data** you want to gather

how relevant is this? 1 2 3 4 5



• Collect data from existing members and build the database

how relevant is this? 1 2 3 4 5





• Visualise the network

how relevant is this? 1 2 3 4 5





- Explain how to use and provide access to your members

how relevant is this? 1 2 3 4 5







Questions to consider

- How can the database be used internally and externally?
- How can members search for other members within the community?
- How does the community keep its member details up-to-date?
- How can you visualise the network in the makerspace?

Ideas

- Feed the database automatically from approved application forms
- Use an interactive interface to map the network, such as Neo4j Bloom or Graph Commons

1 not relevant - 5 highly relevant

STARTING & DEPARTING

Starting and leaving are special milestones in your member's journey. Optimise the process of joining and opting-out to create benefits for both the members and BF. Aim for creating a positive experience and take the time to show your members that you care about them.

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ASAP near future far ahead

never

People / System / Experience #1

Action Steps

• Create an **onboarding process** for welcoming new members

how relevant is this? (1) (2) (3) (4) (5)







 Provide extra support to the new members for the first few weeks

how relevant is this? (1) (2) (3) (4) (5)







• Develop an **offboarding process** for members who are leaving

how relevant is this? (1) (2) (3) (4) (5)







• Offer ex-members ways to stay connected in the network after they leave

how relevant is this? (1) (2) (3) (4) (5)







Ouestions to consider

- How can you best introduce your new members to the system and other people at BF?
- How can you help your new members remember all they need to know in the beginning?
- How can you benefit from members who are leaving?

Ideas

- An **introduction template** for new members to share structured information about themselves online or offline
- Welcome booklet with all the essential house rules, people to know, messaging channels to join, who to ask for what, and new employee FAQs. Get feedback from new members on what is missing and keep updating it
- Record video guides on how to use machines, software, find things, etc.
- Events where new members can introduce themselves and their companies
- Assign mentors/onboarding ambassadors to the new members and set up regular check-ins for the first few weeks of a new member's experience
- Plan 1 on 1 structured sessions with members who are leaving to collect feedback
- Invite BF ex-members to events and reach out to them regularly

1 not relevant - 5 highly relevant

CONNECTION & COLLABORATION

Community wellbeing is based on trust, a sense of belonging and social exchange. Focus on building informal connections between your members that can lead to knowledge sharing, collaboration and overall strengthening of the community culture.

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	ASAP	near future	far ahead

never

People / System / Experience #2

Action Steps

· Make it a priority that all members and management know each other

how relevant is this? (1) (2) (3) (4) (5)







· Visualise information about your members and their expertise

how relevant is this? 1 2 3 4 5







• Create platforms for sharing existing knowledge of the members

how relevant is this? (1) (2) (3) (4) (5)







• Develop external collaborations and offer your member network to participate in projects

how relevant is this? (1) (2) (3) (4) (5)







Questions to consider

- How can you encourage connections among the different types of your members?
- How can you create the right conditions for your community to build on the skills, resources and talents of other BF members and collaborate on projects?
- How can you encourage your community to exchange knowledge and skills?

Ideas

- Create (more) social spaces
- e.g. virtual, collision spaces, library, games room, tea/coffee points, outdoor spaces
- Friday bar hosted by different companies with presentations
- Timebank: members can donate time to help with their expertise to those who apply for it
- Boat: meeting & social space on a boat owned by BF in the nearby harbour
- Betawiki: Q&A database where members can search and ask questions about anything related to working at BF (e.g. machine tutorials)
- Beta Fix: ask the community how to fix something and get their help
- **BF board**: put up info in a common space about members, photos, their company, ask me about, need help with, expertise, music
- Free coworking desk for visitors: once a week/month

1 not relevant - 5 highly relevant

ACTIVITIES & RITUALS

People / System / Experience #3

Stimulate your community and inspire your members by organising regular events and creating rituals. Activities and rituals that members share and maintain are a reflection of your community culture. They bring members closer together and motivate them to contribute to the community.

offer?

community?

Questions to consider

• What are the different event formats you can

• What is the best way of finding out what event

formats would be liked and attended by your

Priori	lty:		
ASAP	near future	far ahead	never

Action Steps

• Build on the shared values and interests of your members and develop events and traditions that reflect it





- how relevant is this? 1 2 3 4 5
- Consider offering activities that promote inclusivity and diversity

how relevant is this?

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Facilitate skills development

how relevant is this? 1 2 3 4 5





• Document and share your special events with new members as well as the public

how relevant is this? (1) (2) (3) (4) (5)







 Inspire and support members to take initiative and organise events themselves







Track and reward member initiatives

how relevant is this? 1 2 3 4 5









1 not relevant - 5 highly relevant

Ideas

- **Beta fond**: provide funding for social events organised by members
- Reward system: for members who deserve a reward and to make their efforts visible
- BF competitions: eg. in fussbal
- After work activities: e.g. beehives
- Build-it-together: workshop around building something together

DELIVER

The Deliver phase concluded my design process. The purpose of this phase was to summarise my work into a final deliverable. This deliverable is not only the framework but also the contextual design outcomes, such as Member profiles or Insights. The work summarised in a product report and presented to the client. On the one hand, my collaboration with BF was very unrestricted from the client's side. On the other hand, I did not have much supervision and check-in meetings with BF. Therefore, the ambition of the product report was to explain what I have done and why, and how it led to the creation of the framework.

Delivery to client

To conclude the collaboration with BF, I organised a presentation and evaluation session with the client and a Business & Strategy manager. In this session, I presented the product report describing my process and the data that made it possible to create the framework. Finally, the framework was presented.

The presentation followed the progress of my process, which is why the first presented deliverable was an outline of the interview process with the members. I introduced the member profiles and explained to the client that I have altered the names and genders. The client appreciated the profiles and has shown extensive interest in my research with the members. I did not expect this curiosity and did not prepare more direct quotes from the members that the client wished to see during the presentation. Therefore, I put the presentation on hold and went into a detailed overview in my online research depository in which I collected and categorised all quotes. We explored the various categories of tags with corresponding quotes, and I offered the client to share these as an additional deliverable. Next, we moved on to the member journey, which proved to be an efficient communication tool. The client was able to immediately understand it and relate to it, which was demonstrated by them pointing out that BF needs to move the moments where the member feels negative into the positive curve.

In the following step, we briefly discussed the insights, which inspired the client to reflect on the things that do not work in the current community setup and their efforts to solve them. It was apparent that the client recognises most issues in their community but is still lacking an approach on how to tackle these matters. As I presented the collection of best practices in community cultivation, the client was tempted to discuss these in detail. However, I advised to move on and explained that these points are covered in the final deliverable.

Lastly, the framework was introduced through a diagram explaining the different layers of the structure. The client found the diagram helpful

and kept coming back to it as the individual themes were presented. The client valued that the framework was made specifically for BF and expressed praise for the amount of work that he could see was put into it. At the same time, the client asked for permission to share it with other makerspaces in their network, as it can serve as a universal set of guidelines for similar creative hubs. Overall feedback was that the framework is highly relevant and practical for BF, and I was asked if I could come back to present it to the entire team.

"I can see the framework has been custom made to fit our goals. I am so impressed by this tool, it will bring a lot of value to everyone." The Client

The client considered it essential that all staff members are familiar with this structure to take on responsibilities based on the framework. At this point, I asked about the status of hiring a community manager and shared that I believe it would be best to have someone in such a role responsible for implementing the framework. I was informed that due to budget reasons, a community manager role would not be occupied until the end of the year, but it is being planned. I was asked if I would be available to bridge the time before establishing this role and acting as a community consultant. The imagined responsibility of this role would be to start implementing elements from the framework and preparing the ground for a dedicated community manager.

Altogether, I was very pleased with the review session and the client's reaction to the framework. I was also pleasantly surprised about the client's interest in the research data. At the same time, I felt that the client was somewhat overwhelmed towards the end of the session, as he noted he realised that community cultivation requires much more work than he thought and that they can currently provide. Moreover, we would have benefitted from having more time to discuss the individual themes in the framework. We agreed that I would send all the materials, the management will go through it, reflect on it, and meet again to think about what next steps would be feasible for the makerspace and that I should consider whether I want to be part of it.

DISCUSSION

This chapter discusses the research question and the subsequent design challenge I posed for this thesis. It reflects on the design process and tools utilised to transition from one stage to another and elaborates on the final deliverable. Furthermore, it addresses the challenges and limitations of this study and evaluates learning goals set at the beginning of the process.

Reflections on the design process

At the beginning of the thesis work, I chose to follow the Double Diamond design process developed by the Design Council (2015). This framework allowed me to structure my process and lay out the various elements of the design methodology that I will be using. When deciding which design methodology to follow, I considered either Double Diamond or Design thinking (e.g. Leifer et al., 2018). Both methodologies are based on the concept of convergent and divergent thinking. However, as I was more familiar with the Double Diamond, I chose to follow this framework. At the same time, I also wanted to explore Design thinking methods and tools. I kept this framework close and would often utilise it in my process. Additionally, I regularly consulted a similar framework developed by CIID (2017) that offered an alternative approach to the problem.

As much as I wanted to practice the different service design tools, specifically service blueprint and personas, the context of this thesis was not optimal for implementing these. One could argue, however, that it is always possible to find a blueprint scenario. I believe that if I had more time, I would have attempted to create it.

Overall, I found it valuable to have several design approaches at hand to offer me inspiration and guidelines in my process.

UNDERSTANDING THE CONTEXT

To initiate my research process and establish the theoretical framework of this thesis, I formulated a research question. By doing so, I was able to empathise with the community of BetaFactory. To comprehend the complexity of the topic I combined desk research with follow up qualitative research.

Desk research

The research question helped me outline the initial areas of desk research: Creative hubs & Makerspaces, and Community. By assessing existing literature on these topics, I obtained knowledge that helped me understand the context on a deeper level. I learned about various types and qualities of creative hubs and makerspaces and how communities are formed, structured, and sustained.

Essentially, every creative hub is unique and has its own set of values, guidelines and structure. What they have in common is access to space, community, and tools to make it possible for their members to produce physical or digital products. The creative and innovative making processes are often based on learning, which happens in a collaborative, informal and participatory way.

The research on the community in the context of creative hubs affirmed that the community holds the makerspace together and needs to be cultivated to be functional and resilient. Since every creative hub is different, community cultivation is also approached differently. Throughout the project process, I researched the best practices in community cultivation approaches. I aimed to synthesise these learnings into basic guidelines for achieving a thriving community in a creative hub.

Research sessions

Talking with users of the BetaFactory makerspace was, without doubt, the most exciting part of the research phase. I thoroughly enjoyed the process of preparations, approaching the participants, establishing trust, and having conversations with them. I was met with open-mindedness, curiosity and engagement in my interviews. Moreover, I was able to see an improvement in my interview technique throughout the process.

On the one hand, being a sole researcher brought several limitations, such as lack of help with preparing the interview, taking notes and documenting it, as well as possible bias. On the other hand, as I connected with my subjects through these sessions, it allowed me to effectively analyse the interviews, as opposed to if I were not leading the sessions. Thanks to the recording of the interviews, I was able to reflect on my role in conducting the interview and on my mistakes. A personal evaluation of my research skills was also possible due to diligent interview preparation. I learned about best interview practices, which I could later compare with my performance in the individual research sessions. I identified several areas I can improve in, such as not posing leading questions and allowing more silence between my questions.

Another benefit of holding interviews with the members and the management at the start of my process was the possibility to follow up with impromptu, valuable conversations throughout my stay at BetaFactory.

APPROACHING THE SERVICE SOLUTION

Synthesising data gained through research and turning it into a design challenge was the first step in this process stage. As in any design project, one starts with a large amount of data and gradually narrows them down. At this stage, it is considered especially helpful to have a team assist in sorting through the findings and organising them.

As I did not have a team nor a dedicated wall space to display all the data, I used a virtual space in Milanote. This solution proved to be most suitable for my purposes. However, I firmly believe that having a collaborator would have helped balance my personal bias in interpreting the interviews and creating insights. I am of the opinion that there are many more insights hidden in my findings that I could not uncover by myself. A reflection with the client over the final deliverable highlighted his interest in the research data and the fact that it would have been beneficial to involve him more in the process had he had the time. I believe that the fact that the client wants to revisit the data will bring out an additional perspective and, hopefully, more design opportunities.

Several service design tools helped me to arrive at the final concept. The member profiles provided a summary of satisfactions, dissatisfactions and wishes of the members I spoke with. These were valuable in building a journey map, which served as a valuable tool to gain a bird's eye view of a fictional member's journey from joining until leaving the makerspace. It helped highlight moments of frustration and the reasons behind them. Finally, I used a concept mapping approach to organise and represent my existing knowledge and concept directions visually. This representation of a mental model brought me closer to the final concept, as it contextualised the most relevant data and design opportunities.

Lastly, presenting and discussing the abovementioned design tools helped me explain to the client how the final concept is grounded. In summary, not only were these tools used for sensemaking, but their secondary, communication value made it possible for the client to empathise with the members and understand how the concept came to life.

A framework to cultivate a community

My final concept, the framework to cultivate a community in the BetaFactory makerspace, is attempting to answer my research question: How can a service design approach help cultivate a community in a creative hub? The framework is a culmination of service design efforts that were undertaken to create a solution to a case study. The case, the BetaFactory makerspace, poses a challenge that is grounded in the context of community cultivation in a creative hub.

Service design was the backbone of this project. It kept reminding me to empathise with the user and optimise the process for the management. I kept changing my perspectives between the front and the back stage of the service to ensure the framework will come out as a systemic solution benefitting both the members and the management.

Moreover, I utilised one of the main service design principles, co-creating, to involve the client in the design process. Another relevant service design element that helps answer the research question was translating the research data to the client to spark curiosity about the findings. My hope for this project was to convince the client that community cultivation plays a crucial role in the success of his venture and that the makerspace needs to approach it as soon as possible. I believe I have succeeded in this goal by presenting relevant research evidence to the client and a custommade suggestion for action that reflects on the current challenges in the makerspace.

I am of the opinion that once BetaFactory opens up its large new office area that is currently under construction, there will be an even stronger need for managing the community. But, at the same time, this will be an opportunity to curate the community and bring in members who will align with the values and vision of the makerspace and who can be prepared for active participation in the community through the improved application and onboarding process.

My recommendation to BetaFactory was to approach community membership as another service, aside from space and facilities. This would then justify allocating resources for community cultivation.

In closing, it is important to note that the framework by no means presents a complete guide to a healthy and resilient community at BetaFactory, but it rather represents a starting point. BetaFactory should not be afraid of being playful with trying out new formats of community cultivation. It does take trial and error to find out what works best for their specific community. It is necessary to experiment, gather feedback and not give up after the first failed attempt like it has been done in the past. The framework is intended to be revised, improved and made feasible by the management team at BetaFactory. This process will hopefully take place in the future as BetaFactory, and its community grows.

Learning goals

This thesis meets the learning official goals defined by Aalborg University. I applied appropriate methodological approaches to specific study areas, described relevant existing research, identified main problem areas and addressed the opportunities. Finally, I independently developed a problem solution.

My personal learning goals were achieved for the most part. I gained hands-on experience with design research methods. However, I wished to expand my knowledge of other methods aside from the rather traditional ones I have applied. I refined my research synthesis skills and explored techniques that can be used in this process. This was achieved mainly through the experience of being a sole researcher in a complex project and having to navigate through a large amount of research data on my own, which I have never done before. Moreover, by using a service design approach, I identified an appropriate solution that benefits both service users and providers. Lastly, I deliver a solution using a systemic perspective.

Bias and Ethics

I intended to conduct my research sessions with ethical considerations in mind. These efforts included, for instance, asking for the participant's consent to use the interview content and clarifying how their stories will be used, protected and shared. In addition, I attempted to establish trust with the research participants, avoid leading questions and give them enough space to think about their answers.

Moreover, I tried to be aware of my own possible biases and project them through interview analysis. Ideally, I would have strived for intercoder reliability (Bjørner, 2015) by working with another researcher to analyse the data. When creating insights, I also reminded myself of concluding what I have heard while avoiding judgement and opinions. Nonetheless, it is rather difficult to assess whether I have succeeded, as this assessment would not be objective.

Limitations

COVID-19

This thesis project took place during the Covid-19 pandemic, which has affected certain aspects of the process. Unlike most offices, BetaFactory remained open to its members throughout the pandemic, following the necessary protocols. Therefore, it was a distinct advantage to talk to my research subjects and observe them in person. At the same time, the natural behaviours and interactions were influenced by the imposed restrictions and by the individual approach to the situation. Moreover, social gatherings and events were not allowed for the most part. All these aspects could have contributed to a more passive community.

TESTING

The design process methodology I chose to follow emphasizes testing, prototyping and refining the solution. Ideally, this would have also happened in my process, as any design concept benefits from feedback and improvement.

As the framework testing, implementation and iteration would require relatively large undertaking and resources allocated, I was not able to move the framework beyond its conceptual phase. However, I have agreed with the client that I will consider coming back as a community cultivation consultant responsible for identifying feasible action steps, testing them, putting them into effect, tracking the learnings and refining the solution.

Moreover, as mentioned above, the framework is designed to be adjusted, and the client was encouraged to do so.

CONCLUSION

This chapter summarises the key findings related to the research question and describes the conceptual solution developed with a service design approach.

Cultivating a community requires a long list of ingredients. This thesis explored how service design can help identify these attributes in the context of a creative hub. The research has been carried out through conducting a case study, which investigated a Copenhagen based makerspace and its community.

The research uncovered that in order to achieve a resilient community, it is necessary to be mindful of the way it is curated and organised on a day-to-day basis. Interviews with the current community members have exposed numerous frustrations concerning their wellbeing in the makerspace. A final concept has come to light through further employment of a service design approach, consisting of a desk and qualitative research, data synthesis, design opportunity framing, co-creation, visualisation and mapping.

The outcome of the design process is a framework to cultivate a community in a makerspace. It presents a structure consisting of categories that describe elements of community cultivation relevant to the examined makerspace. The

framework proposes guidelines for action and offers specific ideas that respond to these guidelines. Moreover, it challenges the reader to reflect on the context by posing thought-provoking questions.

Specifically, the framework revolves around the topics of curation, application, ambassadors, leadership, communication, database, starting and departing, connection and collaboration, and, lastly, activities and rituals.

The framework was positively accepted by the makerspace management and considered relevant and valuable, as it appropriately reflects their situation and goals and offers flexibility in its implementation. However, the framework's impact will be only possible to assess in the future, based on the way it will be adopted.

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APPENDIXES

Interview Guide

Goal:

Gain a deeper understanding of the ways members of the BetaFactory maker space use and perceive the space and its facilities, the motivations driving their decision to be members of the space, and what are the factors that contribute to creating a sense of community in this collaborative environment.

Topics to cover:

MAKER SPACES, COWORKING SPACES, COMMUNITY, ENTREPRENEURSHIP

Duration: 1 hour

Location: BetaFactory (Red meeting room)

Dates: Throughout June **Number of participants**: 5 **Profile**: Member of BetaFactory

Introduction

Explain who I am and why I am doing this:

First of all, I want to thank you so much for your time. I really appreciate it, and I am super happy to meet you and have a chance to talk to you about your experience here.

I study Service Design at Aalborg University, and I am conducting this research which is part of my master thesis, which I'm using BetaFactory for as a case.

I would like to talk to you today about maker spaces. I want to stress that there are no right or wrong answers here, I am just really interested in hearing about your experience. Just so you know, I won't be using your real name. This chat will help me to come up with some ideas for BetaFactory and the way they run things around here.

- Give out a release form and get a signature.
 - Ask: Is it okay to make a sound recording of our session and take pictures?
- Turn on the audio recording
- Confirm timing: 60 minutes
- Ask: Do you have any questions for me at this point?

Get to know the person

- $\bullet \quad \text{Can you tell me a little bit about yourself? Where do you come from? What is your background?}\\$
- · How did you find out about BetaFactory?

Entrepreneurship

• How do you see the support and advice to your business at BF?

Dream question

• If you could build your ideal experience in a makerspace, what would it be like? Go wild!

Wrap up & thank you

- Did I miss anything? Is there anything you want to tell me?
- THANK YOU SO MUCH!

Entrepreneurship

• How do you see the support and advice to your business at BF?

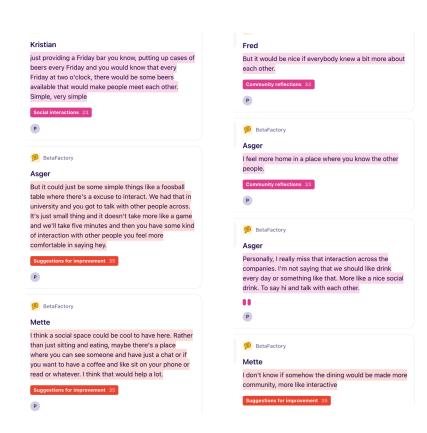
Dream question

• If you could build your ideal experience in a makerspace, what would it be like? Go wild!

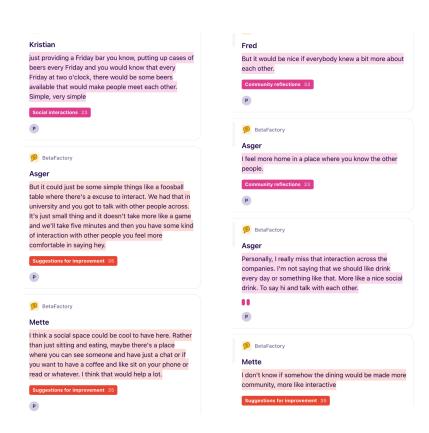
Wrap up & thank you

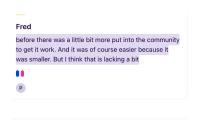
- Did I miss anything? Is there anything you want to tell me?
- THANK YOU SO MUCH!

APPENDIX A APPENDIX A



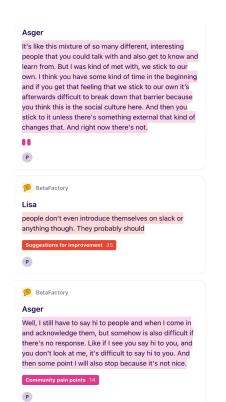


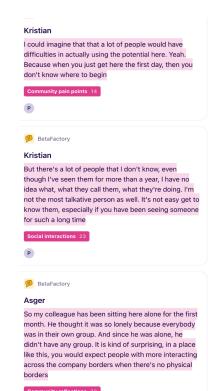


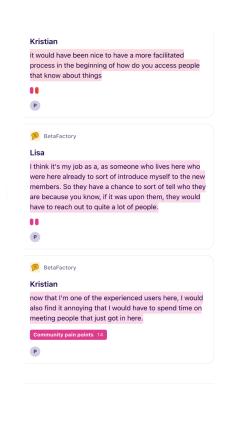


4. New members are not introduced well enough which makes it hard to feel welcomed to the community

Members are shy, even though they might not think so. They need help in being introduced to the others to overcome the initial communication barrier. This way they can meet likeminded people who they might learn from, become friends or business partners with - and feel a part of the community.

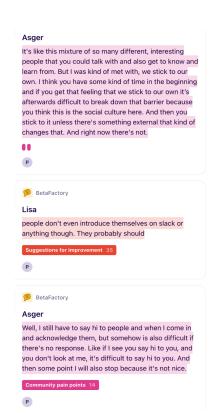


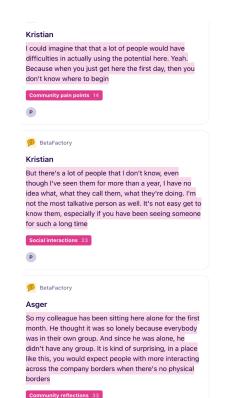


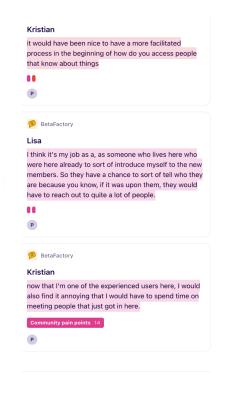


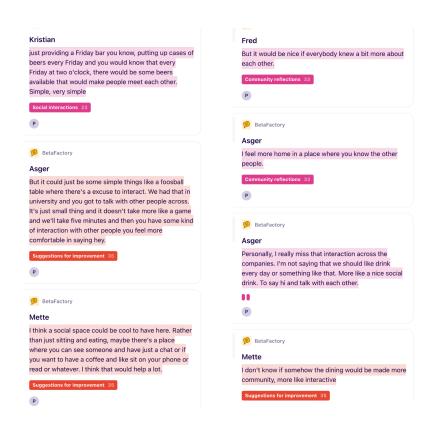
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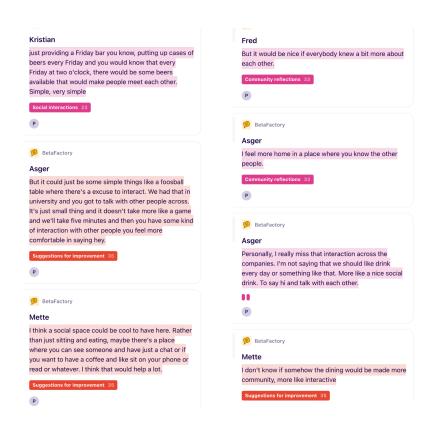














Date: 16th of June Place: Betafactory

Ideation workshop guide

Aim of the workshop:

- For all participants to have a strong understanding of the problem.
- Generate ideas to solve the problem.
- · Prioritise ideas by effort and value.

Checklist before the workshop

- Print out research insights 2x
- Stick the insights to the walls
- Create Parking lot wall
- Bring tape, scissors, A4 paper, sharpies, post-it notes, pens and 5 dot stickers per participant
- · Have a timer ready on the phone
- Have a charged phone or camera available to take photos

The workshop schedule: approx 2 hours total

- Introduction and get together 10 min
- Icebreaker 5 min
- Present the problem 5 min
- Individually read insights 10 min
- Present HMW & discuss them 10 min
- ullet Present brainstorming rules 5 min
- HMW ideation 1st round 15 min
- Break 5 min
- HMW ideation 2nd round 15 min
- HMW ideation 3rd round 15 min
- Effort vs value prioritisation 15 min
- Wrap up − 5 min

Introduction

Current situation at BF:

- disconnected members who don't interact
- · they feel not listened to
- they are not being social
- they don't have a strong culture
- they don't follow the rules

Members are your most important asset. Members are what make a coworking/maker space a business. Members choose to work in a coworking/maker space because they appreciate the feeling of belonging and socializing with others. That's why they feel disappointed if there are no opportunities that bring members together.

Icebreaker

Sketch the person next to you & then write their name with both hands in a mirrored way

Parking lo

For ideas that don't fit, encourage any ideas, even silly ones, we will take note of them and use them later

