

The future of academic conferences

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Master Thesis, November 2021

MSc Design for Interaction
TU Delft



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Design for Interaction

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November, 2021

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Preface

Before I started my master of Design for Interaction, I was excited but also nervous to find out whether this was the right choice for me. My background at the time was heavily focused on integrated product design, spending 20 hours a week in the workshop and building stuff. Design for Interaction and the TU Delft provided me with new knowledge, that I believe now, was missing in my repertoire. I look at the product or system development with an open mind and was encouraged to create ideas more out-of-the-box while taking into account to add meaning on a deeper level to my designs.

Within my entire two years of the Master's, I was lucky to learn from so many inspiring people from around the world and learned about the importance of interaction design in future.

As a final step in my Master's, this graduation project has given me one last opportunity to learn and apply methods I have acquired throughout my Master's and go through a design process while having great people to accompany and advise me.

Therefore, hereby I would like to thank a few people that helped me in proceeding with my project by making it a joyful experience and lifting me up in difficult moments.

First of all, I would like to thank my supervisory team consisting of my chair, mentor and client mentor: Peter, Paul and Jasper. Thanks to you every meeting was a fun and insightful experience. While the graduation project can certainly be a stressful and scary time, you have always found encouraging words and great advice for me that kept me motivated and ultimately helped me look back at this project in a very positive light.

I would also like to thank the DRS, specifically the organizing, programme and advisory committee. I felt very much welcomed, included and heard by you in joining monthly meetings. You have taken huge interest in my work and provided me with great feedback and advise. Every member was happy to schedule individual meetings with me for more insights.

Lastly, a big thanks to my family and friends for enduring me, lifting me up and sort of keeping me sane especially during stressful times. You were always supportive of me, listened to my struggles and celebrated accomplishments with me.



Caroline Häger
01-11-2021

Executive Summary

Scientific conferences are a valuable place in which a lot of knowledgeable people come together to create meaningful content. However, in a fast-evolving world with increasing environmental issues, inequalities and crises, conferences seem to only change slowly. Besides the irresponsibility towards the environment, due to the large usage of resources and vast amounts of travelling to conferences, also the exclusion of groups of people are still widely a result of the current conference system. Therefore, we need to investigate the context of the future conference in order to design a better conference of tomorrow.

This graduation project dives deep into the purpose of scientific conferences and how this purpose can evolve in the future to propose a new visionary concept. It investigates changes within the domain of the academic society and its conferences but also takes into account factors that can have an impact on the domain, such as climate change, societal and technological developments or the COVID-19 pandemic. The result of this project is a new conference vision that proposes design interventions within the organizational and interaction level in order to create a more inclusive but also impactful conference.

The report begins by presenting the investigation for designing a future academic experience. The exploration revealed three main driving forces that can play a big role within the world of scientific conferences:

1. The growing relevance and awareness of academics' impact on climate change and on society will continue to increase academics' sense of responsibilities. There will be more focus on creating knowledge and doing so in a meaningful and respectful way towards environment and society.
2. The growing relevance and awareness of inclusion will highly impact the social value. The community is going to become a safe and welcoming space for people to celebrate uniqueness and distinctiveness rather than fit and sameness.
3. Technology can make it easier and more effective to reach an inclusive and impactful community by giving people the chance to be able to express themselves and inspire each other.

The final design 'The living conference' is a response to these main driving forces by providing a space with more flexibility in participation as well as creating more insight and consideration into individual contributions and people. This shall help to make it easier for people to participate (more inclusion) as well as creating a more effective space for knowledge creation (more impact). The design consists of a digital space that makes use of interactive data visualization to represent content and people for more consideration and insight but also presents different formats of sessions to provide people with eye-opening content and activities.

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01

Introduction

As an introduction to this project, this chapter will give insights into the general aspects of the project's context and its relevance. This includes the background from which the project has emerged and the context, which result in a current gap, future challenges, and design opportunities for academic conferences.

The chapter finishes by indicating the project aim and the approach including the design methodology that was chosen accordingly to achieve the aim.

1.1 Changing needs with a changing environment

Background

Our society and the environment in which we interact with one another are continuously evolving over time which also affects the way we meet. A large part of it has to do with the development of technology but also other external factors such as crises, on which we as humans do not have much influence. 20 years ago, technology hardly allowed usable and affordable means for people to communicate and see each other over distance. For the past 10 years, however, technology for remote collaboration in virtual spaces is advancing rapidly and yet, it was hardly accepted to facilitate events such as conferences, meetings or classes in which people come together to collaborate, discuss or exchange information without actually meeting in person. After being pressured to stay at home during the pandemic, people are much more aware of the potential that remote working offers and realize that it is not always necessary to travel and attend events face-to-face (Linthicum, 2020).

Also, the issues of climate change are impacting our everyday lives increasingly. People become aware of the carbon footprint and actively try to limit their negative impact on the environment. 'Flygskam', a Swedish word that was invented to describe the feeling of guilt and shame when flying, is one of many examples showing that society's mindsets are slowly changing to be more environmentally aware, leading to a necessity of remote collaboration. With the beginning of external factors such as the disruptive pandemic but also with increasing environmental issues, the trend towards virtual events is growing (Mayra, 2020).

Besides the environment and pandemic, also income inequalities and peoples' diverse work-life balance are important factors that are highlighting the relevance of remote event facilitation. Incomes are still varying among different countries, leading to people living in lower income countries have fewer budget or may not afford at all to travel and meet other people from around the globe for an event. Exclusion of people at international events can also occur depending on the work-life situation of people, in which busy schedules or other responsibilities that keep them from travelling have an impact on their abilities to meet people in an international context.

The pandemic, climate change, inequalities and diverse life situations lead to the development of not only fully virtual events in future, but also hybrid events, leaving people from these diverse backgrounds the choice to decide whether to attend the event in person or virtually, depending on their situation. By introducing a hybrid system in the event facilitation, it does not only give people the choice, but also incorporates a much higher inclusion from which potential event attendees and event organizers can benefit.

1.2 The DRS & other academic conferences

Context

The Design Research Society (DRS) which was founded in 1966 is an international member society with the intention of enabling members to promote research in the field of design. Thus, members of this organization come from academic and/or professional backgrounds in design.

Every two years the DRS is hosting a conference to share and present latest design research, to introduce new design fields and to network (DRS, 2021). Every edition of the conference is held in a different city throughout the world, and it is structured with events such as speaker keynotes, paper presentations, discussion sessions, engaging workshops or conversations that are spread over four days. Previously held conferences consisted of different spaces for these events to take place (see figure 1).

Not only the DRS but also many other organizations facilitate conferences for many years with similar traditional formats (keynotes, paper sessions, workshops, etc.) and with the same overall goal of socializing and transferring knowledge amongst academics in diverse fields. The DRS conference is considered a relatively large conference in the field of design and is also actively involved in incorporating new formats, apart from the traditional ones, to make the conference more engaging.

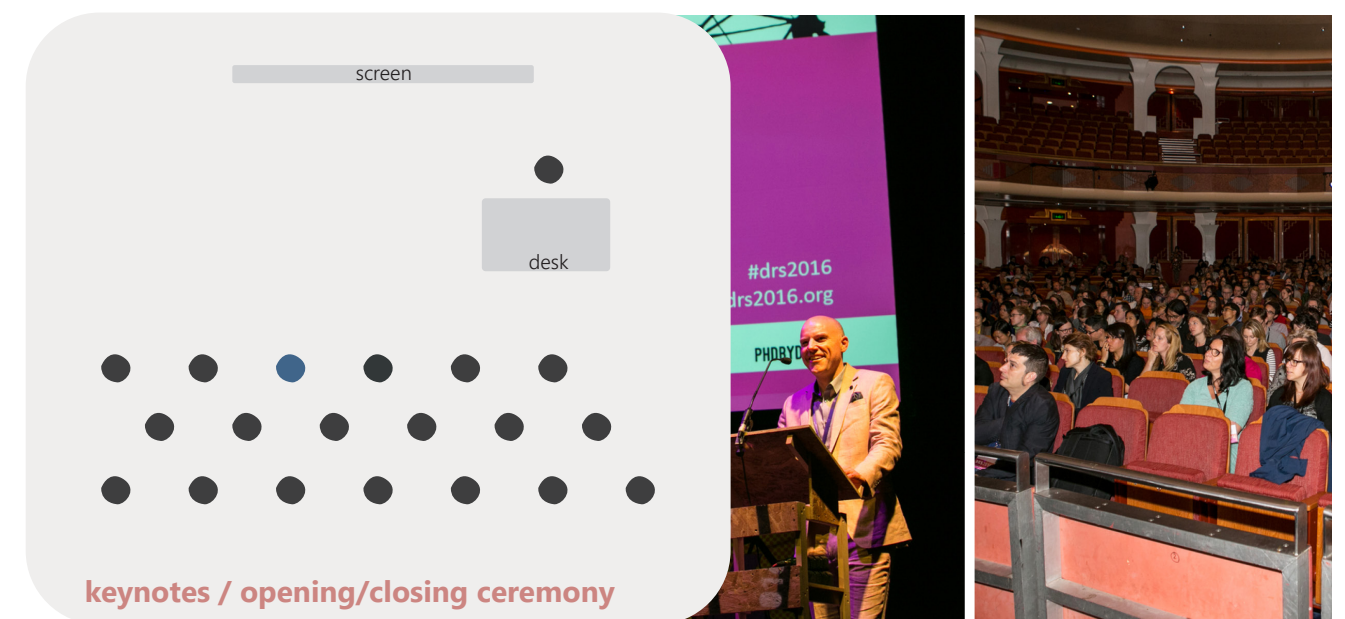


Figure 1 Example of conference space for keynotes, opening or closing ceremonies at DRS2016.

1.3 Gap & challenge

Preliminary Problem Statement

The past solution space of the physical DRS conference offered great opportunities for the facilitation of discussions, exchanging information and for its members to connect. While there is certainly value seen in face-to-face interactions, it also comes with costly consequences and negative effects on the environment. Members are required to travel and reserve a lot of time in their schedule, affecting the carbon footprint and leaving them with less freedom. In 2020, the conference was held entirely online, resulting in saving plenty of resources, but the quality of interactions was lacking. Due to recent developments in climate change, inequalities, pandemics, and diverse work-life situations (as mentioned before), and especially due to its internationality, the DRS can highly benefit from a hybrid structure incorporated into their conference. As the nature of conferences is changing, the DRS wants to address the different needs and act responsibly by offering a hybrid solution providing members with face-to-face and online interactions.

1.4 Project aim & scope

Design opportunities

Because of the increased importance of virtual attendance especially for events such as conferences, there is great research and design opportunities that need yet to be explored. Existing interventions of hybrid events and new design solutions can help blur the lines between reality and virtuality while making these meetings more productive for all people involved (Linthicum, 2020). Potentially, even more productive than a meeting entirely held in person. However, this project also aims to find out whether a hybrid solution is the right choice for academic conferences. By focusing on how to create a new conference format and to which extend hybridity should be incorporated (see figure 2), opportunities in redesigning the overall interaction space at conferences emerge. A well-designed hybrid conference will give us possibilities to save resources in terms of costs and time, as well as lower the carbon footprint. Furthermore, there is great potential to explore, develop and incorporate new technology to help creating the desired interactions for these conferences.

The aim of this project lays in developing a (possibly hybrid) design solution for the DRS conference 5 years from now (2026) which is translated into bridging solutions for testing at the DRS2022 conference in Bilbao.

1.5 Project context

This project is conducted as a master graduation project which is part of the two-year master program Design for Interaction at the University of Technology, Delft (faculty of Industrial Design Engineering). The duration of the project is 20 weeks and involves different stakeholders taking part throughout the process. This includes academics (professors, coaches, PhD candidates), conference organizers and practitioners (working in the industry) that have a background of design and have attended academic conferences. The DRS and their organizational team are involved as the client in the project and would like to implement the outcome of this project in future conferences.

Project approach & reading guide

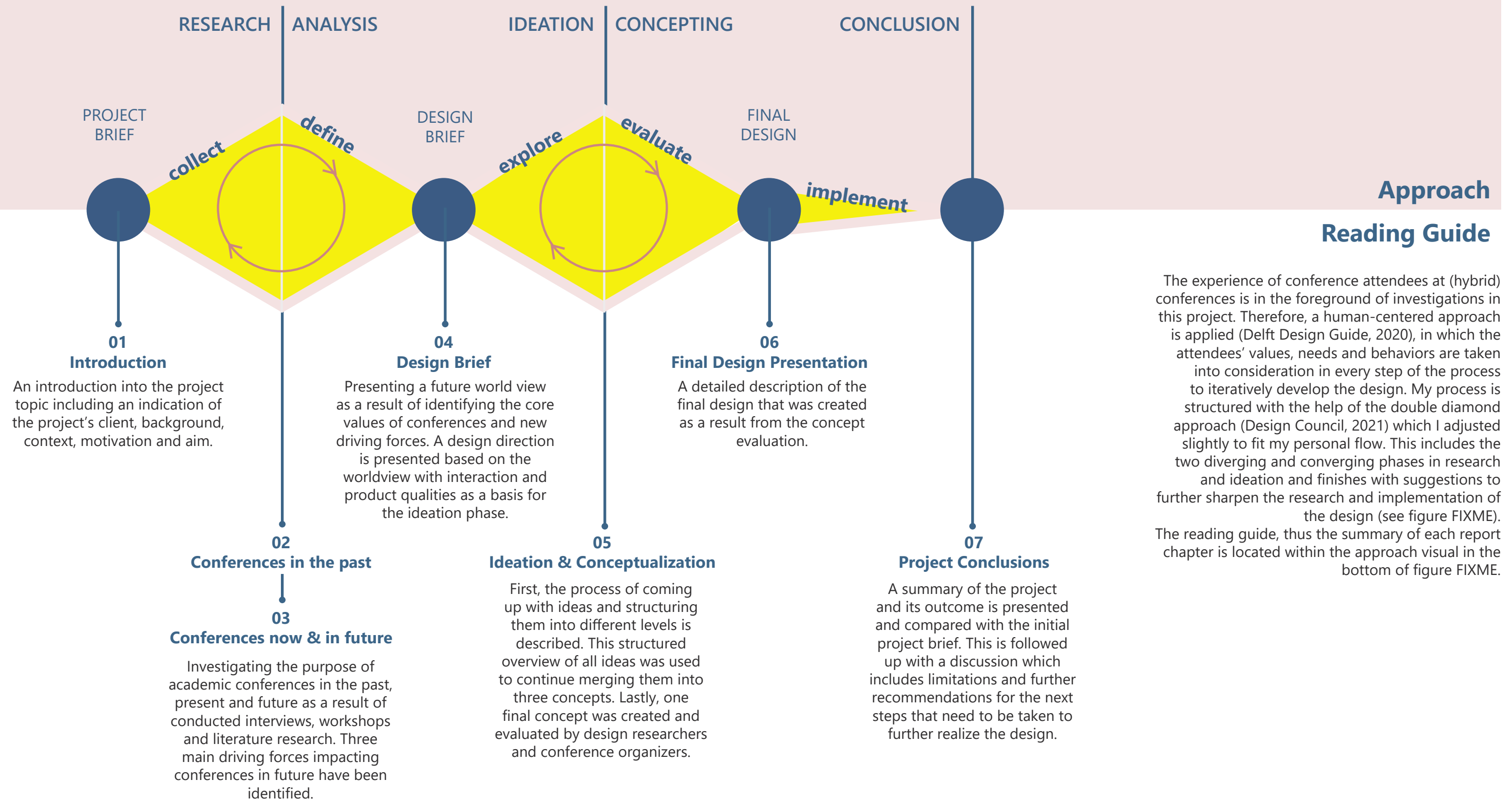


Figure 2 Approach and reading guide.

1.7 Exploration aim & method

While the double diamond is used to structure the entire process of this project, the VIP approach (Hekkert & van Dijk, 2011) is used to organize the research and analysis activities. The research within the VIP approach focuses on understanding a product on three levels (product, interaction and context level) in the past and in future. The outcome of using the method is to create a design direction for the ideation phase with the help of a future worldview from which statement, interaction and product qualities emerge (see chapter 4).

Applied to this project, the deconstruction phase, meaning understanding the reasoning of conferences' existence and purpose in the past, is very important to understand before creating a future scenario of conferences.

The main research questions to help me understand conferences of the past are as follows:
What is the current literature on academic conferences and hybrid events about and how can my research bring new insights?
Why are academic conferences the way they are?
Why are academics going to conferences?

Simultaneously, also factors that concern the future of conferences were researched for the designing part of the approach. In this project I applied an extra step of analyzing the development and purpose of conferences not only in the past and future, but also in the present (see figure 3). Understanding how conferences have changed until now helps me find a better indication on how they can change in the future.

The main questions to help me understand a possible future of conferences are as follows:
How should the interactions at the conference change in future based on new needs and values?
What should be the relation between attendees (face-to-face and virtual)? How should they differ?
How can technology support the new conference format?

Because method and research questions are overlapping with each other, figure 4 on the next page gives an overview of my research activities with the corresponding research questions at the bottom. For more detailed insights into my research set-up see the research question and sub question flow diagram and the research planning in appendix B.

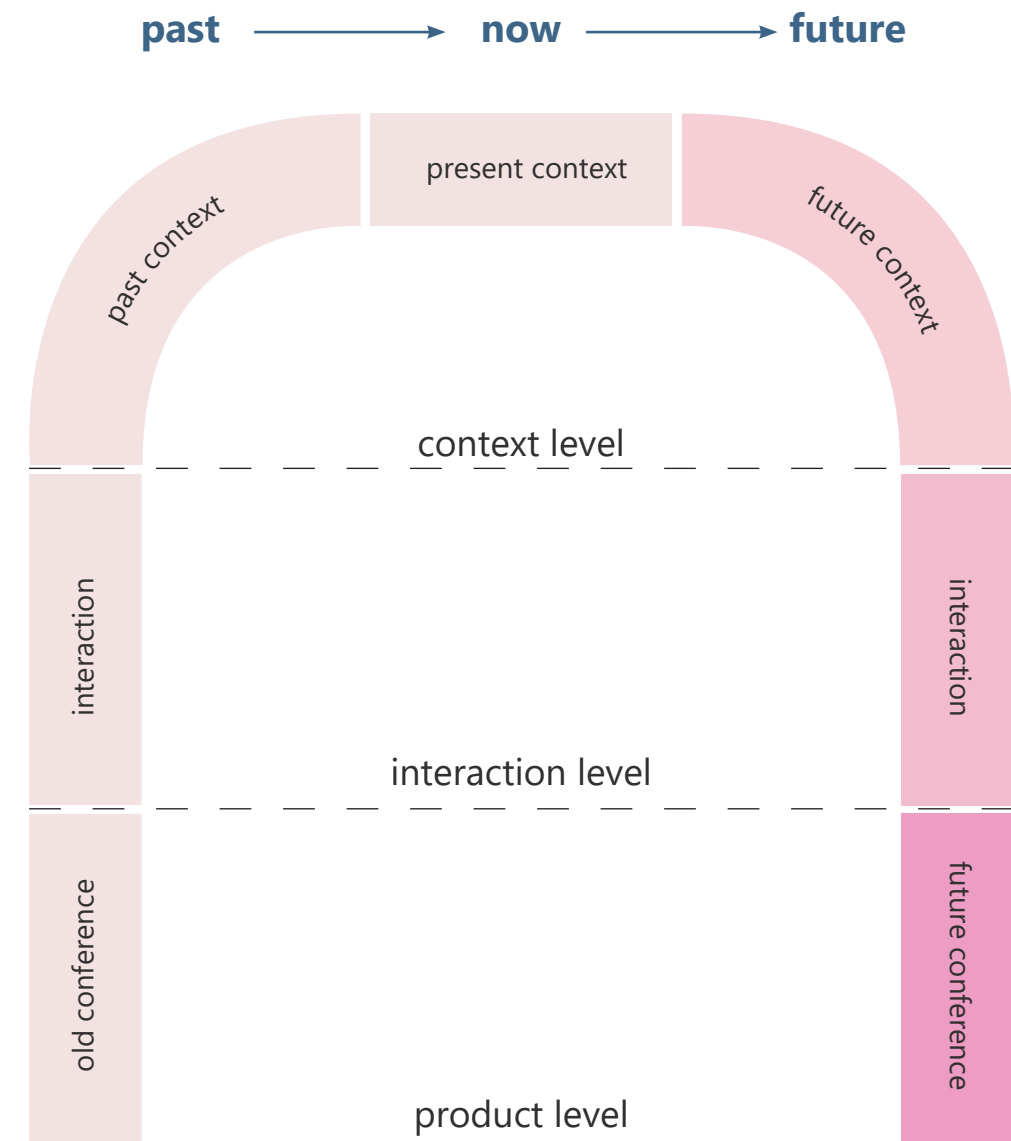
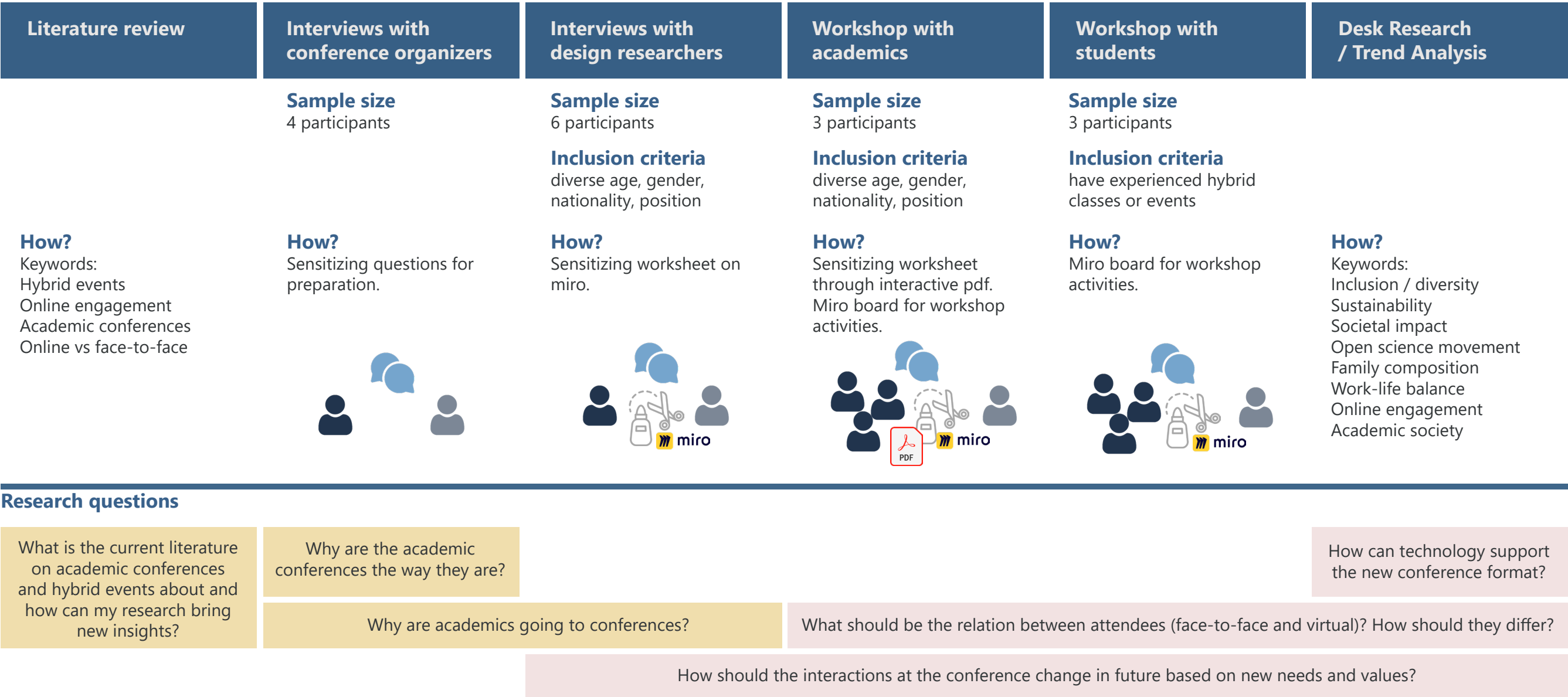


Figure 3

Approach of exploration phase using the VIP method. An extra step of presenting conferences now has been added to the approach.



deconstruction - past/present conference experience designing - future conference experience

Figure 4 Descriptive overview of research activities. For a detailed research plan see appendix FIXME.

02

Conferences in the past

The previous chapter introduced the subject of conferences in a changing environment. This chapter includes the research which will go into detail of the existence of conferences. Based on the VIP approach the research focuses on the exploration of conferences and their context in the past, their development until now and possible developments in the future (see figure 5). The following chapter will focus on the conference context of the past which includes a thorough description of conferences and the reasoning of why they exist this way in form of core values.



Figure 5 Timeline indicating how developments and trends change the conference context over time.

2.1 What is an academic conference?

Deconstruction

In order to understand the general purpose of an academic conference, we need to understand what it consists of in general. Conferences can be understood as an event spread over three to five days with the overall goal for (academic) researchers to meet and to discuss, present and absorb (recently gained) knowledge.

To afford this overall goal, conferences are made of different resources on different layers. Figure 6 shows a visual representation of what the different layers of a conference are:

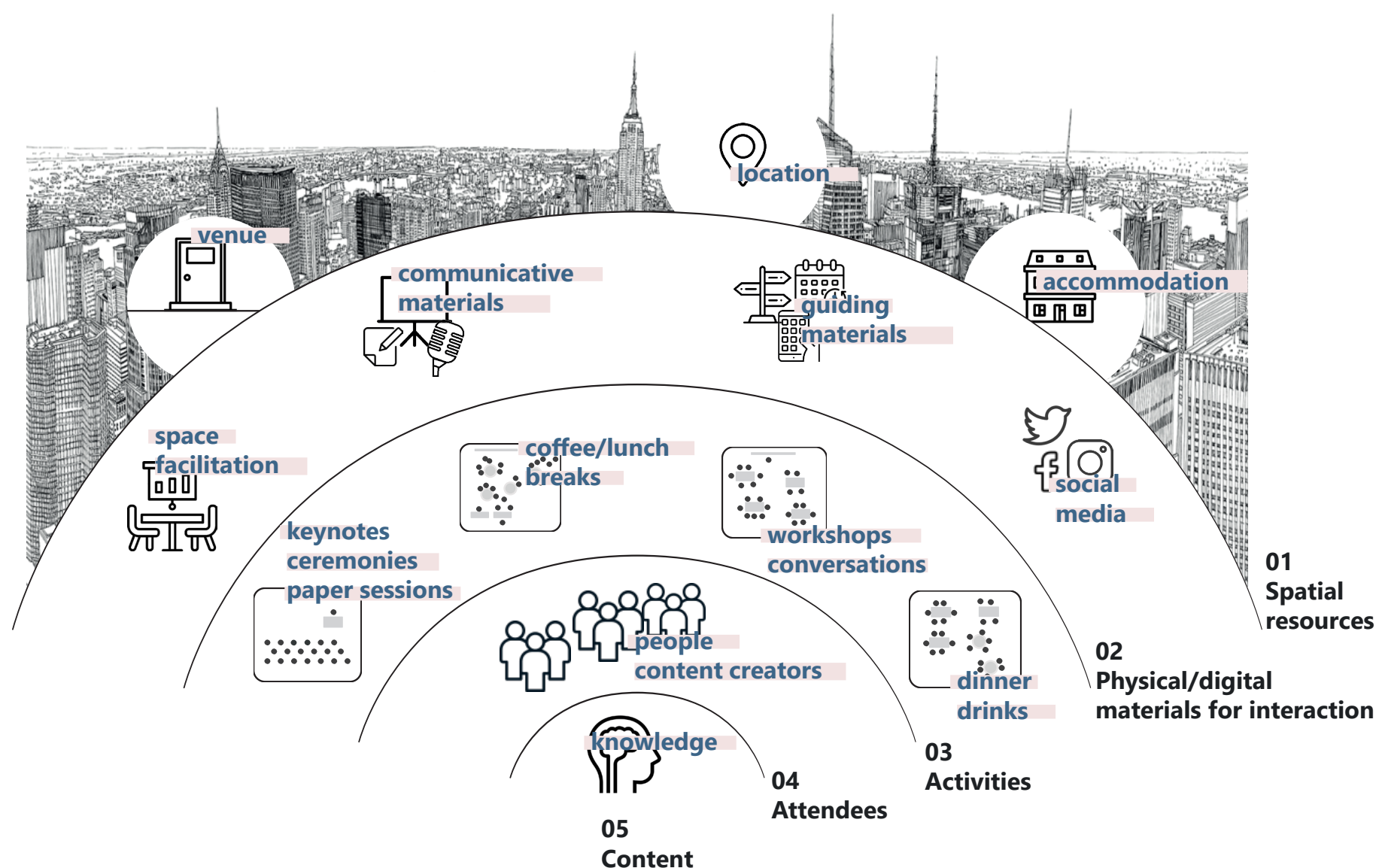


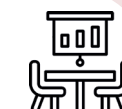
Figure 6 Resources that are needed for a traditional a conference displayed as five layers.

01 Spatial resources



It starts with the outer layer, a spatial facilitation that affords academics to be together in one place. This includes a chosen location, which could be any city in the world. Usually, the location changes each year. Once the location is chosen, the conference needs a venue with different spaces, such as rooms and halls, for different activities that will be offered and also accommodations where conference attendees can stay.

02 Physical/digital materials for interaction



The next layer consists of all the materials needed that assist participants to navigate through the conference and to communicate to one another before, during and after.

This starts with having a website that communicates all information of the event as well as a conference management software, like Conftool, to support the **organization of conferences**. Then there is the basic **space facilitation** such as the division of rooms and the use of different sized tables and chairs to enable the participants to be in one space and interact with one another.



Next to this the conference needs a number of **communicative materials and devices**, such as beamers, displays, microphones or just pen and paper to help the participants visualize and communicate their research.



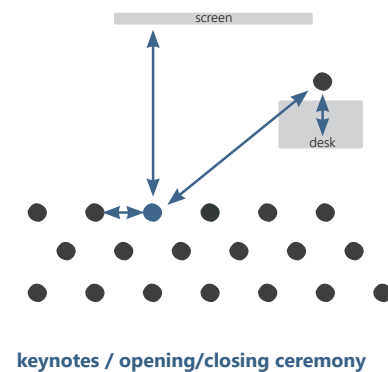
To help participants navigate through the event, there is visual materials used for **guidance, identification, and commercializing**. Another important aspect to take into account is the booklet or the app with information about the schedule and content of sessions or (digital) banners and signs for directions and other indications at the facilities.



Social media, such as Twitter, Facebook and Instagram are one of the most important means for content spreading and communication among researchers. With the help of hashtags, posts and comments conference organizers and researchers can spread information throughout the online environment. Twitter is widely used amongst academics and professionals and creates communication between attendees of scientific conferences. The platform is used as a backchannel for sharing information or introducing new ideas as well as socializing with other researchers in terms of creating discussions and connections (Spilker, 2020).

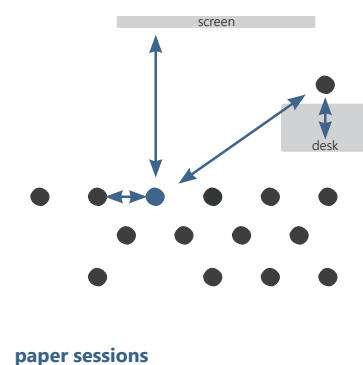
03 Activities

Now that the physical and digital resources are clear, this layer determines the activities offered at a conference. A typical academic conference consists of different formats and activities in which participants can meet, exchange and create knowledge together. The following presents an overview of usual activities at conferences with a communication style ranging from most formal and one-sided to most spontaneous and multi-way.



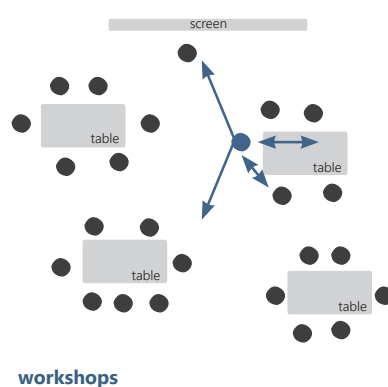
Keynotes / opening/closing ceremony

These plenary sessions are the largest sized sessions without any other parallel activities. Here, big names of the industry or conference organizers give a presentation. The communication is mostly one-sided with a clear divide between speaker and audience.



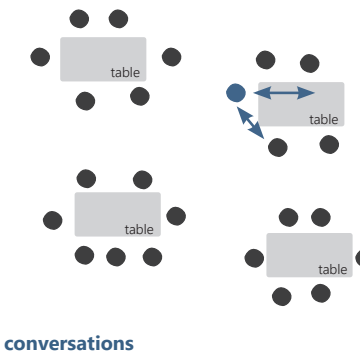
Paper sessions

Paper sessions are the heart of conferences in which multiple sessions run simultaneously. People shortly present their research to others, followed up by a short question and discussion round. One session usually consists of four to five presentations and people can approach speakers or others at the end of the session for further discussion.



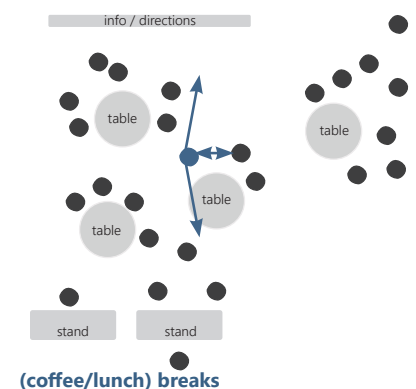
Workshops

While keynote and paper sessions often evolve around knowledge sharing, workshops are an opportunity for people to create knowledge. Somebody is invited to facilitate a workshop within their expertise and people can actively discuss topics with each other. These sessions usually happen parallel to paper sessions.



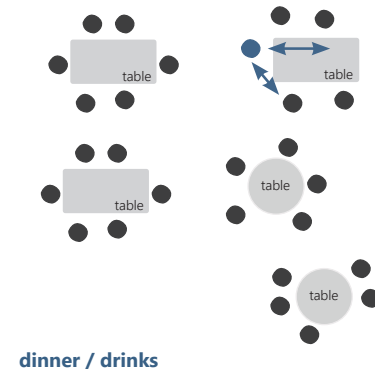
Conversations

Some organizations (like the DRS) offer conversations in order to provide a space for open and active exchange and dialogue on particular topics. These are facilitated in a more spontaneous, less structured and formal manner compared to paper sessions.



(coffee/lunch) breaks

Breaks, specifically lunch and coffee breaks offer a space for people to freely socialize and chat with friends, colleagues or new connections made during the conference. This is the space where (new) people meet and ideas and thoughts are created in an unplanned and unexpected way.



Dinner / drinks

Dinner and drinks, or other evening events are organized by the conference or just individual attendees mainly for socializing in the end of the day. People often take these moments as a chance to get to know each other better, on a more personal level.

Figure 7

Insights into different conference formats and the way they are facilitated (here at the DRS2016).



04 Attendees - Content creators

At an academic conference, the people that attend are not only absorbing content but also create it. Typically, at a conference most people attending have an academic background in research, such as professors, teachers or PhD candidates. In addition to this there is also a smaller number of people from the industry (practitioners) joining. Attendees are usually paid by their institutions, like universities and companies, to attend.



05 Content

The final layer and the core of the existence of conferences is the content itself that emerges thanks to the participants at the conference. First of all, a conference usually covers certain areas of interests of the participants, meaning that at a design research conference people that attend probably have great interest and knowledge in design research. This results into bringing together all these individuals that have a lot of knowledge and thoughts on the topic, creating a valuable space of knowledge exchange.

Admission process:

Important to add is that the conference organizers can highly determine the topics that are to be addressed at conferences. Usually, participants have to go through an 'application process' prior to the event in order to be admitted and to present their research. Participants are required to submit a scientific paper which will be peer reviewed by a group of experts from the field. In this 'Call for Papers' process, the organization offers different tracks with themes that the participants should address in their research papers. The peer review process ensures that the content of the papers meet a certain level of quality so that it can be presented at the event. Universities usually only pay for their researchers to join a conference when their paper has been accepted.

2.2 Why do they exist this way?

After having defined what a typical conference consists of by looking at it from the product and interaction level (see VIP method), I started creating the context of the past for a conference. This means that the underlying reasons of the conferences existence in the past were extracted by looking at factors that might have influenced the reasoning of creating these conferences. To find these underlying factors that make up the context as well as the purpose of a conference, attendees and organizers have been interviewed, as well as literature has been studied that focusses on the past purpose of conferences. Figure 8 visualizes the outcome of my exploration into the conference context of the past. The core context of conferences in the past can be divided into three main aspects that had an influence on conferences once. In the following, I will go into detail of each of the aspects and explain their relation to each other as well as the influence on the conference. This is accompanied by quotes that originate from my interviews.

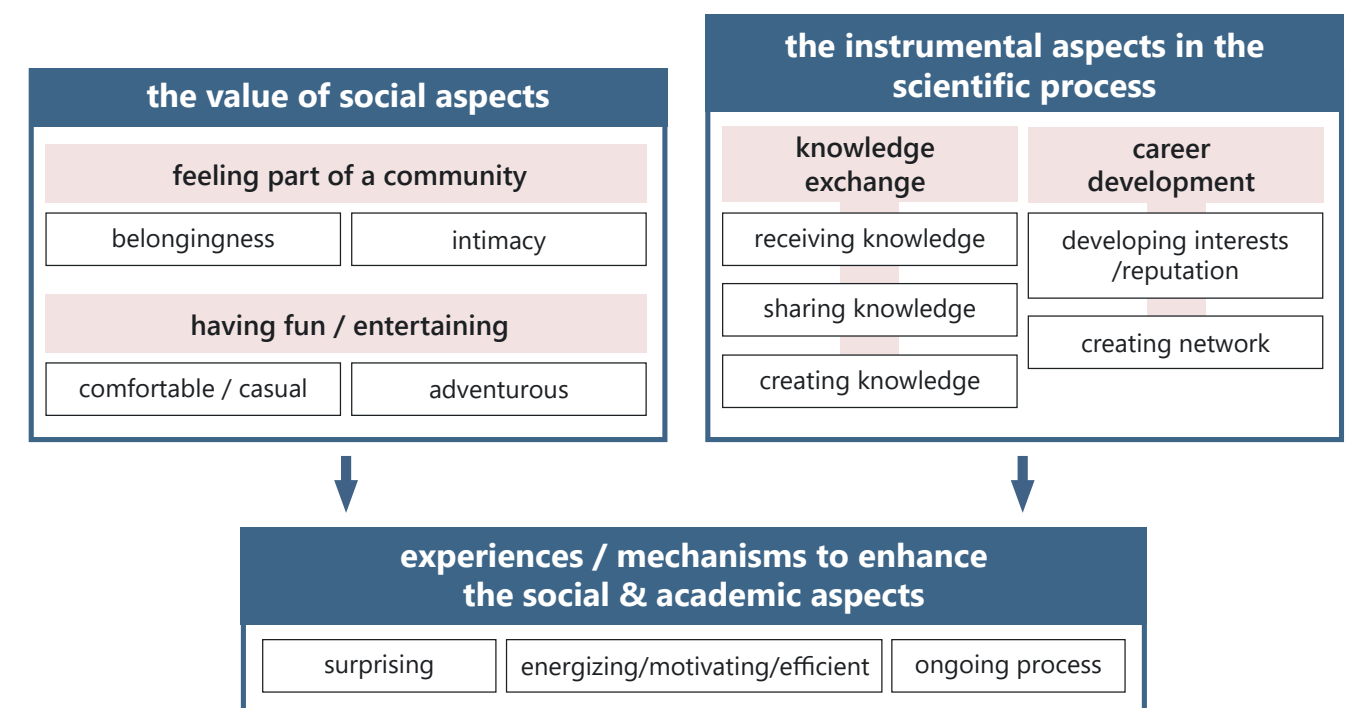


Figure 8 The past context of traditional conferences with three main aspects that impact the role of conferences.

The instrumental aspects in a scientific process

knowledge exchange

“Receiving comments on your own presentations is extremely important of course.”

“We wanted to get people to recognize how important computing was and show its potential.”

“It’s more a chance for people to sort of talk about interesting things and show interesting projects.”

“That’s perhaps the most rewarding, if you have presented yourself and someone comes up to you and wants to discuss that and then you can really give accounts for what you’ve been doing.”

“I have run a workshop with some colleagues as well, you try to make a space for good conversation and to really think that through and to engage with an issue in a productive way.”

There are many reasons for people to attend academic conferences both on a professional and personal level, but the instrumental aspects to push academics forward in a scientific process are the most purposeful at a conference of the past. This includes the knowledge exchange and career development of the participants.

Conference attendees want to receive or absorb especially new knowledge when going to a conference. This starts by getting up to speed about the topics of the future, but also learn from and get inspired by other ‘like-minded’ people. Furthermore, interviewees have expressed the value in receiving more in-depth feedback from others on their work (in progress) at conferences compared to just having their research reviewed online.

Another part of the knowledge exchange is sharing it. Conferences are a great place to promote and grow specific subjects of concern, in order for them to receive more attention. Furthermore, academics want to share their latest research and inspire others with their knowledge. Existing literature mentions how the format of academics and professionals presenting their new research results to ‘like-minded’ people enable individuals to further develop their professional career (Reinhard et al., 2020). According to Nicholson (2016) this way of information sharing broadens the professional experience and knowledge of the attendees resulting in inspirational moments that trigger ideas and meaningful thinking for future work.

Lastly, co-creating and generating new knowledge (for future work) is a desired outcome from the knowledge transfer at conferences through discussions and debates. These discussions can occur at any moment at a conference. Because a conference enables people to be together in one place, it enhances the knowledge transfer and enables attendees to understand and explain things more effective and detailed compared to written communication.

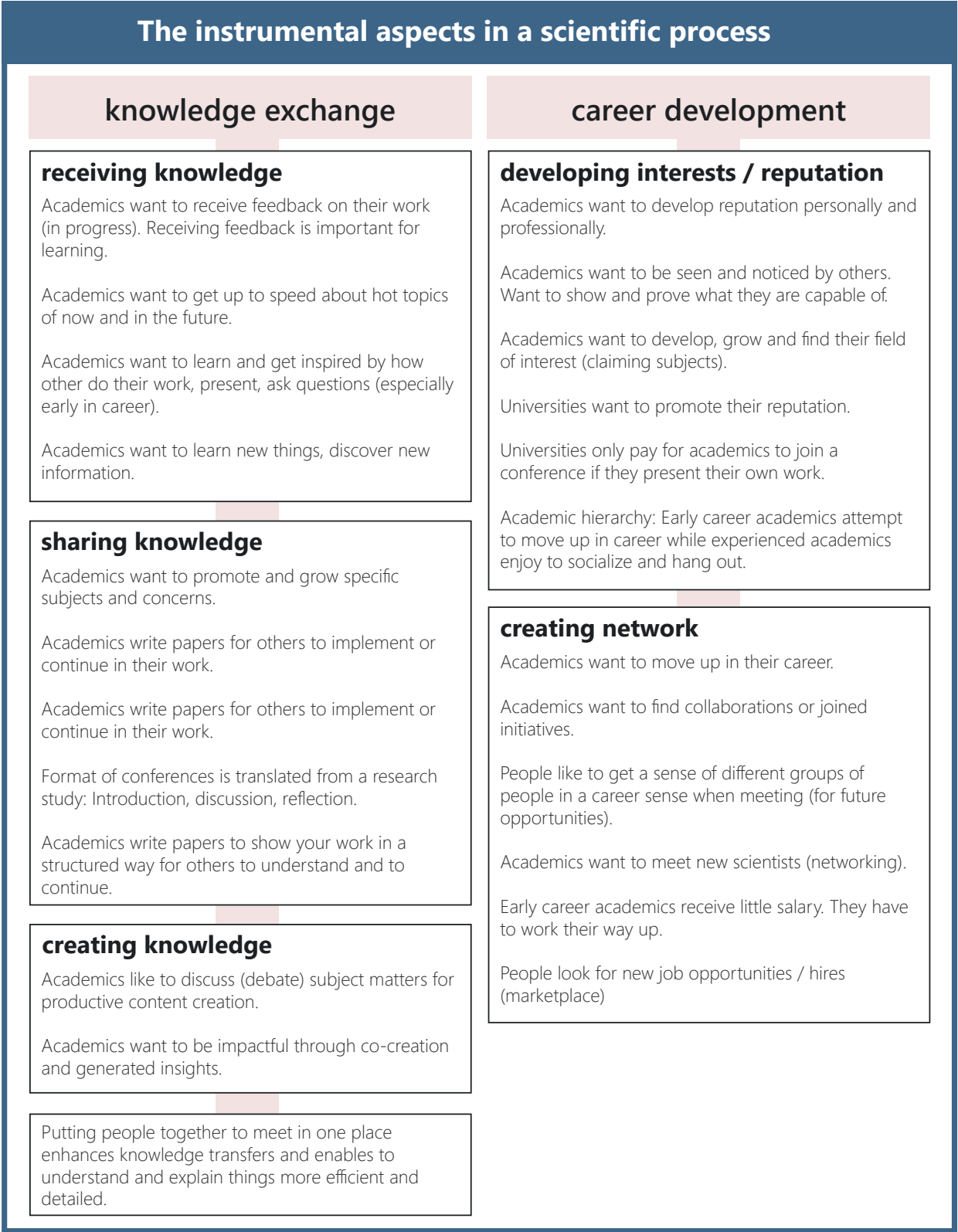


Figure 9 Clusters of factors that play an instrumental role in the scientific process.

"People attend conferences partly to present yourself, your research, because then you get a publication and that's good for you, you know publish or perish."

"Of course, to share my research and to network around it so to find people with similar interests and possible opportunities for collaborations with known and new people as well, so within a networking."

"It's useful in a career sense because you get a sense of what different universities or maybe what the different groups of people are like."

Attending such conferences can also add to identity building of researchers on a professional as well as a personal level. Edelheim et al. (2018) describe the construction of identity in terms of 'the things we do, the sessions we attend, the questions we ask (and refrain from asking), the connections we develop, and the ensuing research we work on are all part of making us into the selves that we experience, and others see'. Academics aim to continuously develop and grow in their field of interest. In order to gain academics credit and move up in the 'job hierarchy' (especially for early career academics), it is necessary to publish papers and present these at conferences, leading to people becoming more aware of one's work. It helps in building a reputation as an academic and prove what you are capable of.

Networking on a professional level is another large component within the space of conferences. It means that researchers have the opportunity to become more visible in the field as well as broaden the chances for finding possible future collaborations (Sá et al., 2019; Reinhard et al., 2020). A conference can be compared to a marketplace in which people look for new job opportunities or new working relationships. Because conferences are one of the only moments in which many other 'like-minded' people from a specific field of interest come together from all over the world, it gives academics a chance to sense the kind of people and approach or be approach by the right people for future career.

"What is also very important, is this the sense of community. It's being part of something and interact and feeling safe to share "

"It's having the opportunity to connect informally with know colleagues and friends, old friend you kind of build up friendships during these conferences."

"I was with my promoter and co-promoter and the students that did the research. So we had a nice group already and then we met so many more people. And it was really nice to interact with all the people with similar thoughts or obstacles."

"It's a party place. People don't dare to say this but it's one big party. It's ridiculous because you get paid very well to fly across the globe, and of course you see some keynote sessions, but most of the times you are busy socializing."

"I mean if that's the way that I can get funding from my institution to be able to go somewhere, then I mean that's basically, my vacation days."

Besides the career benefits that attendees can gain, conferences also add to social aspects which can be described as feeling part of a community and having fun or being entertained while attending.

An important factor to take into account is that people like to feel part of something bigger, a community, and therefore sense a feeling of belongingness at a conference. Being surrounded by like-minded people with similar interests helps them feel understood by one another and be inspired.

The feeling of belongingness goes together with sensing intimacy with a group of people. Conferences can be experienced together with others in a group, creating stronger bonds. People do not only look for future working relationships, but also value to find possible future friendships. Friendships that are more meaningful in which people can feel affinity, instead of just getting to know each other from the surface.

Having fun and being entertained plays a big role in achieving so. People like to meet each other in a 'not-so-serious' way and have fun together, which helps building those meaningful relationships. This is why conferences offer entertaining things to do during breaks or in the evenings, such as having drinks and going out for dinner. The casual set-up makes people feel comfortable and puts them at ease in sharing thoughts and ideas.

Lastly, attending a conference is adventurous. Attendees look at it as a great travel opportunity and some time away from the usual working environment. Experiencing the location and its culture is highly valued. This is why conference organizers give a lot of attention to the location and venue as it adds to a positive and memorable experience.

feeling part of a community
& having fun

Experiences to
enhance the social
& academic aspects

surprising

"Sometimes I end up with project or collaborations with people that I would've never dared before or come up with if I wasn't at the conference."

"I think what is even better, is what people talk about in the hallway, and over drinks afterwards like the big challenges that they're facing."

The last pillar of the three categories explains the experiences to enhance the academic and social aspects mentioned before. These include underlying mechanisms that help make the experience special for a conference.

Often, the spontaneous activities or conversations in the hallway lead to the great fun that participants are looking forward to. Researchers appreciate to come together in a form of a conference as round table discussions are convenient and lead to conversations that they may have not expected (Reinhard et al., 2020). The academics have expressed the value in exposing themselves to the unexpected. Learning new things or meeting new people in an unexpected manner can be reinvigorating and creates excitement. Those serendipity moments make conferences an exciting and memorable experience.



energizing / efficient & ongoing process

"I think the conference itself is really a locus of energy. So there's lot's of people putting their energy into being there to present some work. It's a very focused experience."

"Physically if you can travel somewhere, and you can be in a totally new context somehow that helps as well. Like that helps you just unfix and just open your mind up to be in a completely new environment."

"I heard one presentation on the first day, but then over next days I can kind of process my thinking, maybe on the last day I can approach the person who gave the presentation and start to share more insights."

Furthermore academics, and especially the conference organizers value the fact that conferences create a special energy when putting together people from similar fields for discussion. Because everybody is highly invested in the same topics, there is a lot of motivation to work together, and it is much more efficient to do so face-to-face. The conference provides a space for people to get together physically, which means that it allows attendees to travel to new locations as an escape away from the usual work environment. By working in a new context, it can help unfix people's minds and look at a problem with a "fresh pair of eyes".

Finally, the last cluster of factors explains how a conference can be seen as an ongoing process. By having a conference last multiple days, it enables people to go through a 'Food for thought' process. When people learn something new, they have the opportunity to 'digest' this new information, think about it and get back to it and discuss it at a later time. Not only the knowledge exchange can be a process but also the newly gained friendships at conferences through which people want to maintain an ongoing, continuous relationship.

Conclusion of the deconstruction

The conference core values consist of three main aspects: the instrumental aspects in a scientific process, the social value and the experience that enhances both social and scientific aspects.

Overall, while it is certainly important for academics to be able to exchange knowledge and develop further in their career with the help of conferences, I should definitely consider the value of social aspects and the overall atmosphere that conference environments provide. Conferences are open spaces that provide people with a platform for unforeseeable things to happen, such as meeting new people, learning unexpected things or ending up with collaborations in a surprising way. It is a rare occasion in which so many people with similar interests come together to talk about design research but also to merely socialize. As I dive deeper into the future of conference experiences, I should take into account the value of the energizing, surprising and social environment that add to the conference specific experience.

03

Conferences now & in future

While the previous chapter looked at the reasoning of conferences existence and purpose, this chapter focuses on the development of conferences until now and possible developments in the future (see figure 12). This is done by investigating recent and future trends and reveal three main driving forces that have an impact on conferences in future.

The chapter concludes by answering the research questions, which are stated in chapter 1.7 'Aim and method of exploration', and how findings of the developments impact the design brief (chapter 4).



Figure 12 Timeline indicating how developments and trends change the conference context over time.

3.1 Conferences now

Developments that had an impact on conferences

After having deconstructed the general purpose of an academic conference from the past in the last chapter, I have looked at changes and developments throughout the last decades that had an impact on this traditional purpose. The following chapter is highlighting these new clusters of factors with main changes, which include the rise of online technology and a slowly changing academic community.

More moments of knowledge exchange through online technology

Throughout the last decades one of the major changes in the way academics can communicate to each other is the rise of online technology for connecting and sharing remotely. Academics have the chance to follow each other's work much quicker and give or receive feedback instantly. Now, not only finished papers or research can be uploaded, but thanks to better internet and bandwidth, the entire progress of a research can be documented online. Academics develop less out of sight and have the possibility to receive instant feedback at all times. Because more information can be accessed online, there is no need to meet physically to share this information.

"It's obviously a lot more online and everything is instant too. So it's like everything is speeded up, so people will have kind of less time to develop things out of out of sight, it's more pressure. And there are less and less surprises in a way. It's much easier to follow someone and know what they're working on and have communication with them."

Twitter, for example, has become a huge part of the communication amongst academics. 'Microblogging' is a term that was mentioned frequently in papers and is defined as regularly updated activities in form of social networking, status notification, instant messaging, and broadcasting information. Ebner et al. (2009) took a closer look at Twitter interactions during a conference and suggests that microblogging on Twitter is enhancing the individual's participation on conferences resulting in the integration of the information network and talking with more people. Participants have also mentioned the value that online technology added throughout the last years: "Nowadays, or already since a decade, people tweet or put things on social media. So you can also connect with people on social media who are also attending. You connect them in a virtual way through social media. And for me that gives it another layer which I missed in the earlier ones."

Wen et al. (2014) and Spilker et al. (2020) argue that the information sharing use of Twitter increased in the past years, compared to the social use and could therefore potentially be used as an 'informal' report of the conference in which you can trace back the information shared, and discussions held. Spilker et al. (2020) calls this the 'Twitter Archaeology'.

Faster online communication and growing academic community

More moments of knowledge exchange through online technology

Nowadays, you can connect and share virtually through social media, giving it another level (which was missing in earlier days).

The information that academics are able to share online has increased due to the internet and is more in depth due to band width.

It is easier to follow people and give/receive responses or feedback instantly.

People develop less out of sight with internet era (more insight into process and work in progress).

Growing academic community

The number of conferences and academics / researchers have increased throughout the years.

It is more difficult to meet friends at conferences or academic events in general (due to larger number of events).

Figure 13 Clusters of factors describing the faster online communication and growing academic community.

Growing academic community

"There are so many alternative events, that also come from non-academic backgrounds and also online, that you need to really stick out compared to the others to attract the attention. We cannot go to endless conferences, we need to choose and sometimes we also want to go to more practitioner oriented conferences."

The interviewees have mentioned that the academic community has been growing in the last decades as well as the number of conferences that are available. Due to the increase in academic work and therefore the increased amount of research done, Nicolson (2016) critically describes current conferences as a marketplace offering a place to sell products and services and universities are seen as the assembly line for research.

With the increased competition also outside of academia, there is more pressure on academics and conference organizers to stick out.

Furthermore, academics have expressed that the size of conferences and number of participants has increased throughout the years, which can make it harder to connect to people or meet old friends, how it used to be in the past:

"There is really a lot more conferences. You don't meet your friends so easily, or don't meet the same people so easily because they start going to very specialized conferences that, maybe, are not relevant to you."

A shifting purpose of the academic conference now

More focus on social and casual interactions

"And you know the stuff that we feel can't be really replaced by you know the online participation. There is this really a lot of feelings, I think involved, with meeting face-to-face."

"It's kind of easier to talk to people or it reduces the awkwardness. A lot of people that I've met sitting on a bus or waiting for things I've subsequently collaborated with or become friends."

"If it's just about the talk, you can also watch Ted or YouTube."

More focus on creating impact as academics

The previously stated developments have an impact on the conventional conference purpose that used to have the focus on the knowledge exchange. Nowadays, people focus more and more on the social aspects when coming together at conferences. Also, it was found that academics put much more emphasis on creating positive impact and listen to the worlds and humans needs. The following chapter describes how the purpose of conferences has changed. I do not yet take into account the impact that the pandemic has in this section but rather look at how conferences have changed up until the start of the pandemic.

Due to the rise of knowledge exchange in the online environment, there is more attention given to the whole process. Now, the moments are not just defined when you present as an academic or defined in the days of the conference. Instead, people have the opportunity to access information in advance, which means that more knowledge can be received and shared online preparatorily, creating more focus on the social interactions at conferences. Conference attendees have expressed that social interactions cannot be as easily replaced by an online environment compared to sharing and gathering knowledge. The need to feel more connected to friends by sharing an experience, such as a conference, is part of humans' desires to belong and create stronger bonds. Finding those connections on a deeper level is difficult to achieve online.

Furthermore, there is an increased focus on casual experiences at conferences. When comparing online with face-to-face interactions, it can be said that the online environment is much more calculated when it comes to approaching people and making friendships. Participants have expressed the value in serendipity at conferences, such as unexpected conversations and collaborations that emerge, which are unlikely to happen online. This means people attend conferences with the goal of making unexpectedly new experiences. Being placed in a situation where you can do activities at the side, like at conferences, helps breaking the ice between people.

Conferences have evolved in an era before mass communication and global connectivity and before the growth of the academic community. Conferences used to be much smaller and more focused, but because of the increased number of conferences and publications over the years, academics tend to produce many less impactful and meaningful papers, rather than one high quality paper. In connection to Nicolson's statement (2016) of current

conferences being a marketplace and universities are the assembly line, there often is a lacking quality in the paper submissions. A high number of papers remain nearly unread and are stored in an archive inaccessible to the public (Heleta, 2016). Together with the rise of the online technology the academic community has a reduced impact on important issues, concerning the society and governmental decisions. As mentioned before, nowadays the society has instant access to news, stories and (scientific) information which has resulted in less need of the general public or the government to read academic articles and incorporate these into their decision making (Hoffman, 2016). Because of this lack of effort in academia reaching the public and go beyond the academic bubble, "a lot of great thinking and many potentially world altering ideas are not getting into the public domain" (Heleta, 2016). Now, the academic community realizes that they must engage in the new information age to stay relevant, instead of using traditional means.

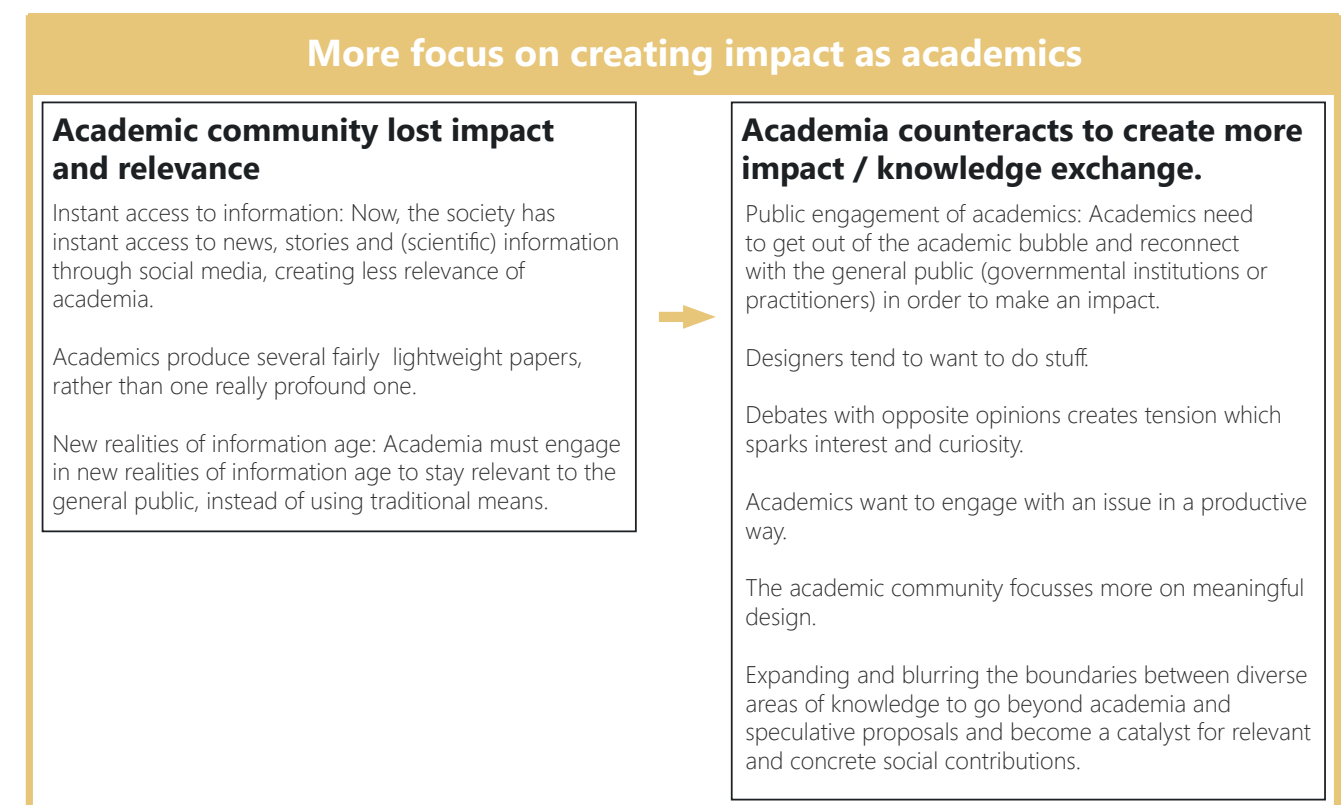


Figure 14 Clusters of factors describing the rise in focus on creating impact as academics.

Environmental impact and how this influenced academics' awareness of impact

The design community, however, has been very conscious about societal issues since many decades. One reason for this is the guilt that academics experience due to many inconsiderate designs in the past that have led to societal issues. But also, because the academic community identifies itself as very engaged. Monteiro's book 'Ruined by Design' (2019) illustrates the importance of designers' responsibilities:

"As designers, we need to see ourselves as gatekeepers of what we are bringing into the world, and what we choose not to bring into the world. Design is a craft with responsibility. The responsibility to help create a better world for all." – Mike Monteiro

Now, many academics have expressed the desire to create more concrete social contributions by engaging in practical ways and thus, want to make research more meaningful. Especially design research academics tend to want to do stuff and engage with an issue in a productive way through conversations. Many conferences have incorporated more discussions and workshops to enhance the knowledge creation and deal with issues practically applied. The DRS for example is introducing a new format called DRS Labs, in which conference participants work on issues of local organizations at the conference location. Also, conferences try to incorporate more debates between people with opposite opinions to create interesting tension. With the change of technology and the shifting values of the academic community there is an increased focus on discussion, debate and creating knowledge at academic conferences to make the academic work more relevant again.

Besides the negative impact that academics had in the past due to irresponsible designs, also the environmental impact starts getting more attention and add to the desire of academics to give back more to society by social contributions.

Unfortunately, the (in the past) mentioned career norms of academics having to meet in person to exchange knowledge, to network and to find future collaborations in an efficient way has an enormous impact on the environment. There is a lot of pressure on academics to build a reputation, especially in the beginning of the career, which requires them to travel and attend conferences in person.

Just in the USA, there were a total of 284,600 conventions and conferences with 87 million attendees in 2012 (PricewaterhouseCoopers LLP, 2014). A number of worldwide conferences per year could not be found but they might exceed millions based on the number of US based conferences. While conferences use up many different resources, such as venues,

hotels or commercial materials, that have a negative environmental impact, the travel, especially by air, goes far beyond any other resources (Sarabipour, 2020). In 2019, the air travel carbon emissions were calculated for the annual American Society of Tropical Medicine and Hygiene conference. The 4,834 participants who arrived by plane, travelled in total 44.6 million kilometers which is equal to 58 return trips to the moon. The carbon dioxide emissions were about 8,646 metric tons which is equivalent to the weekly emissions of about 9,366 average American households (Bousema et al., 2020). Multiplying this with the millions of other conferences that take place in a year shows the potential negative impact that conferences can have. On average, one researcher flying from Europe to the US emits around 1000kg of CO₂, which is already more than many other individuals would emit in a year (Sarabipour, 2020).

Changing perception on climate change

Travelling to conferences comes with many benefits for academics, especially career-wise as well as the positive impact academics can have on society based on the face-to-face discussions and debates. However, does the efficiency of meeting in person to exchange knowledge and to network outweigh the inefficiency of the individual travel to a location? Many academics therefore start to reevaluate their impact and are increasingly aware of the carbon footprint they leave behind.

The fact that the numbers of conferences and academics have increased throughout the years and may continue to increase adds to the overall concern. Therefore now, we can observe academics being increasingly aware of the carbon footprint they leave behind which adds to the increased awareness of responsibility and increased desire to give back to society and create positive impact.

Conclusion of conferences now

Looking at the developments that had an impact on the conventional conference, it can be said that the purpose has shifted from focusing on the knowledge exchange and career development to focusing on the social interactions, serendipity moments, creating knowledge and its efficiency in doing so. Figure 15 indicates how the rise of technology has blurred the boundaries of the knowledge exchange and career development, in which it has become possible to exchange knowledge online as well as face-to-face, in a hybrid manner. This also impacts the ongoing process in which people now can prepare in advance and continue new relationships and knowledge exchange in an online environment. Additionally, academics become increasingly aware of the responsibilities they can have on society and the environment by providing valuable research which enhances the need for debate and knowledge creation at conferences.

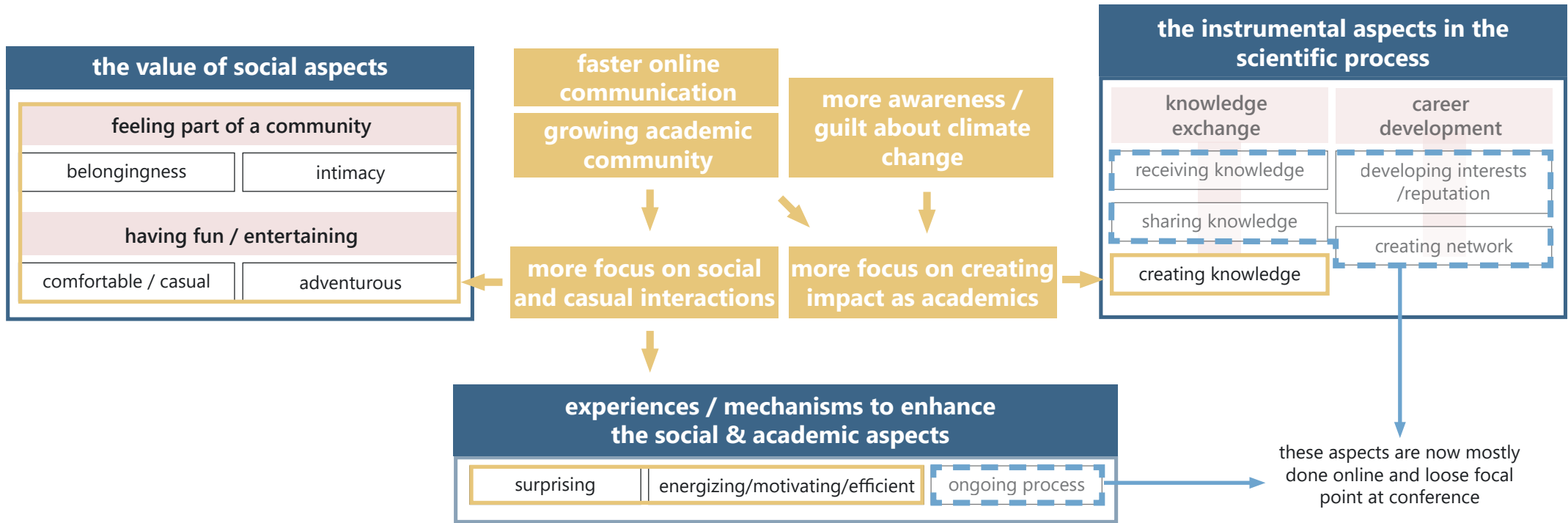


Figure 15 Conference context from now, indicating the development of more focus on social and casual interactions as well as more focus on creating impact as academics.

3.2 Conferences in the future

Now that I have clarified how the conference purpose has shifted from the past until now, I want to find out to which extend this new purpose will shift again in the future (see figure 16). In order to find out about this shifting purpose I researched into future developments and trends that have an impact on the context of academic conferences. From there additional clusters of factors were found which will make the context of academic conferences five years from now complete.

Trends & developments that have an impact on conferences in future

Before starting to research and collect trends and developments, a few domains have been defined that can impact the future context of a conference. The domains that I have researched in are:

Pandemic impacting work-life balance and sustainability

Technology, including online engagement and hybrid spaces

Inclusion, diversity and equity

The following paragraphs summarize the most valuable insights in these domains.

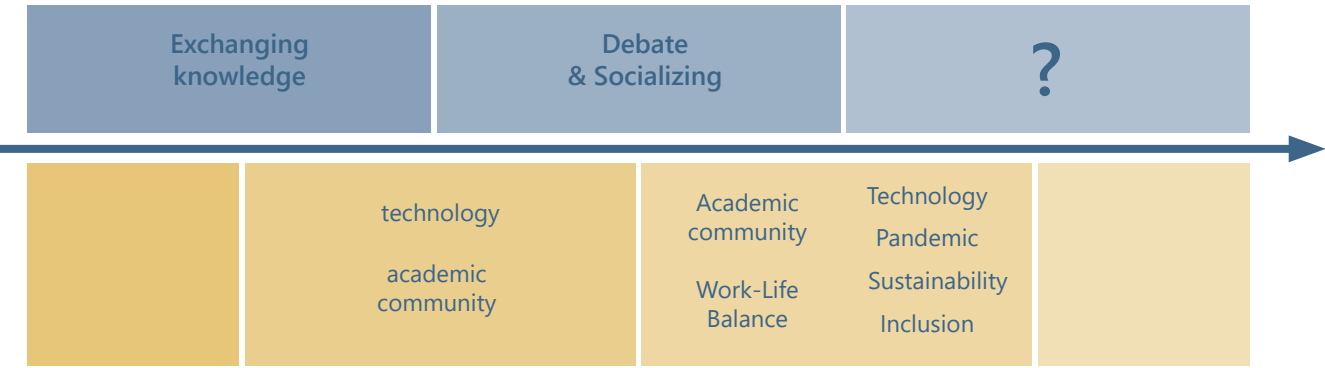


Figure 16 Timeline indicating the shifting purpose of the conference due to developments and trends.

Pandemics impact	Inclusion	Technology
Embracing flexibility and freedom in work arrangements	Inclusion/diversity/ equity	Future communication through technology
Hybrid living	Inclusive design	Data visualization
Increasing self-care and self-production	Meaningful design: More impact by blurring boundaries and seeing what we make	Online engagement
People stay closer to home		Current solution space of online / hybrid events
Data and technology for monitoring the impact		Advantages and disadvantages of face-to-face and online interactions
Circular economy – consuming, giving back & transparency		

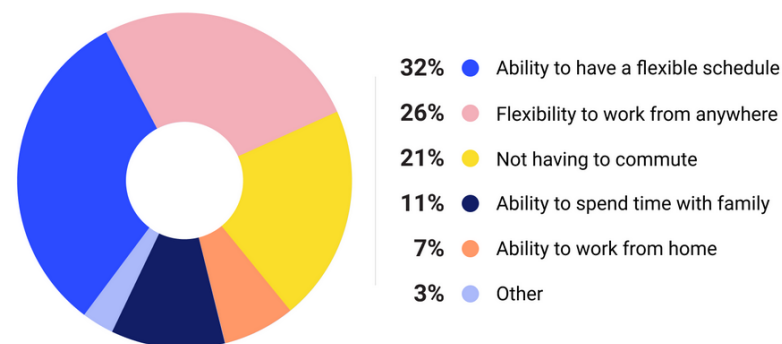
01 Pandemic impacting work-life balance and sustainability

The pandemic has been and still is an eye-opening experience for all of us. It has forced us to change our habits and the way we managed our lives, which resulted in some moments of realization.

Embracing flexibility and freedom in work arrangements

First of all, our work-life balance has been immensely impacted due to the pandemic. Now as well as in the future, we will continue to embrace more flexibility in the way we work and live. Since the start of working remotely due to the quarantine, people have realized that it is not needed to travel to work every day physically. Instead, working remotely has added value in having this extra flexibility in time and scheduling management. According to Volini (2020) people would like to continue to work remotely at least a few days a week as it gives them more freedom in managing their schedules and allows them to spend more time with their family, for example. Figure 17 shows the main reasons to why people like to work remotely. A recent study indicated that their work-life balance and therefore their happiness has significantly increased in employees that have more autonomy. In future, the balance at work is supposed to have more to do with the energy that employees bring (instead of hours worked) due to more self-shaped freedom (Gourani, 2019). Especially the younger generations want to be able to design their own career. We are likely to continue to move away from a 'one-size-fits-all' mentality and embrace the ability to tailor work environments as well as well-being efforts to the individual needs.

What's the biggest benefit you see to working remotely?



State of Remote Report 2020
buffer.com/state-of-remote-2020



Figure 17 Pie chart indicating the most important reasons for people to work remotely. (Buffer State of Remote Work, 2020)

Hybrid living

With the increase of remote working, there will also be a rise in hybrid living in which we blend virtual and face-to-face interactions. Kretchmer (2021) argued that there will be more local hybrid offices in future such as neighborhood remote working spaces, closer to home, where people can go for working remotely. Being at home comes with many convenient benefits, such as saving time, stress and carbon emissions that would normally be wasted on often unnecessary travelling. Also, a part of our social life is might move online, which includes more virtual events (festivals, office work, workouts, etc.), apps to socialize, online friendships and zoom call comfort and aesthetic of clothing at home (Figueiras, 2021).

Increasing self-care and self-production

Additionally, the pandemic has taught us to take care of ourselves. Well-being and mental health have become a priority in the new 'people-first' culture, within the work environment as well as at home (Dutta, 2021). This also includes DIY self-improvements in which our homes help us improving and focusing on ourselves.

People stay closer to home

Besides the increased attention and shift of values in the work-life balance, also sustainability continues to be a focal point in future. The pandemic stopped big consumer travel for a while, and we can expect people to continue to decrease the amount of travel in future (Figueiras, 2021). The pandemic has also made us realize to be more responsible and take issues more seriously. This results in people staying closer to home and becoming more open-minded towards local-based exploration. People start being more aware of their impact and want to reevaluate their decisions based on the impact it has especially on the environment. As previously mentioned, the Swedish word-invention 'flygskam' (feeling guilt or shame for flying) is one example that indicate our future shift in values (Bouwers, 2020).

Data and technology for monitoring the impact

Data and technology are expected to play a significant role in monitoring our impact such as on the environment in order to help us to become more responsible and sustainable. Not only large organizations and governments will have technology available to track our carbon footprint, but also individuals from the general public are increasingly starting to track their impact through apps (Bearne, 2021). These apps help to create more awareness of one's impact to eventually live a more sustainable live (see figure 18 as an example).

Circular economy – consuming, giving back & transparency

Nowadays, organizations actively attempt to achieve a carbon neutral world. In future this is expected to grow and go beyond neutral, in which companies want to create an environmental benefit through a climate positive plan. If we as consumers use up resources, we need to give something back to the environment (principle of circular economy) and to help elevate reversing the climate change it should be more than just neutral (Figueiras, 2021). This also fits to the rise of '360-degree brands' that focus on being fully sustainable, without any hidden baggage, to be completely transparent and trustworthy to the customers.



Figure 18 Svalna, a Swedish start-up created a carbon-tracking app to foster responsibility (Gandhi, 2020).

02 Inclusion

Inclusion/ diversity/ equity

It is known that diverse and inclusive organizations are more likely to exceed in achieving creative and innovative environments. Inclusion, diversity and equity is expected to be a large focal point for organizations in which employers focus on making everybody feel comfortable and be able to act their authentic self. With the growing gender diversity, an aging work force with more generations working together as well as with the racial diversity continuing to blur and grow up to 74% in the next 40 years in the USA (compared to 1% growth of the white population), it is needed to create emphasize on working towards an equitable environment (Peterson, 2020). Throughout our lives all of us have developed unconscious biases based on the way our brain functions and translates our experiences, the stereotypes we grow up with or personal beliefs. Unfortunately, many organizations still try to only 'tick the boxes' in achieving an inclusive and diverse environment without actually nurturing the individual abilities and psychological safety (Thompson, 2020). Therefore, we need more focus on creating safe spaces that are adaptive and hackable to meet everyone's needs. This starts with understanding the individual needs and making the voices of everyone heard through a well-tailored environment (Bridges, 2021).

Inclusive design

Heylighen et al. (2020) highlight how spatial organization can create social interactions while people may require different needs of being together or apart: "Our cross-study analysis highlights, firstly, the diversity of reasons why people attach importance to balancing proximity/connectedness with retreat/privacy." Figure 19 (next page) shows an example of the outcome of the study with a range of spaces that take into account different needs of being together as well as being apart, for example through little 'retreat corners'. These were physical spaces, but how could this look like in a virtual or hybrid space? More designs will take inclusiveness into account in which we understand that people are unique with different abilities and therefore may require different outputs through flexible designs for more accessibility (Sharp, 2020).

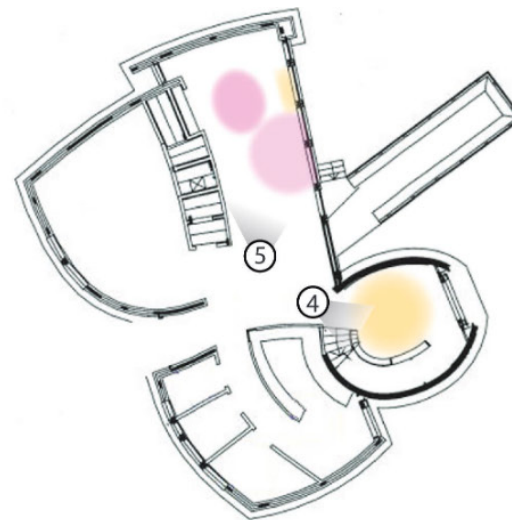
**Meaningful design:
More impact
by blurring
boundaries and
seeing what we
make**

Meaningful design also means for academics to “go beyond academia and mere speculative proposals to become a catalyst for relevant and concrete social contributions, a meeting point where design, the human being and those issues are truly meaningful to individuals, cultures and societies.” (Jacob-Dazarola; de Francisco Vela; Rognoli, 2020). This means that the boundaries between different areas of knowledge will continue to blur in academia but also beyond academia. It is important for us to understand interconnections to other fields of interests but also reconnect with professions outside of academia. Another aspect of meaningful design is the way we experience our contributions. Jacob-Dazarola, de Francisco Vela and Rognoli (2020) mention the importance of emotional involvement and enhancing meaning for the creators themselves in which ‘self-production processes favor a lasting attachment to what it creates’. We can understand from this that people and their contributions feel more meaningful to them if they are able to see, feel or experience their own part of the impact or contribution.

Maloney and Freeman (2020) argue that social VR offers great opportunities to experience each other’s cultures as well as fostering a sense of belongingness through group events in which people are able to socialize and get and give feedback afterwards for self-improvement. In future there will be much more customizable activities offered through algorithms that categorize people by their interests and preferred activities which will also help them find more efficiently their “birds of a feather”. Instead of staying connected only in a virtual world, there is expected to be more possibilities to continue communication both inside and outside VR which will help in sustaining meaningful friendships. An increasingly crowded virtual space, however, will challenge the ability to make meaningful connections. Through a traffic flow the sense of connectedness and belongingness can often be lost (Maloney and Freeman, 2020).



Maggie's Dundee, center for psychosocial cancer care, Dundee (UK) designed by Frank Gehry
Left: Library nook near entrance
Right: Kitchen
Photos: Valerie Van der Linden



Open-floor plan offers places for retreat (e.g. library nook) without losing connection with more active areas

- Library nook offers quiet spot**
- To observe center when visiting the first time
 - For more private conversation

Different seating options in kitchen (bar stools, bench along edge, chairs) allow different levels of participation in conversation

Figure 19 Example from the research Room for being together - How spatial organization affords social interactions across different contexts (Heylighen et al., 2020).

03 Technology

Technology has not only impacted the way academics communicate with each other in the past but will also continue to impact and change interactions in the future. To create a future picture of technology I have looked at current online engagement and hybrid spaces as well as trends that have an influence on the communication in the future.

Future communication through technology

As an introduction into technology, I have investigated how technology has changed the way people interact and communicate to each other and to technology. Subsequently trends of how technology is expected to develop in future were investigated.

We are living in a digital age in which technology has played a central role to impact and change people's communicative behavior (Evans, 2020). Technology has helped people to communicate much more efficiently due to texts and e-mails. Often, it is not necessary to have phone calls or face-to-face interactions anymore. While there is certainly value to more efficient communication, the unexpected outcomes of spontaneous face-to-face conversations are often lost nowadays (Leonard, 2019). Furthermore, the change from writing letters in the past to sending quick e-mails and texts today, has made people become more informal in communication. This casualty in communication also on professional basis could be enhanced in future in which people are likely to seek for more personal and casual interaction with each other. On top of this, the traditional static and one-way communication, like in e-mails, is diminishing. Now, also social media networks offer multiple ways of communicating to each other: 'Broad user power and flexibility have changed how people engage in and experience their interconnections, interests, and collaborations' (John et al., 2008). The growth of social media platforms also enables people to reach the world and specific communities much easier. Social media participation can be very dynamic in which people can choose how to communicate and reach other people which led to a multi-way communication (posts, private messages, stories, etc.). Also, the added visual representation of communication has changed the way we understand each other. Face-to-face communication is seen as multimodal in which people are fully immersed and make use of all senses to create a complete image of the social and linguistic meaning. Emojis, for example, have been created for people to be able to express their feelings and gestures, making communication more understandable, casual and emotional (Evans, 2020).

Saunders (2021) argues that while in the past technological communication has highly impacted people's way of living and acting, in the future technology could be much more adaptive to people's way of acting and living. A smart doorbell, for example, allows people to answer and look who is by the door from wherever the house owner is located:

"Such emerging applications that allow people to project their senses from a distance are underpinned by intelligent and immersive communications between people and technology. This is being helped by a general shift in the design philosophy from people having to adapt to technology (for example through the design and use of the keyboard and mouse) to systems that are adaptive to the natural way human communication takes place in a face-to-face conversation or interaction, such as adjusting to tone of voice, accent, etc." (Saunders, 2021). Therefore, it is expected that humans and technology will merge much closer together in which humans adapt to technology as well as technology adapting to humans.

Also, in terms of communication, the pandemic has a great impact. One of the biggest changes due to remote and quarantine life is the increase of humans' empathetic awareness, as mentioned previously. This can also impact the way we communicate to others in future. Kraus (2020) stated that 'humans have become hyper-aware of their emotions and how their feelings are coming across to others, which is why it is vital for humans to improve their soft skills and emotional intelligence in order to maintain deep connections with others'. This is because social distancing and constant remote communication might have a long-term impact on humans in which we might interact more distant to one another even in person (Kraus, 2020).

The pandemic has also impacted the way that we cooperate with technology. Due to an increased reliance on technology, there is generally less resistance expected towards new technology in near future giving new interventions a higher chance to settle (Saunders, 2021).

Lastly, interaction and communication can be much easier tracked through modern technology (Leonard, 2019). Earlier, I have spoken about tracking someone's impact in terms of sustainability with the help of technology, but also other types of activities can be tracked nowadays. For example, e-mails, texts, or meeting recordings can be followed back for further review of what has been discussed. The communication and interactions (also social interactions) are therefore deeply anchored through traces of technology in certain contexts, creating one big network.

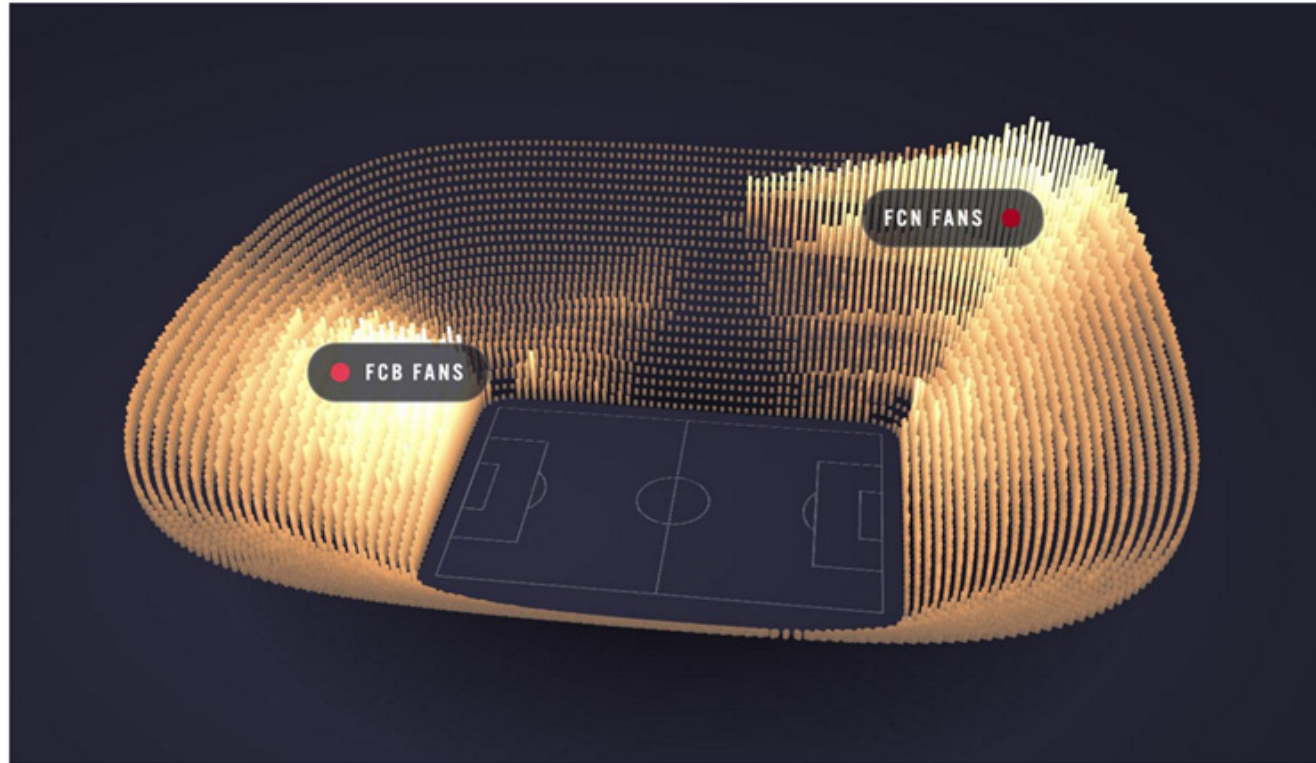


Figure 20 The Economist produced a series of interactive 3D visualizations that show how FC Bayern reacted to their team during a match with FC Nürnberg (Bowers, 2020).

Data visualization

Data visualization is one of the most efficient ways to picture a complex problem in a detailed and understandable way. Data visualization is expected to become more human-oriented in which alternative methods are used such as photography, 3D modeling, mixed-media collage, and DIY animation (Bowers 2020). With this they will not only become more immersive for the audience, but also real-time insights can be immediately communicated. With more realistic and intuitive visualization, this way of communicating can enhance the clarity and interaction with information (Haroon, 2020). Not only visually, but also sensually, through haptics, data can be experienced in new ways for communication and immersion. Next to making data visualization more immersive through sensual means, it can also be a great way to engage the audience by making them see that they are contributing to an issue (Wolff, 2021). Already today polls and surveys are used in online meetings in which people can see their own part or impact within a context, making people feel part of a bigger picture (see example in figure 20).

Online engagement

Next to data visualization, that can provide space for online engagement and immersion, there has been a number of other trends found that will have an impact on enhancing the online engagement.

The pandemic has accelerated the development of online tools to cooperate with one another at a distance and many companies, such as MeetingPlay, EventMobi or Slack, provide clients with new solutions on online collaboration. In event management, cooperation with different companies, such as online platforms, will be a key factor in creating successful virtual and hybrid events (EventMB, 2021). According to the EventMB studio team (2021), an online platform for trends in event industries, virtual reality and the use of gamification will be increasingly implemented for hybrid events. Joe Schwinger, CEO of MeetingPlay, explains how in their designs 'user-generated content and subject matter expert become a part of the show. They are doing it in a fun and exciting way where people can vote, and it becomes a battle' (2021). It is also worth looking into other domains to be inspired by their way of engagement, such as escape rooms. Escape rooms create different forms of immersion for engagement (Warmelink et al., 2017):

systems immersion

engagement with mechanical/puzzle systems in a game

spatial immersion

a sense of presence in a location

narrative immersion

a compelling interest in the sequence of events

social/empathic immersion

a feeling of connection to the in-game characters and/or fellow players as a result of the gameplay activities

A narrative immersion can also be found in event such as conferences by providing an event theme and with this take the audience through the experience in a storytelling way (Wolff, 2021). The definition of spatial and social immersion at conferences has opportunities for new solutions in future with the help of technology.

Current solution space of online / hybrid events

We have understood that hybrid and online cooperation is very likely to be embraced in the next years. Many conferences had to be turned into online or hybrid events due to the pandemic. I have investigated what platforms and tools organizations currently use in order to create an interactive space for people to exchange their knowledge. Figure 21 shows the variation of event immersion due to popular tools going from least immersive (left) to most immersive (right). Of course, there is many more platform to choose from, however, they all incorporate a similar level of design and technology that the following platforms use.

It is worth mentioning that online and hybrid conferences usually use a multi-way structure of platforms in which more than one platform is used for diverse opportunities of interactions. Meaning that conferences have consisted of a mix of speech, embodiment, messaging, and/or co-creating platforms. Figure 22, for example, indicates the structure of the hybrid conference Microbiome 2019, that has been conducted as a test event in which multiple platforms are arranged within one network for communication (Fulcher et al., 2020).

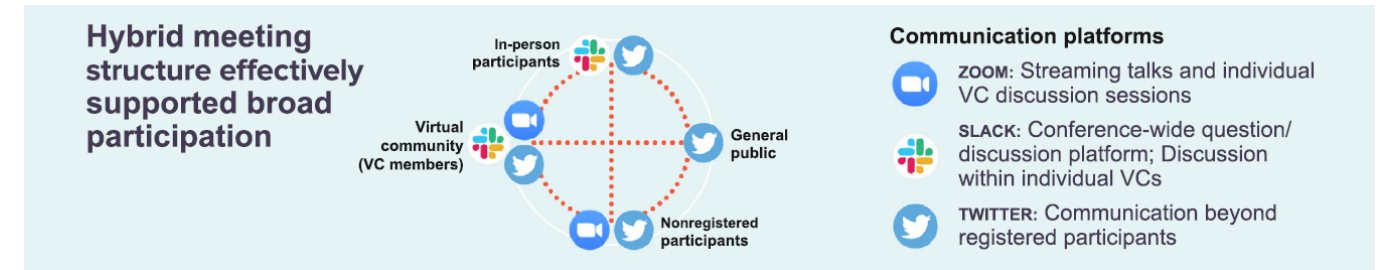
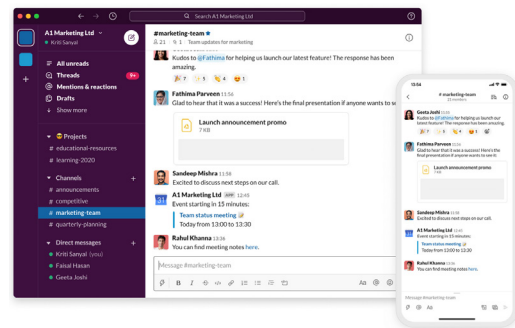


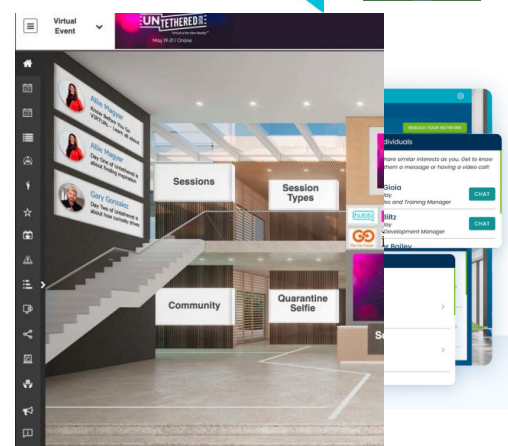
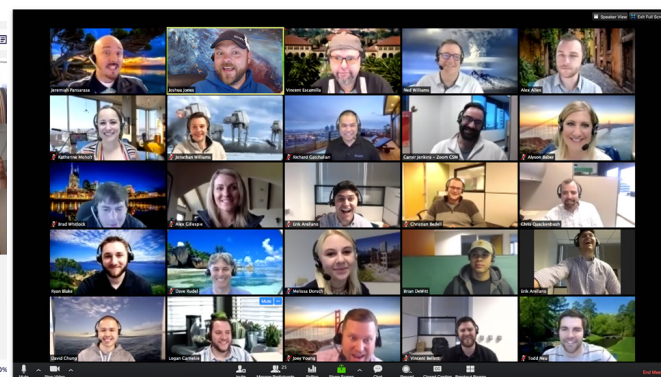
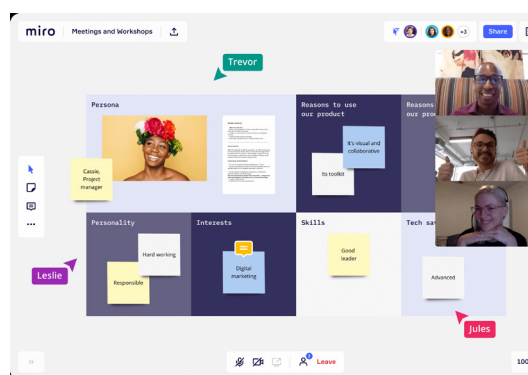
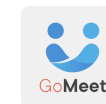
Figure 22 A hybrid meeting structure, showing the multi-way structure of different platforms.



moderator



gather



MeetinVR



Figure 21 An overview of platforms that are currently available for online and hybrid interactions. The immersion ranges from least to most immersive (left to right).

Advantages and disadvantages of face-to-face and online interactions

Literature investigating hybrid spaces and comparing the needs of virtual and face-to-face attendance at events suggest taking into account advantages and disadvantages of both types for an appropriate trade-off. I followed up this literature research with two workshops that go in depth of comparing face-to-face, online and hybrid events with a final co-creative task of picturing the ideal hybrid event. Participant groups of these workshops were a diverse group of conference attendees that have experienced online conferences and a group of students who frequently experience hybrid courses. See appendix B for more information on the workshop setup.

"The coffee time is where network starts to be built. It's affinity, where we can really connect after thinking about the things that we were discussing formally. It's when we really build connections."

"On my first conference, I was very nervous of going and meeting new people but then I saw other PhDs and we had a workshop only for the PhDs, it was so nice, we made a PhD group and also a chatroom in the WhatsApp. It was a very nice experience of building friendships."

"Actually I find it more easy, during the whole online era to find new people. You have a lot of slack communities and because of those communities I actually expanded my network during this time because I met so many new people that I couldn't have met before. It gives you more freedom to do this during work."

Both face-to-face and virtual interactions come with its unique benefits which are in need to be balanced right if we were to be designing for a hybrid event (Fulcher et al., 2020). According to Jordan (2009) it will be a challenging act to create the 'being there' and 'being together' of both worlds in a hybrid space. An important advantage that comes with face-to-face interactions is the ability to be fully immersed in a personal and social experience that makes it easy for participants to have the feeling of belonging together in a community (Haji-Georgi, 2021). Because people are physically there, they are able to better expose and express themselves for intuitive networking and discussing opportunities leading to a much more casual experience and deeper knowledge exchange (Bousema et al., 2020; Fulcher et al., 2020; Sá et al., 2019). The workshop participants expressed how important it is for them to experience things together in groups and build meaningful friendships, real friendships in a real world and not shallow ones. Spontaneous hallway talks, grabbing a coffee together (Sá et al., 2019) or verbal and non-verbal communication (Rodriguez, 2020) can lose its light-hearted charm virtually.

Virtual experiences on the contrary come with its very own advantages. The much more structured virtual environment offers the opportunity to keep track of activities and information, thus sharing content with participants is much easier on an informational level (Sá et al., 2019; Spilker et al., 2020). According to the EventMB studio team (2021), virtuality offers a playful space to incorporate user generated content and immediately displaying it during the event as well visualizing data and analytics (Linthicum, 2020). Spilker et al. (2020) express that events are able to 'seed and feed the community with the learning or the particular concern by collecting data on the conference after the event'. Workshop participants have expressed that people are more used to online interactions due to the pandemic and it is easier to connect with others. Communities on slack have been created and it does not seem 'weird' anymore to meet for a virtual cup of coffee and to have a quick chat during work. It gives people more freedom over who to talk to and when to do so. Students have indicated that they have worked and co-created much more efficiently when working online, due to the vast variety of online

"My group projects actually went quite well online. You are directly communicating and you have all these helpful tools like miro."

"A disadvantage could be for people that are not so much into socializing, that would not be such a fun experience."

"The relations are more fragile. They are less deep, superficial. We have different cooperations, for instance, with different institutions all around the world but we've built those connections in physical conferences not the virtual conferences."

"Now I have to ask, I have to ask for people interaction. There is a vast quantity of people that don't even open the camera. That is horrible for people that are presenting."

tools in which content and information are structured and logged for easier review later in the process. Furthermore, online events offer people more flexibility in attendance, in which they can be included despite busy schedules, sudden illness or not being able to travel, for example. This inclusive structure helps to foster equality and diversity in an event for more diverse and creative input.

But also, both face-to-face and virtual interactions have its own challenges. While online and hybrid attendance offer great opportunities for efficient content, data and knowledge exchange, as previously described, face-to-face conferences are lacking in having access to all the content in a structured overview and being able to review it. It is also much less inclusive, as it requires attendants to travel and work around busy schedules or other sudden inconveniences. One participant has mentioned that socializing can be challenging in a face-to-face set-up for people that are shy, as well as, when many people already know each other and tend to stick in their groups of acquaintances.

A virtual environment comes with specific challenges that also previous research has investigated. The role of social design becomes even more important for virtual interactions in terms of inclusiveness. Social relationships are fragile in an online environment. Participants have explained how they did not feel like they have made deep and meaningful friendships yet through online interactions. Linthicum (2020) argues 'to create something in the virtual environment to give participants a reason to be there'. FOMO, the fear of missing out, can be much more amplified when people are joining events from their laptop screen at home (EventMB, 2021). The experience needs to be especially engaging in which everyone has a voice with formats that are kept short (Rodriguez, 2020). The content becomes more important to keep viewers engaged, unfortunately many participants have expressed the lacking quality of presentations and the struggle of paying attention to the event from a laptop screen. The EventMB team (2021) takes Ted talks as an example, in which much more work is put into the content and structure of a presentation. The workshop attendees have expressed a feeling of awkwardness and confusion when presenting to a laptop screen without seeing other people. In a virtual conference you miss a lot of the two-way interactions, such as seeing other participants reactions and body language instantly.

"Because I think my biggest struggle with the everything online is that it's never smooth and that's. Really annoys me like everything is, you have to wait until everyone is silent and then you can speak etc. I want that it feels kind of real that it feels you're in this space more than just sitting and waiting until it's your turn to speak and awkward stuff. that is more smooth flow. Flowy."

Figure 23 shows two moodboards of participants visualizing their ideal hybrid experience. In response of the annoyance of constant technical issues and one-way communication which makes it more exhausting, the student reversed this experience to a smooth flow and a peaceful mind as well as being able to feel virtual connections as 'real' (left moodboard). The conference attendee that made the second moodboard (right) expressed the importance of finding and being able to connect with people on a certain level, such as a shared vision, and be able to find and connect with people after a conference. Because a conference offers so many different activities, which can be quite overwhelming, the participant would like to have more guidance and be notified about their schedule through modern technology. It was important to have a certain degree of freedom in which it is possible to see different presentations or parts of different activities, instead of feeling stuck in one room.

"I want to get inspired: have the freedom to see this one or that one of all the presentations given."

"I'm so overwhelmed of all the impressions and all the things that you can do, so I really liked it if someone just says: ok it begins there, you want to be there. So please get there now. And also get a list of viewers or the people that you met because then it is easier to connect."

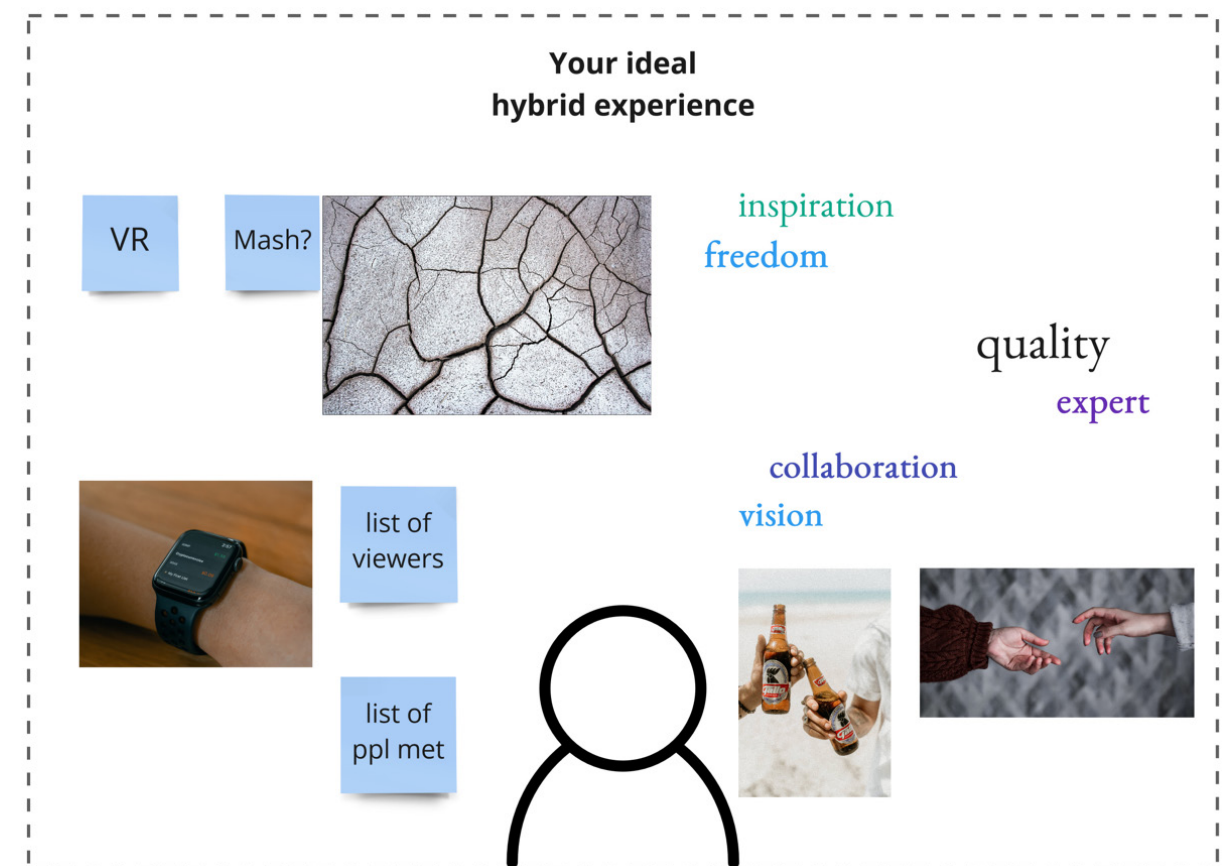
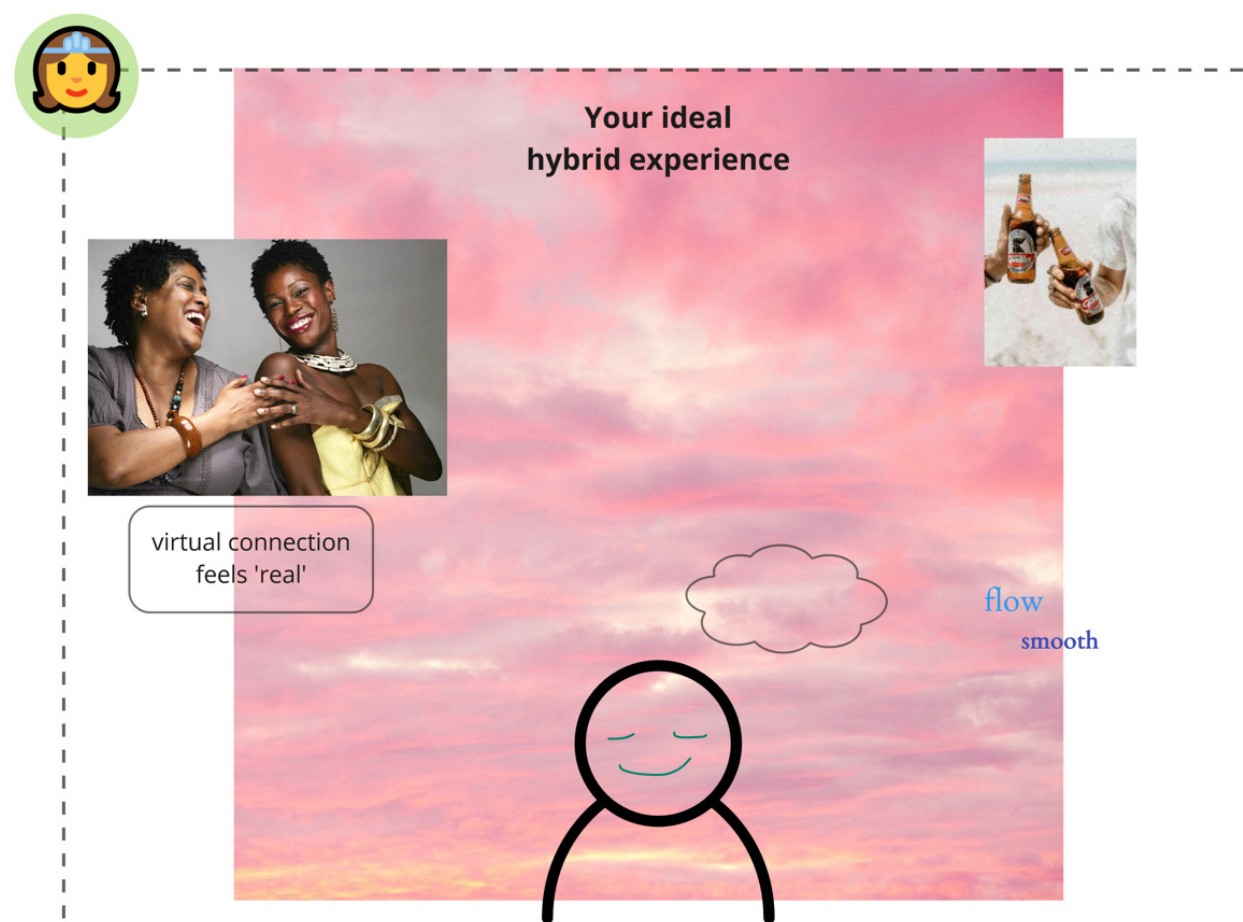


Figure 23 Two collages of participants during the workshop for a hybrid experience. Left is the collage of a student. On the right side is a collage from a design researcher.

Figure 24 indicates the advantages and disadvantages of face-to-face and online participation. It is visible that pros and cons of both interactions are almost mirrored and reversed, in which face-to-face interactions offer great experiences for engagement, immersion, socializing or discussions, while online interactions offer great opportunities in having a structured content, knowledge and data exchange and visualizing this as a clear overview. For a more detailed look into the pros and cons, see appendix C for the miro board link.



Figure 24 Structuring insights from the research of advantages and disadvantages of face-to-face and virtual participation.

The Future of Academic Conferences – Clusters of Exploration

After having researched into the different domains that influence the future context of the conference, I have structured the individual factors into new clusters (see figure FIXME). These clusters will have an impact on the core conference context, that I have defined previously. The following paragraphs will present each cluster individually, so that the complete worldview can be discussed in the design brief (chapter3).

Academic conferences and their communities have slowly changed throughout the past decades and will continue to change in future. In figure 25 I have shortly indicated in yellow the changes that have already developed until now within the context of academic conferences (see chapter 2.4). These developments and other future trends together impact the final three clusters that change the context from a traditional one. In future, I see these three clusters emerging and impacting the traditional context of scientifically progressing, socializing and experiencing those things. The first two new clusters consist of academics’ becoming more aware of the impact they can have on climate change and on the society as well as the increasing awareness and relevance of inclusion. The awareness of impact and inclusion has been frequently reoccurring throughout my research within different domains. This growing sense of responsibility can be enhanced through innovation and technology, which forms the third new cluster to change the core context.

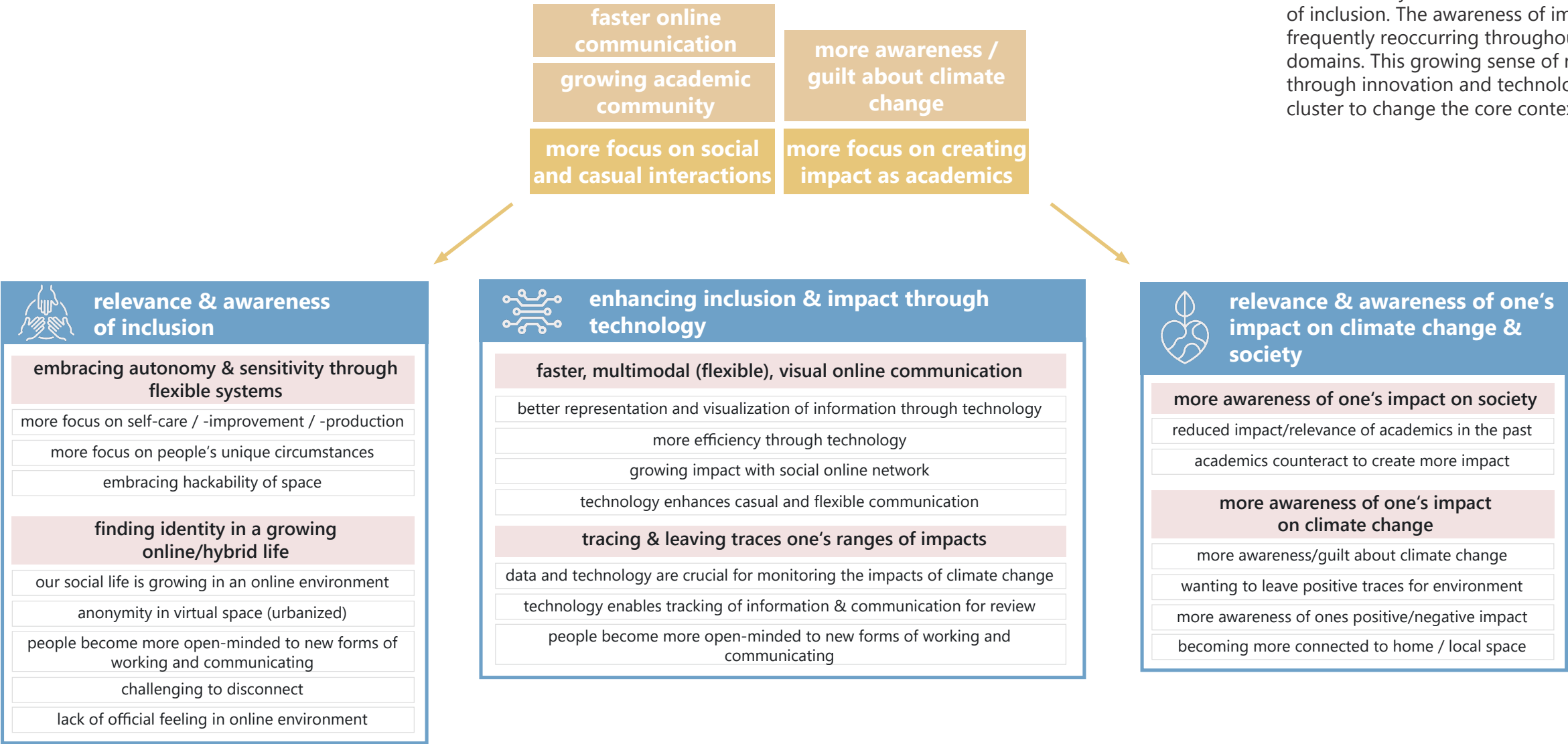


Figure 25 Three emerging clusters from the exploration into the past, present and future of conferences.

Relevance and awareness of inclusion

First of all, I see people embracing more autonomy, sensitivity and casual communication through flexible systems (see first sub cluster in figure 26). As mentioned earlier, the pandemic has played a big role in making people more sensitive towards people’s well-being, which developed into a people-first culture. This incorporates an increased awareness of selfcare including mental health, wellness, self-improvement and -production, as well as an increased awareness of other people’s health. That also means that people will be more aware of the individuals’ unique circumstances. Organizations will actively maintain an inclusive environment where everyone can be their authentic self, which also applies to an online work environment. Additionally, because online communication constantly evolved over time from one-way and formal interactions (letters, e-mails) to multimodal and casual interactions (social media/chats/video calls), I see people continue a casual communication in an online and offline environment. These previously mentioned aspects are highlighting a higher demand of managing and maintaining self-government over people’s lives. People that embrace autonomy over their lives are generally more satisfied. In response to this growing demand of autonomy and valuing each and every individual with their unique needs, people could be looking for flexible and hackable spaces which they can use and shape themselves according to their needs. The research has provided us with many insights indicating that people are looking for embracing flexibility in their schedules (e.g. remote working, hybrid neighborhood offices, online technology). The increased creation of flexible spaces in future, especially online, enables people to feel welcomed and comfortable which supports inclusive behavior. We move from flexible and casual physical workspaces to flexible and casual online workspaces.

Secondly, since the pandemic, people have become much more open-minded to new forms of working and communicating, leading to a hybrid lifestyle with parts of our working and social life moving online. As our social life continues to grow online, with more and more alternative opinions and people trying to have a voice in an online environment, it will quickly be overcrowded and turn into an “online urbanization”. This online space is up 24/7 in which it is hard for people to disconnect from. While people are more confident in an online environment, the online crowds also hinder people in exposing their unique identities as well as making new friendships and meaningful connections on a deeper level. Online micro group communities help in bringing back a sense of belongingness in which people can experience even the most essential activities together and share their thoughts.



Figure 26 Factor clusters and sub clusters to the main driving forces of relevance and awareness of inclusion

Relevance and awareness of one's impact on climate change and society

In the past decades, the rise of technology which meant more communication online in much more efficient ways, led to instant access and exchange of a wide range of information online. This challenged the relevance of academic knowledge. Besides this, the growing guilt on climate change and wrongfully designed products in the past, resulted in design academics pushing forward their consciousness of responsibilities in society by focusing on creating knowledge together and reengaging with the public and governmental institutions.

In future, I see this awareness of one's individual impact continue to grow. There is a general shift in people reflecting more on their own actions. Academics are reaching outside their academic bubble to reconnect with the public and make their research more meaningful and useful. Furthermore, after having lived through the pandemic, people have realized what happens if they do not give attention to serious issues. The urge to slow down climate change is growing, and people increasingly feel ashamed for taking poor environmental choices. Therefore, many people have started to keep track of their own carbon footprint to be more aware of what their individual impact is but also try to cut unnecessary carbon emissions. The growing awareness of climate change makes people become more connected to their home and local space in which local activities, attractions but also businesses receive more value and attention.

Overall, people become and want to continue to become more aware of their individual impact they have in a certain context. That does not only take into account tracking negative impact they have, for example on the environment, such as the carbon footprint, but also highlighting positive impact they have when engaging with issues, for example tracking their ideas, the level of their productivity or the engagement with an issue.



Figure 27 Factor clusters and sub clusters to the main driving forces of relevance and awareness of one's impact on climate change and society (affecting instrumental aspects in the scientific process).

Enhancing awareness of inclusion and impact with technology

With people becoming more aware of their impact and wanting to impact the world in a positive way, technology will be the main enabler to help people monitor their impact as well as highlight the traces they leave behind for others and themselves to see and interpret.

Knowledge exchange (sharing and receiving knowledge) has long been more efficiently through technology due to better becoming internet, and the creation of platforms in which people can engage with each other remotely.

In future, modern technology can also make the knowledge creation more effective due to an increased number of tools for engagement and tools for logging data, creating the ability of immediately accessing, applying and being inspired by generated content. I see technology being able to create a huge network of traces made of activities of any kind within the eco system in this world. Networks help us understand the context better and be able to get a quick sense of any kind of situation. Technology will be much more efficient in tracking activities such as information exchange or generated content and is able to visualize this in an interactive way for people to grasp and understand quickly. In this way, technology is helping us to better represent and visualize data and at the same time inspires or triggers ideas in people, supporting the process of innovations. Because people live their lives more flexible, remote working will be a part in enabling their desire for more autonomy. The increase of multimodal human-computer interactions helps people embrace the flexibility but also to be more immersed and engaged with an issue in richer and efficient ways. This means that there are further innovations made for the input and output of data and more senses used, such as touch, speech, or gestures.

Also, the social life could be enhanced through technology. Because people pay more attention to individuals' feelings and emotions, as previously stated, I see technology helping people being able to embrace their feelings also remotely in future. While in the past emotions could often be lost through technology such as remote communication (e.g. chats), there will be more ways than just the emoji to express ourselves to others visually. Soft skills and emotional intelligence have been constantly improved since the pandemic. Also, the social network and connections are growing.

Enhancing inclusion and impact through technology

Tracing and leaving traces one's ranges of impacts

Leaving traces through technology

Data and technology are crucial for monitoring the impacts of climate change.

Technology enables tracking of information & communication for review.

Social online interaction will be rooted in contextualized traces we leave wherever we want to. Social online interaction will be mobile and immersive interaction.

Social networking sites have changed user interactions on the World Wide Web from a static, one-way, consumption model to a dynamic, multi-way, participation model.

People become more open-minded to new forms of working & communicating

Living in a digital age: technology is transforming the ways we communicate with one another, and interact with the world around us.

Increased reliance on technology during the Covid-19 helps adoption of new technologies by lowering people's resistance to technology.

The pandemic has pushed people to live hybrid from which they will not move back to the pre-pandemic state.

With the pandemic the community is ready to embrace new forms of attendance.

Faster, multimodal (flexible), visual online communication

Technology enhances informal/casual/flexible communication

Modern technology adds to people communicating more informal to one another.

Humans have become hyper-aware of their emotions and how their feelings are coming across to others. As we settle into a more remote life, it will be vital for humans to improve their soft skills and emotional intelligence in order to maintain deep connections with others.

Multi-modal communication creates a richer engagement.

The next evolution in human-machine communications is the design of systems that are even more adaptive to the natural way in which humans communicate and work, with an enhanced quality of experience in terms of immersion and reality.

Better representation and visualization of information through technology

More creation of exciting visuals and alternative methods (like photography, 3D modeling, mixed-media collage, or DIY animation) to deliver human connection and more clarity.

Physical and digital are intertwining for creating natural feeling of offline presence.

Physical and digital are intertwining for creating natural feeling of offline presence.

Immersive digital environments are evolving with possibilities of adding additional senses.

Increase in forms of representation of multimodal system of communication (e.g. emoji).

More efficiency through technology

Algorithms will be a more convenient and efficient way for people to find their „birds of a feather“ online.

People look for products and services that work consistently, save time and ultimately increase comfort with more intuitive and natural interfaces.

Growing impact with social online network

Growing social media (networks) allow users to communicate with and reach networks of people.

Faster (online) communication

More moments of knowledge exchange through online technology

It is easier to follow people and give/receive responses or feedback instantly.

The information that academics can share online has increased and is more in depth due to band width & internet.

Nowadays, you can connect and share virtually through social media, giving it another level.

People develop less out of sight with internet era (more insight into process and work in progress).

Figure 28 Factor clusters and sub clusters to the main driving forces of enhancing awareness of inclusion and impact with technology.

Conclusion

This chapter investigated the development of academic conferences until now and recent trends and developments that might indicate how conferences should change in order to responsibly match with future societal and environmental values. I would like to conclude this chapter by referring to my initial research questions (as stated in chapter 1.7 and answering these based on the findings that have been presented.

How should the interactions at the conference change in future based on new needs and values?

Developments within the (academic) society and their lifestyle as well as sustainability, inclusion/diversity, technology, and online engagement suggest a need for change of conferences. The research has shown the growing desire of doing something valuable for the society and its environment in many different domains. People want to increasingly act and make choices responsibly, which also refers to the academic community, so that, for example, meaningful design, the blur of disciplines and boundaries in research or sustainable lifestyle choices become increasingly important. Because of this, conferences should be a nudge for people to be inspired to do something valuable with their knowledge and research purpose to create a better future. Conferences can be a role model for its attendees to display valuable knowledge and important issues that needs addressing, which enables participants to look beyond their mere research focus and consider the bigger picture. Displaying valuable knowledge and important issues also means that conferences should incorporate the entirety of information from people, which suggests that a more inclusive environment is necessary. Inclusive, not only in terms of attendees' origin, but also psychological inclusion where people feel comfortable as well as being thoughtful towards people's circumstances. Conferences should include a broad range of individuals and a broad range of knowledge for the individuals to learn from and create new meaningful knowledge. Besides conferences acting as a role model or display of valuable content, they should also provide an environment that nourishes the need for feedback, discussion, debate or conversation at any time. This means that conference should continue to move away from traditional one-way communication formats that are still widely seen in presentations and make communication more fluid.

How can technology support the new conference format?

The research indicates that technology can accelerate the previously stated experiences. First of all, creating a hybrid set-up is the right choice to provide a responsible and inclusive environment. But to what extend should it be hybrid and what is the added value?

Because hybrid technology requires to record and track sessions and overall activities for people to follow virtually, it provides opportunity in using the tracked information and display it for others to see. That could, for example, provide more insight for people in understanding what is happening in sessions. Furthermore, AI is becoming increasingly advanced, from which conferences can take advantage in order to categorize, suggest and visualize data in an inspiring way to individuals. With this, AI can help in finding connections between content but also between people. Communication technology is advancing to more multi-modal functionality. A hybrid conference can provide opportunities for people to continuously communicate to each other and create a more responsive environment by offering different communication channels, as opposed to the one-way communication during presentations. That does not only make communication more lively and spontaneous but also enables more inclusion amongst all participants.

What should be the relation between attendees (face-to-face and virtual)? And how should they differ?

Research into online engagement and immersion indicates the vast variety that technology can offer in order to immerse people into a situation and do so in engaging ways. For example, we learned that immersion can take place on a systems (puzzle), spatial (presence in location), narrative (storytelling events) and social/empathic level (connection to other people). Conferences can learn from these different kinds of immersion to create something new through technology that engages participants on different levels.

The importance of inclusion suggests that for a future conference scenario there should be little to no difference between virtual and face-to-face participants, so that both types of attendees feel equally as included. Instead of excluding one type of participation, virtual and face-to-face should be coexistent of and learn from each other in one conference space.

Emotional and humanly communication is important to maintain, especially in an online environment, which is why conferences should take into account the humanly and lively side of people, content and communication.

Overall, this research suggests the importance to make people feel included in a comfortable and safe environment as well as make them feel inspired and engaged with relevant topics. It highlights the role that conferences can play and the impact they can have on academics. Technology, specifically hybrid technology, can take a big part in creating a more inclusive and impactful environment.

04

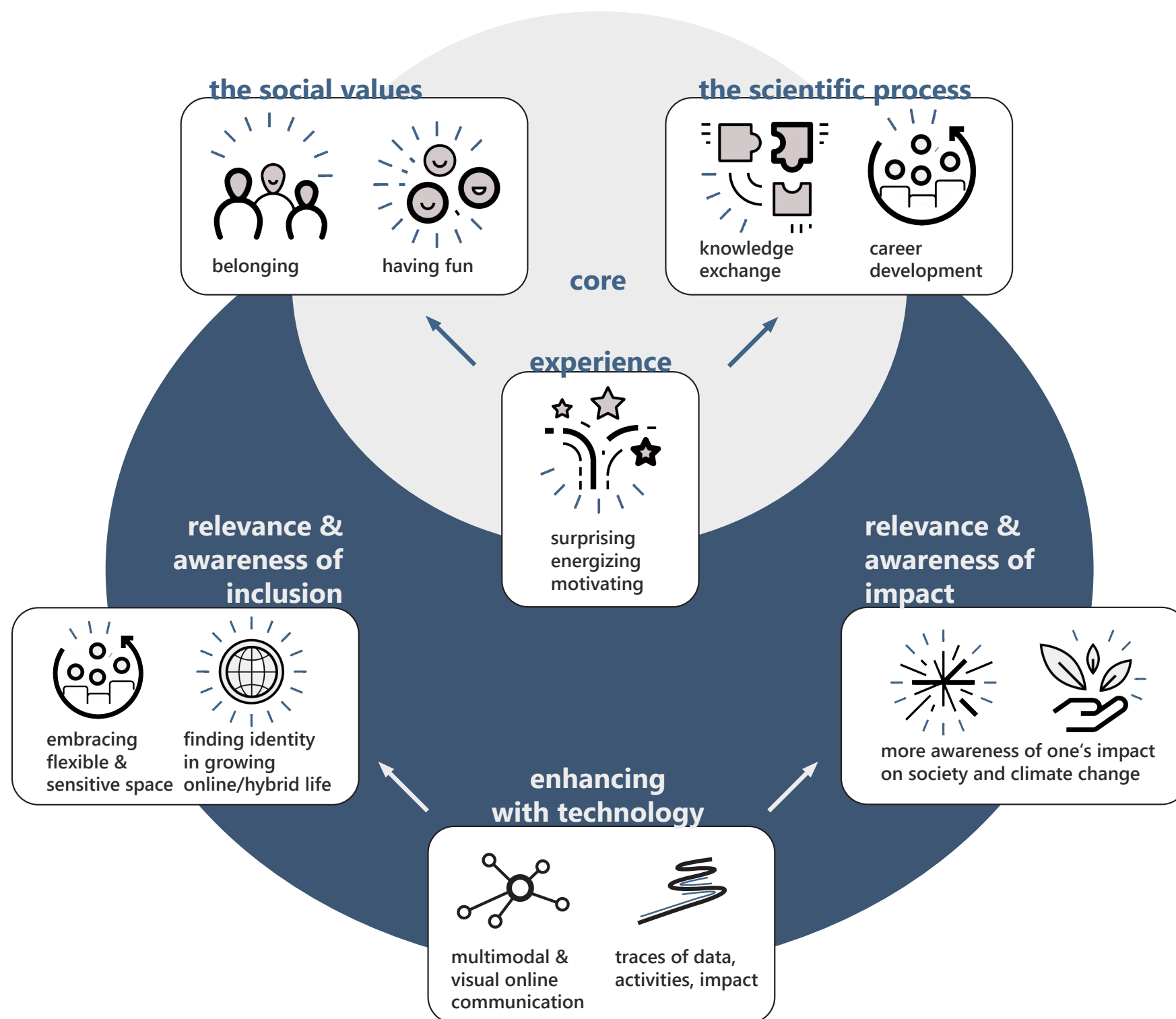
Design Brief

The last chapters gave insights into the research of past, present, and future factors that play a role in the development of academic conferences. This resulted in three main driving forces which evolve from these factors, and which continue to grow in significance in future. In this chapter, the design brief, I will indicate what this means for academic conferences in future.

How will the context of academic conferences change?
How do the new driving forces relate to each other?
What do we as academics need in future?
What do I want people to experience at future conferences?

A future worldview will be presented, which specifies how the context of conferences changes based on the new driving forces. This is followed by a statement of how I want people to experience academic conferences in future accompanied by interaction and product qualities that emerge based on the worldview and statement.

3.1 2026 - A Future World View of Conferences



Academic conferences and their communities have slowly changed throughout the past decades and will continue to change in future. The conferences core context and reasoning of existence consists of three aspects: the value of progressing in a scientific process, the value of social interactions and mechanisms that enhance the scientific progress and social interactions. With three emerging factors, figure 29 shows the context of experiencing future participation at conferences in 2026 as a whole with the core context in the center, and the new future driving forces surrounding the core.

Growing relevance and awareness of inclusion

The relevance and awareness of inclusion becomes increasingly important, especially in a world in which a hybrid life becomes common practice. As the online life is growing, it can hinder people from exposing their unique identities as well as making meaningful connections and maintaining emotional communication. With people having different needs we must look at individuals and their uniqueness to make everybody feel comfortable. Organizations will have to focus on providing safe and flexible spaces for people to shape according to their unique needs but also support emotional communication within a rising online life.

Growing relevance and awareness of impact

The desire of reconnecting to society and social problems grows. We want to do something relevant for the society and environment and therefore be aware of responsibilities and impacts that we as academics have. Societal and environmental issues enhance the need of wanting to leave positive traces behind. To do this most effectively it is important to make people aware of individual contributions and reach a wide audience for important issues as well as for valuable thoughts and ideas of others. This also means that academics' research projects are more thoughtfully considered and focus on quality instead of quantity.

Enhancing inclusion and impact through technology

Technology is the key enabler to refocus on the importance of making people aware of other people and content at conferences. It is rapidly developing in terms of intuitive communication, flexible, multi-modal systems, and more convenient algorithms. In future, it can help create inclusive spaces by being adjustable to peoples' needs, emphasizing the individuals, and representing more lively and interactive systems. Data and technology also become crucial to monitor and instantly visualize progress, impact, or individual contributions. Through this we will have the chance to be exposed to valuable information that would otherwise remain unseen.

Figure 29 Visual overview of conferences' future context.

3.2

Vision of a future conference

Conferences as we know them in this future worldview – Challenges and resulting opportunities

Looking at conferences through the lens of these identified aspects, conventional conferences as we know them do not fit in this future worldview anymore and would miss out on great opportunities that the new world brings. In this chapter, I will first talk about why regular conferences do not fit into the future context anymore and what opportunities emerge for us to reshape the conference of the future based on this. Secondly, I will talk about the challenges that arise from a hybrid set-up. With the help of these identified challenges, I will present opportunities that belong to two levels: conferences in general, and conferences in a hybrid setting.

01 Conferences in general

Sameness
Fit
Ignorant
Forgotten
Unseen

Having this restrained and stiff environment at conferences, inhibits the ability of seeing the broad spectrum of people for meaningful connections and the broad spectrum of knowledge and thought transfer for gaining insights, being (surprisingly) inspired, and creating meaningful content. Participants tend to have a restrained view of the diversity of people by attending certain sessions and sticking to the people they know. This together with a growing academic community and growing academic conferences, make it challenging for diverse people to be noticed and valued. Inconsideration in people also means inconsideration in valuable knowledge and content. It can be useful for academics to get a feel of the bigger picture and overall content that is presented at conferences in order to consider things that go beyond their own bubble for meaningful research. Again, also here if the academic community and the research output continue to grow, it challenges the visibility and impactfulness of individual contributions. The current system of conferences and universities require people to submit knowledge most commonly in shape of finished research papers to participate. This leads to quantity rather than quality of research which enhances the chance of not seeing or noticing research. The large number of parallel tracks add to this.

Restrained
Stiff
One-way

First of all, the participation at conferences can be very restraining. Conference formats are not easily bendable to fit individual needs (e.g. different schedules of people, way of communication, values) but are predefined to a certain set-up and location. Conferences do not offer a lot of variety in participation for people, which can exclude a big part of the community. People are required to submit a (finished) research paper and physically travel to a location in order to participate. At the conference itself, participants have to choose for certain sessions and completely miss out on other sessions, leading to a restrained view of the diversity of activities and knowledge that is exchanged at the conference as a whole. Furthermore, the conference has a rather stiff environment with not much flexibility for participants to interact with each other and little freedom to express themselves. One-way communication is largely present in sessions such as paper and keynote presentation, in which the opportunity of meaningful discussion and giving feedback is an afterthought.



Figure 30
Collage representing the feel
of current conferences in a
future world.

02 Conferences in a hybrid setting

Hybrid challenging the conference to be defined as one event

A hybrid format comes with challenges in which people are placed in different spaces to participate (virtual and physical). This differentiation between different types of participants can lead to creating multiple conferences of different participation groups rather than one location-blind conference where it does not matter where you are.

Lack of immersion

The immersion while attending can be challenging at hybrid conferences. Remote people are lacking on sensory orientation by not being there physically. You are not immersed into a specific room as face-to-face people would be. Furthermore, a hybrid set-up can lead to losing the general feel of all the people and content that is presented. A lot of great people and insights can be hidden within the online side of the conference.

Inequality of participation

Hybrid spaces define virtual and physical participation as separate groups of people and separate spaces. There is inequality between the people, in which participants that are not present at events can be disadvantaged by becoming passive observers of the event. This inequality of participation leads to not having the same opportunities of sharing, receiving, and generating knowledge with others.

Meaningful connections

The differentiation of participants and location in the hybrid format challenges the opportunity of connecting meaningfully to people, ideas, or spaces. Emotional communication and serendipity moments can be challenged in a hybrid environment.

03 Opportunities

Based on the research, worldview and challenges, hybrid technology together with a strategy can create great opportunities for conferences and their attendees to become more inclusive and impactful in society. Offering a hybrid space that connects all people in one common ground and doing so in a creative and inspiring way can help to engage all participants equally but also help to provide more insights into content for academics to be able to become more impactful in future.

Statement – Design Direction

I want to create a conference in which **people are exposed to** and **experience the full range of individuals and valuable content.**

With this I want people to have a feel of what is happening at the (hybrid) conference overall and have a greater chance of being more impactful in future.

Two goals – Three different levels

This statement results in having two goals in which I want to achieve a higher degree of flexibility on the one hand and a higher degree of insight and consideration on the other hand. This leads to making it easier for people to participate as well as making the knowledge creation more effective, resulting in my overall goal of creating inclusion, responsibility and impact (see figure 31). Therefore, I want to create a flexible and visual environment that communicates to people in a lively way. An environment that gives people freedom but also helps them gain insight into content, thoughts, and people to stay considerate.

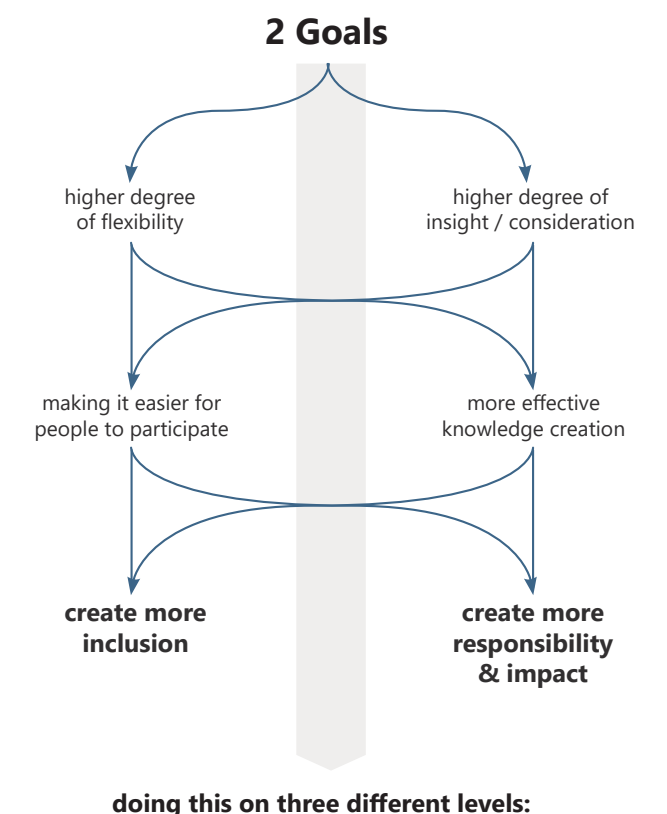


Figure 31
Two goals that are intertwined with each other and three levels that should be taken into consideration for idea generation.

Human-Product interactions

Responsive, two-way, spontaneous

Being able to respond and express themselves freely and spontaneously.

Seeing the bigger picture, Insight, individually considered

Being able to see more of what is happening at a conference and beyond in society, in terms of activities, thoughts, and people. That way we see people and content in perspective and have insights beyond the academic and/or personal bubble.

Product qualities

Flexible, lively, continuous

Overview, perspective, stimulating



Figure 32
Collage representing the feel of future conferences based on goals and qualities.

A new 'equation' for the conference purpose

The previous stated, interaction and product qualities can be categorized into different 'ingredients' that make up the new conference experience with technology being a key enabler. To have a feel of my design direction, I have placed the ingredients within an equation to understand their role and purpose. The two main sides and therefore ingredients that keep coming back within my analysis are the consideration of the uniqueness of people and having the proximity (overview) of content and people at conferences. If these two are added together and assisted with new technological interventions, we can create a new and innovative space at conference for more effective and meaningful content creation for the future (see figure 33).

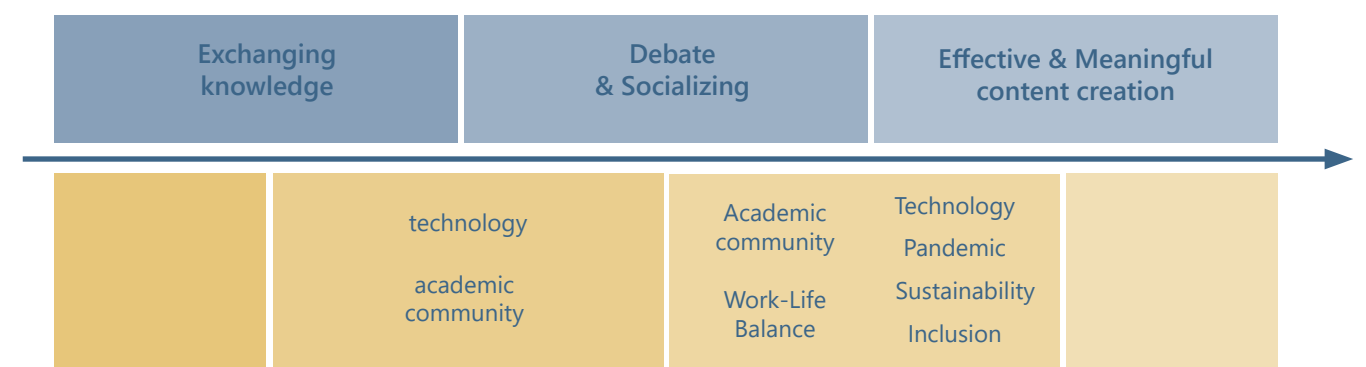
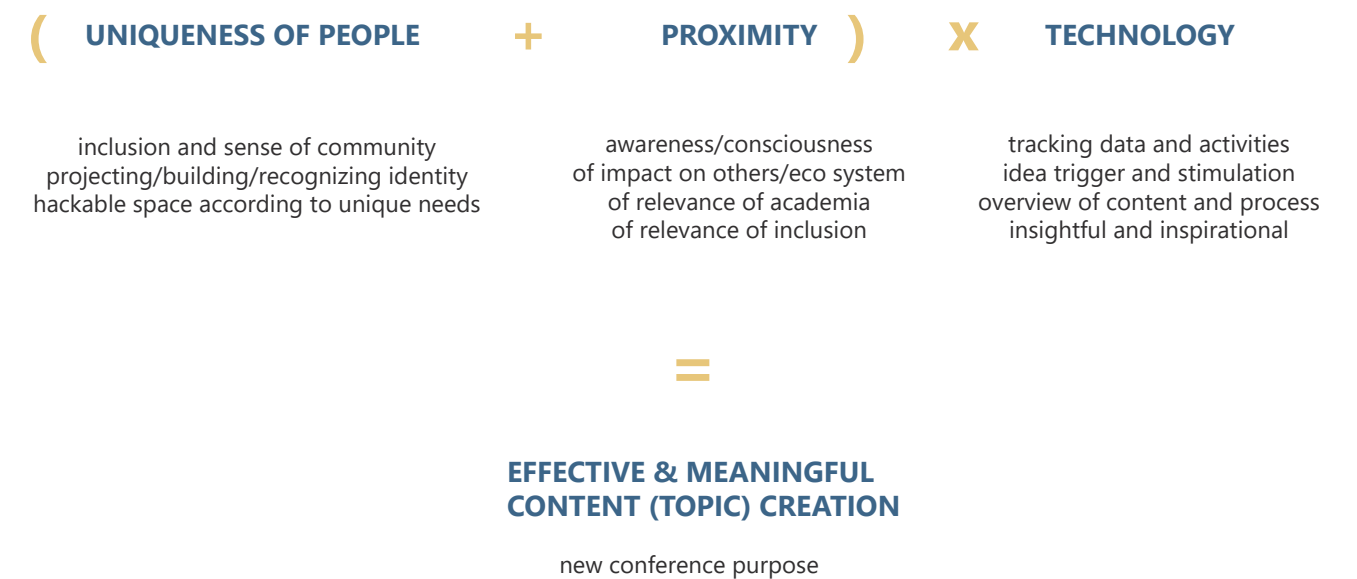


Figure 33 Timeline indicating the shifting purpose of the conference due to developments and trends.

Conclusion

All in all, the main takeaways from my research and analysis and thus main factors to keep in mind during the next steps of the ideation is to create something for the uniqueness of people to contribute to an inclusive environment on the one hand and create something for gaining proximity at the conference on the other hand to stimulate new perspectives of people and content and evoke responsibilities in academics. This should be done through a space that portrays qualities of liveliness and responsiveness as well as being able to see the bigger picture and be stimulated by it.

However, both sides and characteristics of my design direction are closely intertwined with each other. A more responsive and flexible environment can contribute to a better overview of the conference and seeing the bigger picture of people and content can contribute to an inclusive space. This is why the qualities in figure 34 are interchangeably presented indicated with the arrows.

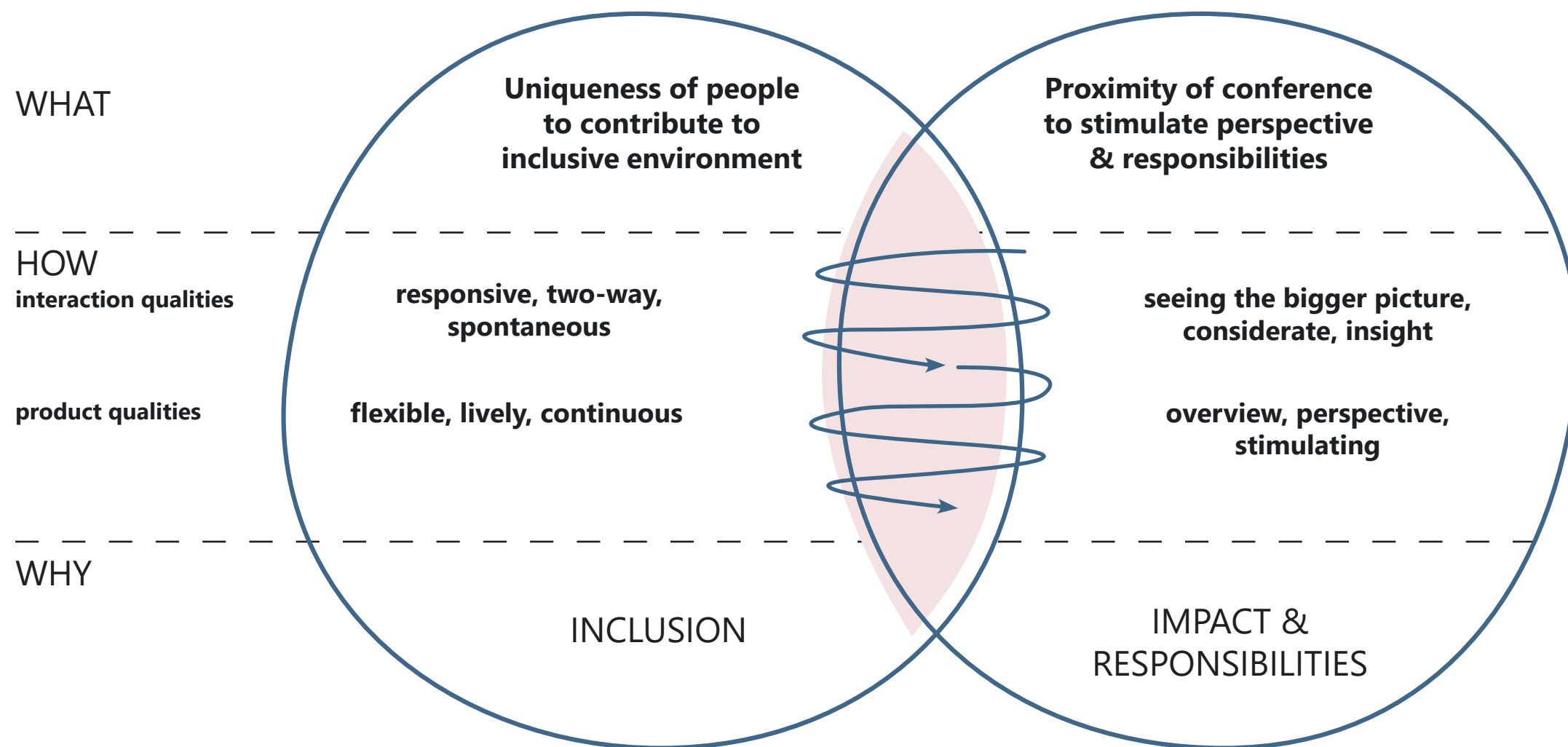


Figure 34 Visual overview of my design direction for the idea generation.

05

Ideation & Conceptualization

Having the design brief as a basis, this chapter goes into detail of my idea generation process. During my idea generation, the design brief has been consistently used as a guidance and iteration tool.

This chapter consists of three parts. First, the diverging process and the use of methods will be discussed, through which a vast number of ideas were generated without keeping in mind too many constraints. Secondly, these ideas were converged into three concepts and finally into one concept. The chapter finishes with a concept evaluation in which people were involved to experience and help evaluate the concept for a final design (see chapter 6).

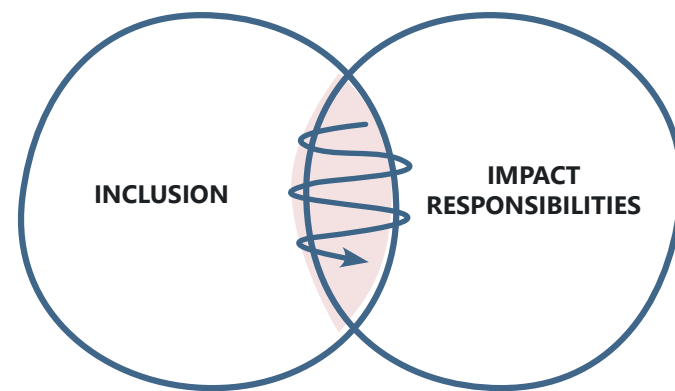
5.1 Idea generation

During my idea generation I focused on the two sides of my goal. The inclusion and awareness of people and content have been repeatedly reoccurring in my research as well as in my design brief.

This includes the questions:

How can I contribute to the inclusion and thus uniqueness of people in a lively and flexible way?
How can I ensure that people are able to maintain proximity (the bigger picture) of people and content at a conference that is executed partially online?

Throughout my ideation, ideas have been generated that address either one or both sides of my goal.



Different creativity methodology was used, such as brainstorming/how-to's or analogies/metaphors, to help me generate ideas that meet my previously stated design goal (see figure 34).

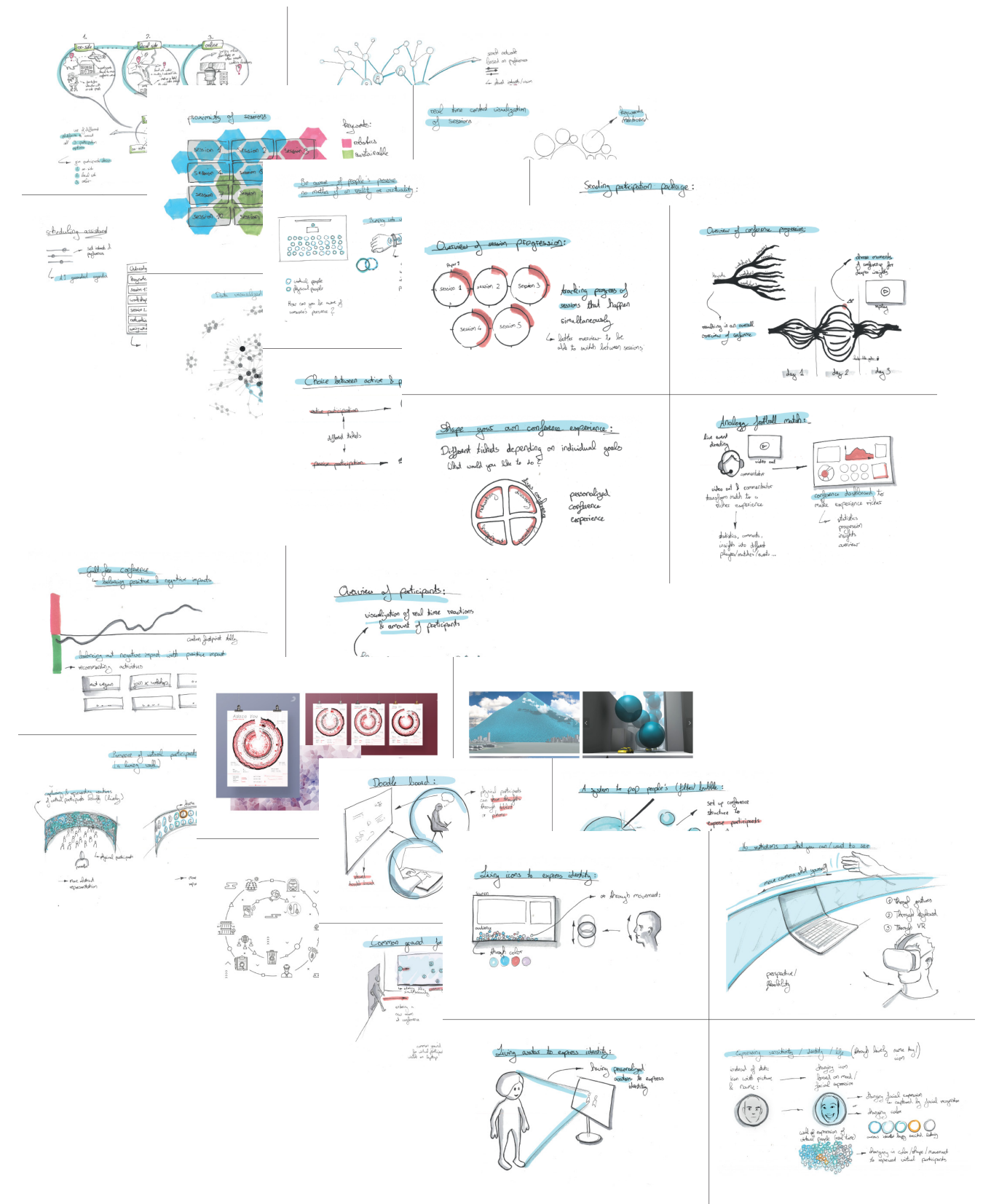


Figure 34 Idea generation using brainstorming, how-to's and analogies/metaphors. See appendix F for all ideas from the ideation.

5.2 Structure of ideas

As already mentioned in chapter two, academic conferences are made up of different design levels that as a whole create one experience.

Therefore, also the new ideas contribute to different levels of one overall experience for the new conference. For example, the possibility to participate on site, on local site, or online contribute to a much higher and organizational degree of inclusion, than the possibility of projecting people on a screen.

The diverging phase was concluded by creating an overview of all ideas that are organized into two different levels (organizational level & interaction level) to design a new conference experience (see figure 35).

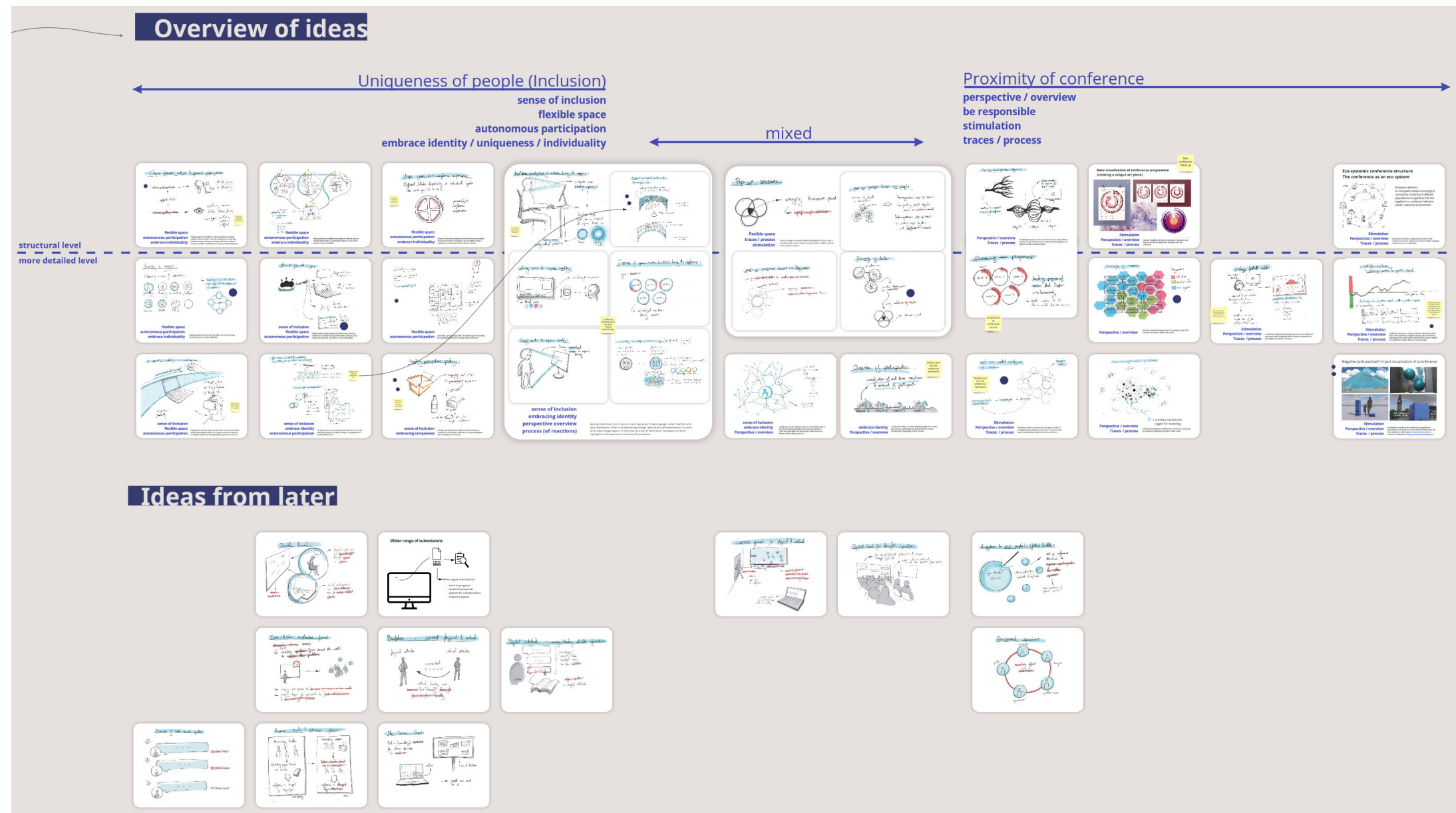


Figure 35 Organizing all ideas on a miro board within different levels.

5.3 Concept generation

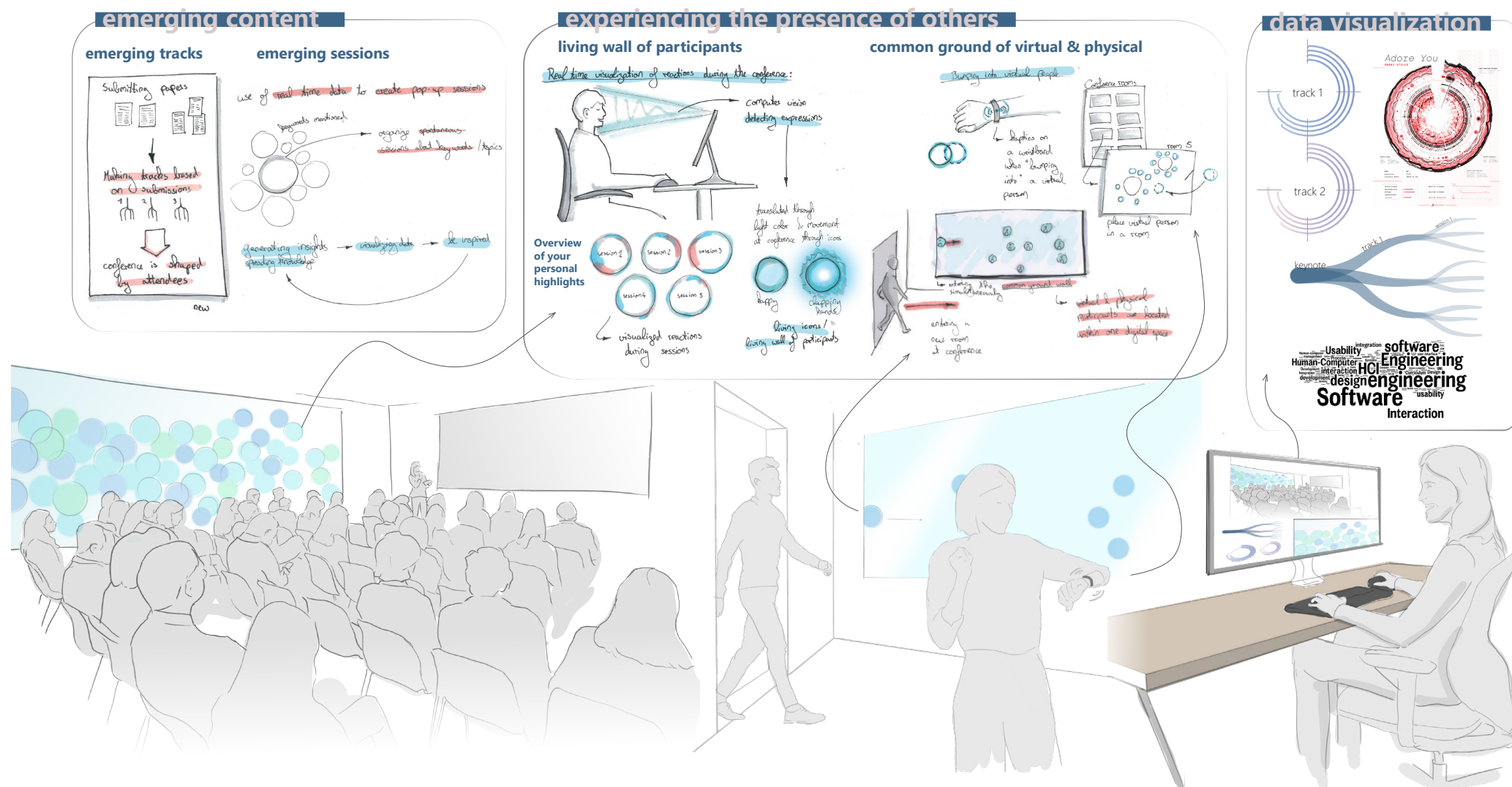
After having reached a number of ideas, I have gone through a converging process that iteratively used different methods for sharpening the final concept. I started by creating three concepts, framing the ideas within my design goal, and evaluating the final concept.

3 concepts and 3 themes

The ideas have been clustered into three situations that tackle the goal of experiencing the diversity and uniqueness of people and content in different ways. All of them make use of the new opportunities through a hybrid format and technology. The creation of concepts helps challenging my thoughts and looking at future scenarios from different angles to create diverse stories that could potentially respond to the opportunities as stated in the design brief. The following chapter describes each concept, its value, and the way it responds to future opportunities.

live(ly) presence of participants

live(ly) data visualization for conference progress & content



01 The living conference

The living conference focusses on creating a lively dynamic at conferences in order to nourish the emergence and spontaneity of content and people. The goal of this conference is to embrace that people and their knowledge make up the conference by means of emerging content (creation) and lively data visualization. The emerging content includes emerging tracks based on submissions and pop-up sessions to start a discussion round at any time during the conference to give participants the freedom to develop content. Then, there is a possibility to visualize the produced content in a lively way. Participants can see how the conference is progressing and growing with the help of participants' knowledge and are able to get inspired by the visualized content. This way we do not lose touch of the conferences' activities and are provided with an overview. Lastly, also the presence of people is experienced in a more lively and emotional way. The living wall gives people from home the opportunity to show presence and communicate non-verbally. It helps share emotions and project living beings on the other side of the digital screens through interactive lights. This reminds people of online attendees' presence and their non-verbal feedback. Another way of bringing together virtual and face-to-face participants is the common ground which provides people a visual overview of all participants within a space. Overall, this conference responds to the uniqueness of people and proximity (overview) of the conference progressing through lively formats and visualization.

Figure 36 Visualization of the first concept, the living conference.

The conference of exposure

The conference of exposure focuses on the accessibility of content for people. Here, inclusion and responsibilities of academics are meant to be made more effective through more rational formats, opposed to the living conference. This starts with a strategy to minimize the creation of a high number of 'lightweight' papers and instead encourage people to produce less papers but with higher quality. This could be achieved by offering participants a more vague and wider range of submissions. Instead of having to deliver a finished research paper, people can also submit work in progress, research proposals or search for collaboration. Fewer research papers also create more attention to individual contributions. Furthermore, a wider reach of audience makes the valuable content of academics more visible within society. Therefore, this conference also proposes a flexible participation format to choose between active and passive participation. Opposed to active participation, the passive participation (for example a DRS subscription) offers an opportunity for people to have access to the content created at conferences (such as recordings) for a certain amount of time without actively joining. That gives people who have less time or people outside of academia, such as governmental organizations, the freedom and opportunity to have access to academics' knowledge. Then, there is a possibility to expose academics to important problems in the world and to reconnect them to their responsibilities as researchers through problem exploration sessions. Problem owners (like practitioners) are invited to present their social problems they have to start a discussion or dialogue together with academics on how this could be solved. Through this, academics have a chance to be reminded on important social issues in the world. At the conference, screens or dashboards can be helpful to expose participants to content. Overall, this conference responds to the uniqueness of people by inclusion through different participation and submission processes and the proximity of content through content exposing session formats and data presentations.

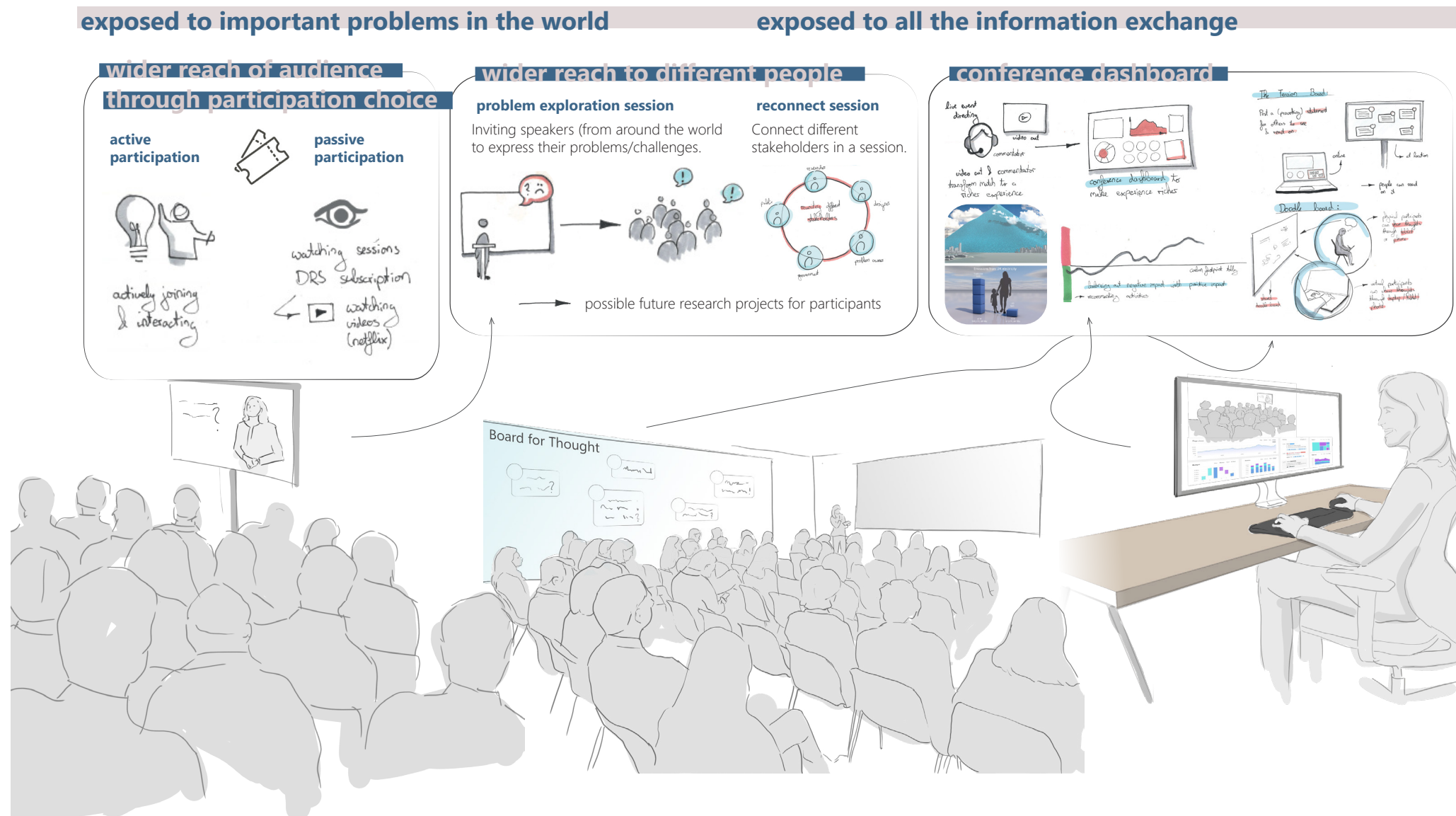


Figure 37 Visualization of the second concept, conference of exposure.

a flexible format

that adjusts to uniqueness of participants

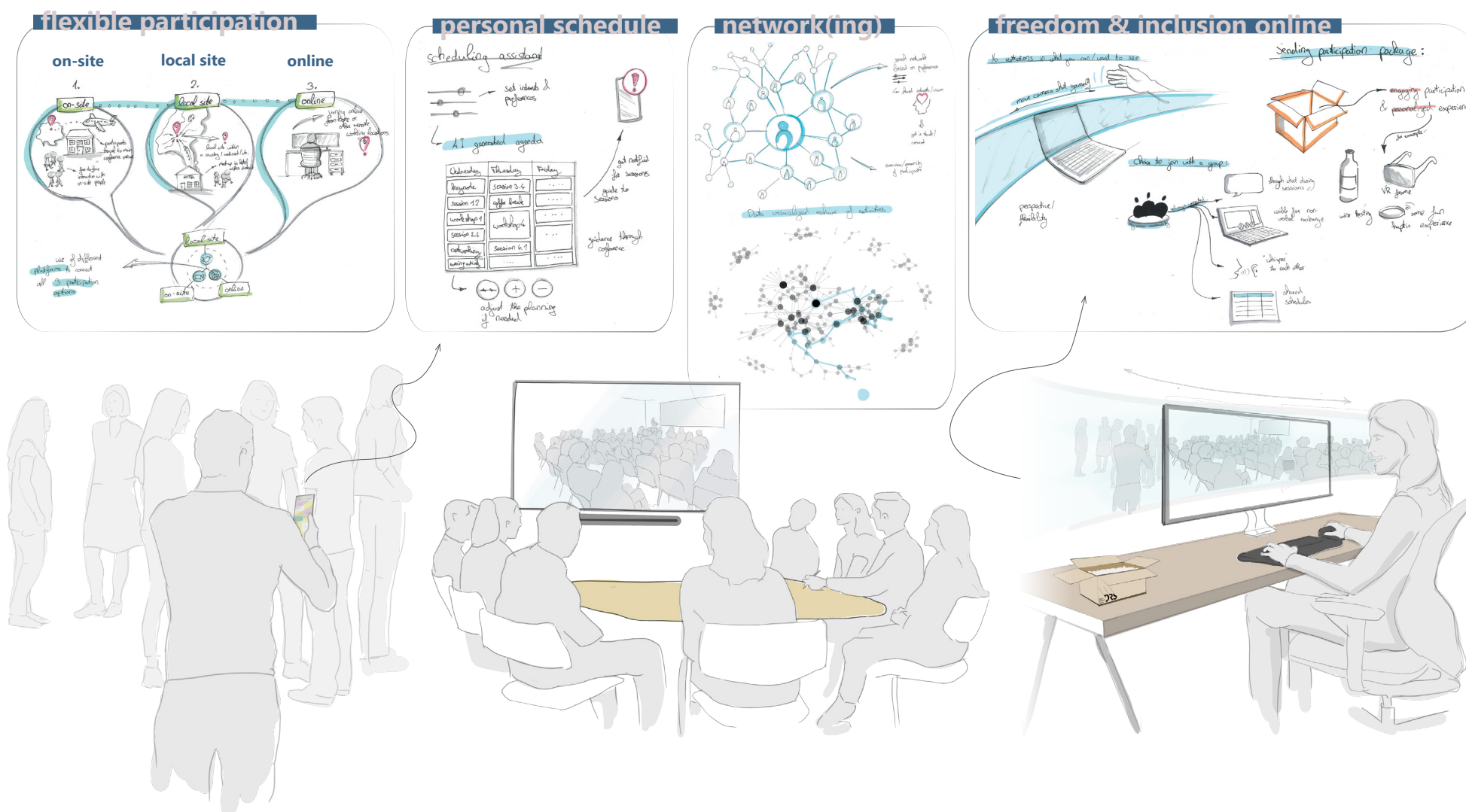


Figure 38 Visualization of the third concept, the personal conference.

Comparing my concepts to my design vision and opportunities as stated in the design brief, I have concluded that the final concept will be mostly based on the principle of the Living Conference but shall also incorporate aspects of the other two concepts.

The following list indicates what I want to take into consideration from each concept based on my design vision. What I want to take from concepts:

03 The personal conference

The research showed how important it is to incorporate more flexibility for people in order to create more inclusion. The personal conference focusses on the uniqueness of participants to personalize the experience. That means, for example, that we are able to include people by providing online, face-to-face but also local-site participation. These local hubs can be situated in individual countries to maintain interaction with people but reduce time and effort to travel and keep the schedule free.

The proximity of the conference to stimulate new perspectives can be done by AI generated networks of people and activities that are different for everyone. This helps to gain overview of people, activities and opportunities to discover something new. A hybrid format also offers a chance of proximity by creating a silent conference format for local-site participants in which all parallel sessions run on displays in the same room. By wearing headphones which play the sound of that session that the participant is near, it is easy to have overview of what is happening in other sessions, switch between sessions and discuss simultaneously with people at the local site. Overall, this concept is all about the freedom and uniqueness of people in which they can shape their own experience.

Concept 1:

- Emotionally inclusive
- Visual navigation and orientation (overview/insight)
- More intuition (lively and spontaneous interaction)
- Unique and creative

Concept 2:

- Responsible inclusion
- Stimulating responsibly

Concept 3:

- Inclusive in terms of considering uniqueness of people
- Flexible platform for uniqueness of people

5.4 Framing the ideas

To make the final concept cohesive and complete, a frame in the shape of a two-by-two matrix was created to visually point out the different focal points from my design vision. This way, I am able to place individual ideas within the matrix and can determine to which design goal and to which degree they respond to. In order to bring the ideas together, I need to find one focal design element in the middle, that combines all the individual ideas to make the story and design complete as a whole. The idea matrix has helped me find that focal point that ties together all ideas around it.

As visible in figure 39 the matrix is divided into making the broad spectrum of people and knowledge visible along the x-axis, and qualities that describe a flexible and insightful experience along the y-axis. Most ideas incorporate both types of qualities and are therefore positioned within the yellow zone. There is a much clearer divide between the diversity of people and the diversity of knowledge and impact. So that for example the living wall only focusses on people whereas the living conference progression focusses on content in a creative and lively way. A way of combining these sides and making use of hybrid opportunities is to create one technological space in shape of a platform or an app that can intertwine the ideas. This way the individual designs cooperate with each other and together create a lively and inspirational space that is independent of physical spaces.

This technological space is purely focused on the interaction design of the conference. However, there is a few ideas that create the base of an inclusive and responsibility driven conference through organizational design elements. Because they can form the basis, these ideas are positioned along with the technological space in the middle of the matrix.

The following chapter will present the final concept as a whole and will go into detail of each design element.

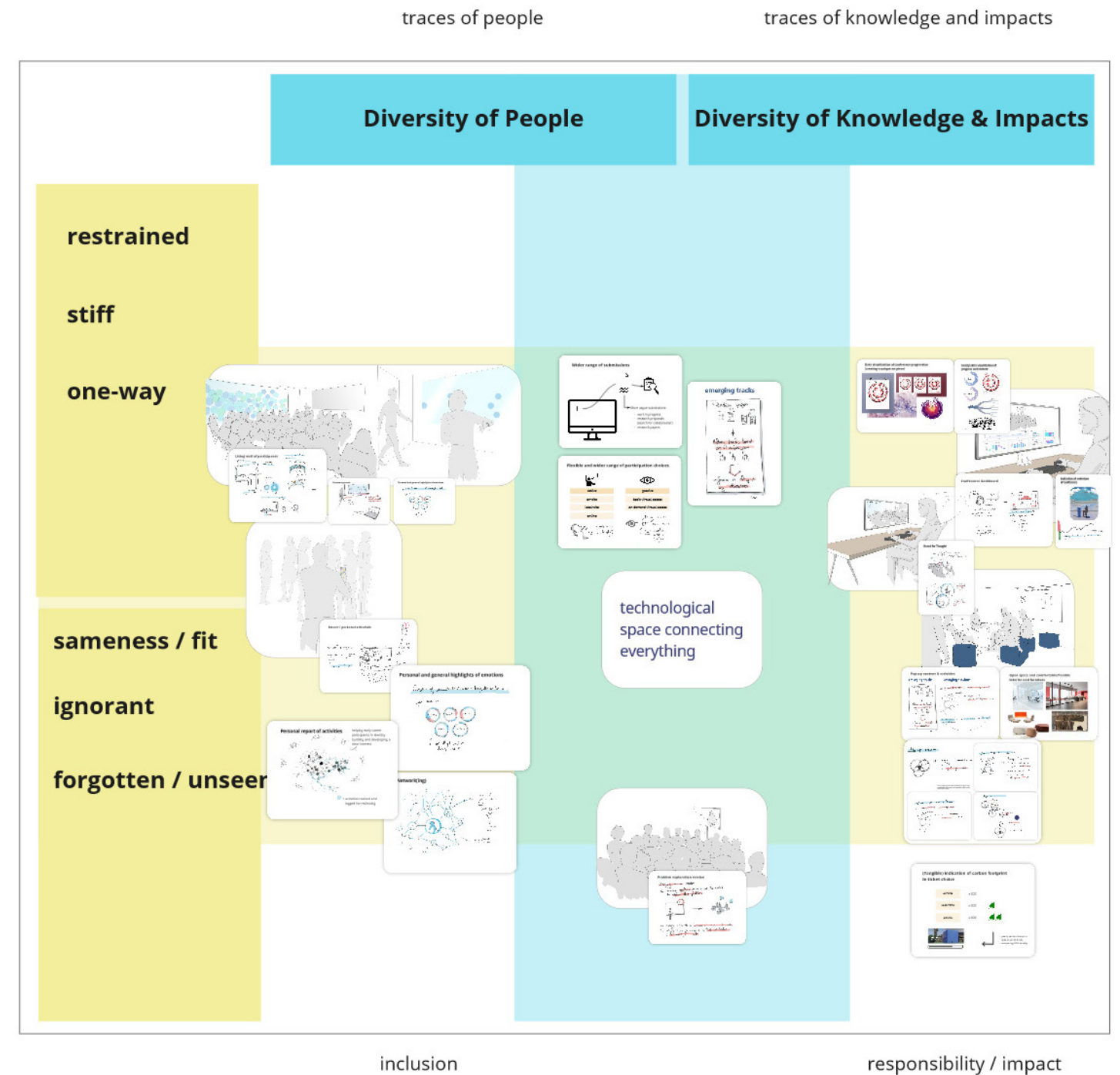


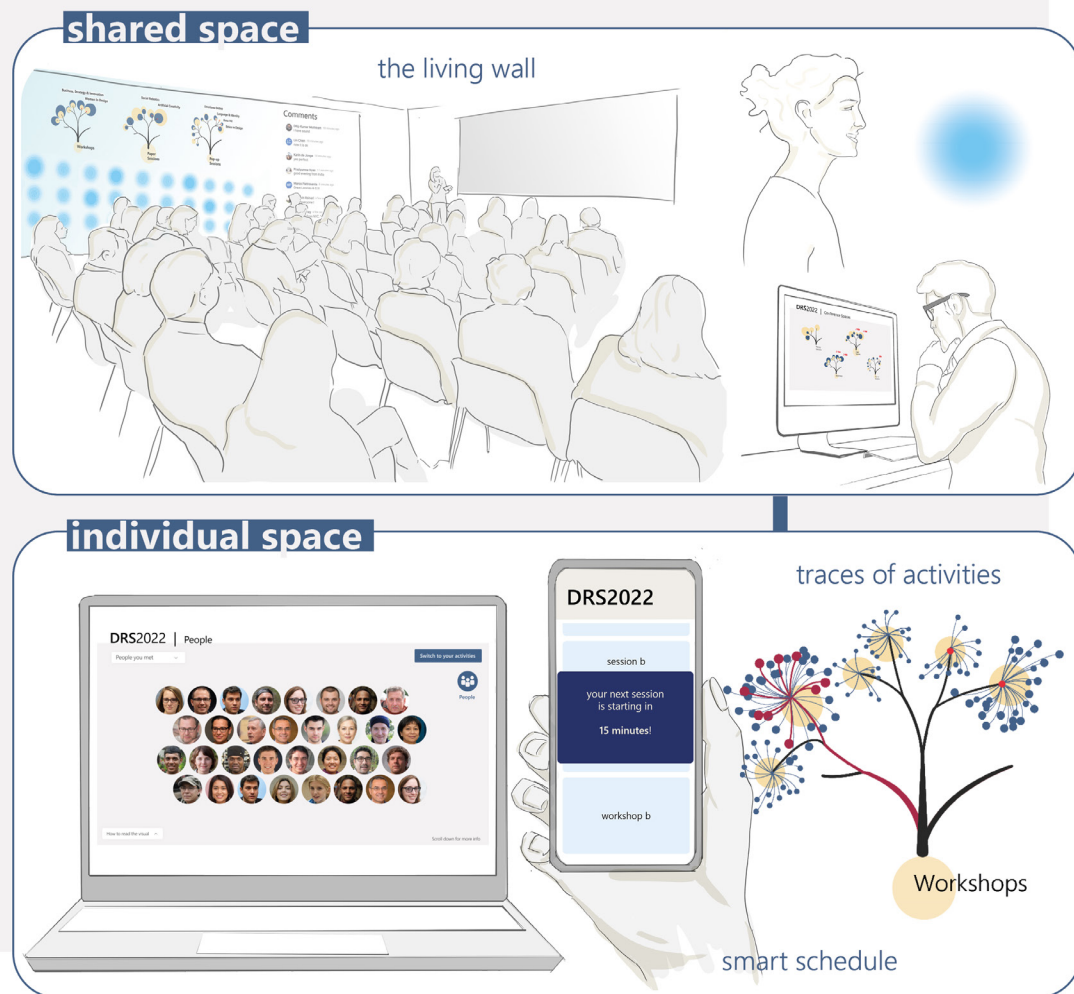
Figure 39 Framing the ideas to structure the final concept.

5.5 Concept evaluation

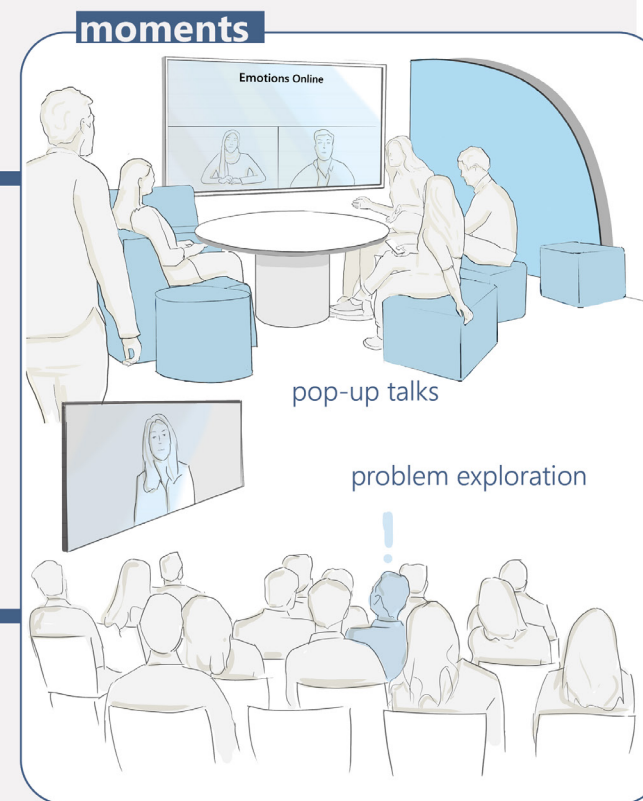
Overview of final concept

The conference concept consists of an organizational and interaction level. The evaluation focused on the interaction level which is made up of a shared space, individual space and momentary elements (see figure 40). Within these spaces there is different design elements. In the following pages I will provide insights of the participants feedback of each individual idea.

continuous background elements



momentary elements



Evaluation set-up

After the convergence to one cohesive concept, a concept evaluation was conducted in order to create a final design which is presented in the next chapter.

This chapter will not go into a detailed concept description but rather focusses on the insights gained through the evaluation and main takeaways to consider for the final design. For a detailed concept description see appendix G.

Short description of evaluation set-up:

The evaluation is conducted as a concept optimization as I am near the end of my design process and want to directly judge different ideas within my concept to create a final more optimal design. Because I cannot organize or mimic a conference in the time frame given, I decided to create a video presentation which guides the participants through the new conference experience. After the presentation together with the participant we discussed each individual idea as well as the concept as a whole using a miro board in which the ideas were illustrated. Five participants were recruited with diverse backgrounds (gender, age, position, country). For more information on the evaluation test set-up see appendix H.

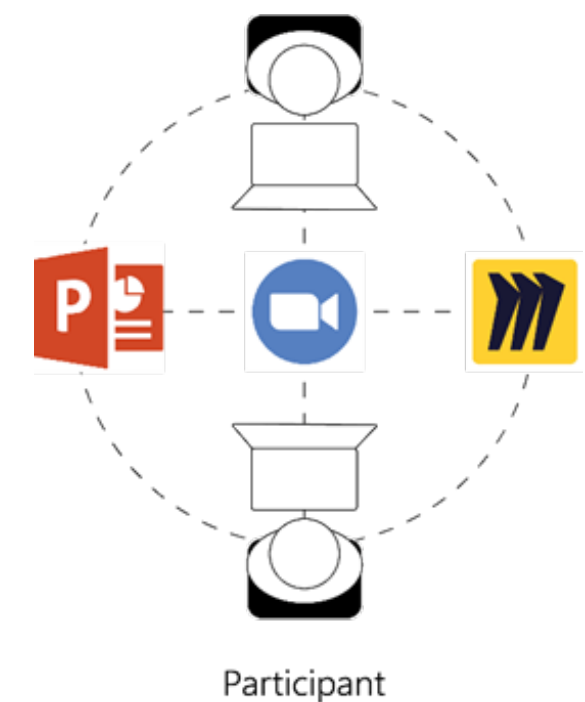


Figure 40 Visual overview of the concept that was evaluated by the participants.

Figure 41 Test set-up of evaluation with tools used.

01 Shared digital space

"I like the tree idea. It is sort of this metaphor for growth. So this idea of the conference growing and blossoming."

"It gives you a holistic view like a timeline view of what's going on because also one positive thing about this is, you might see things that you would have otherwise missed in the list format."

"To see how many of these online participants are there that could be interesting, because then you get a general feeling of participation."

"At my work when I would go to conferences our boss would be like: try to pick at least one talk that's way out of your comfort zone, because you'll be surprised. So this enables people to explore topics that might be out of their scope at."

A real-time visual overview of the conference activities and their growth in time using data visualization (1 in figure 42) as well as the representation of people from home through interactive lighting (2 in figure 43).

First of all, most participants valued to be able to see the conference progressing in which ideas and information develop over time within a visualization. The metaphor of using a ramification (tree) is a nice way to give meaning of a conference purpose.

Not only the meaning and development of the conference progressing was valued but also the way it provides overview to people. Most participants expressed that a general overview of the conference progress helps in keeping track of different activities. Especially for remote participants it provides an opportunity to better navigate through the experience.

Visualizing online participants in the conference space helps people to have a general feel of participation.

Two participants mentioned the opportunities of the visualization to explore topics that one would otherwise not explore and to find unexpectedly interesting sessions. It addresses their value in joining some sessions that are completely the opposite of their research focus. Therefore, it should be important to create an interactive space in which you are able to find out about relations between sessions (e.g. related or opposing talks).

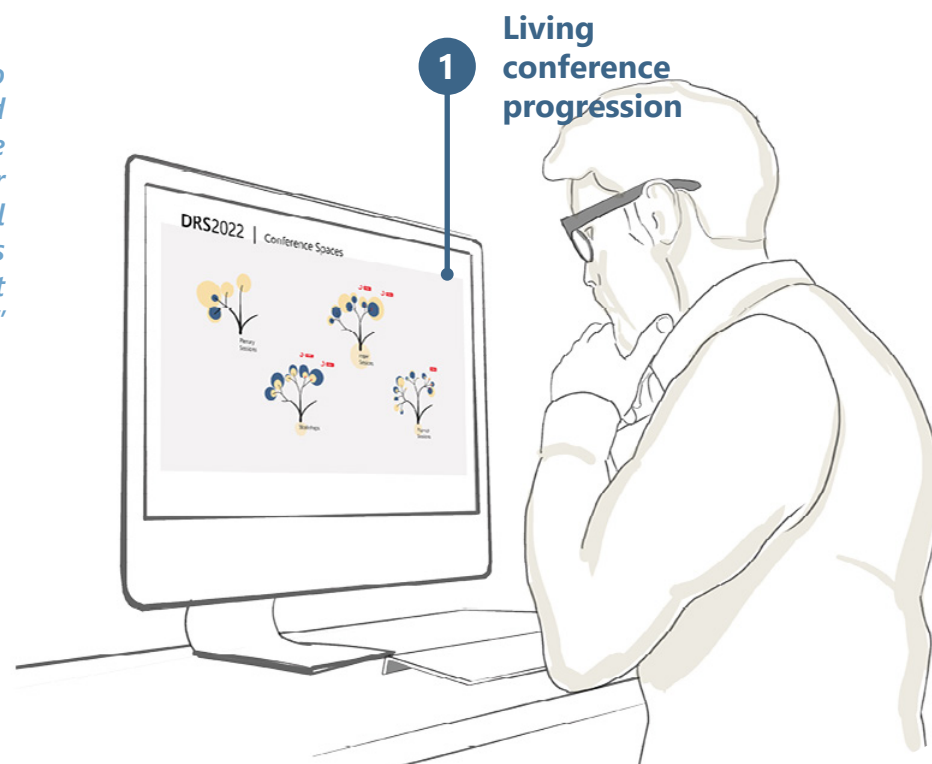


Figure 42

Visual of the living conference progression concept.

"I would like something more equitable in way. So that it's not just 'popular' sessions, becoming more popular but what is it about, the ideas, etc. So make it less about the popularity of the session and more about the ideas and how they come across."

"If I'm in a presentation room I'm listening to the person that is talking and I think you know, on a cognitive level I'm not able to actually look at the living wall and listen to the presentation and at the same time."

"But mostly for me it's not just a representation of the face, but also how they can participate in the actual discussions right."

Something that should be considered for the final design is the placement of the digital screen within the physical conference as well as the time when it is useful for people to look at. Three participants have expressed the need of wanting to focus during the sessions which is why just being able to see comments from people at home in real time within the presentation room would be enough. A holistic visual of the conference in the main hall might be much more useful for guidance and conversation starters at the conference location.

Furthermore, people find the type of data used and the detail that it is visualized very important. The data as it is presented now could lead to making popular sessions more popular giving early career attendees a smaller chance to have an audience. The number of people, for example, should not be in the foreground but rather human dimensions like quotes, how inspiring a session is or highlights. Another finding that should be considered is the importance of incorporating online people into sessions and discussions rather than showing their faces on the wall, especially in larger presentation sessions.

Overall, this element was perceived as innovative and out-of-the-box to implement in future, as it can be an opportunity to make a conference more exciting and motivate people to explore new areas.

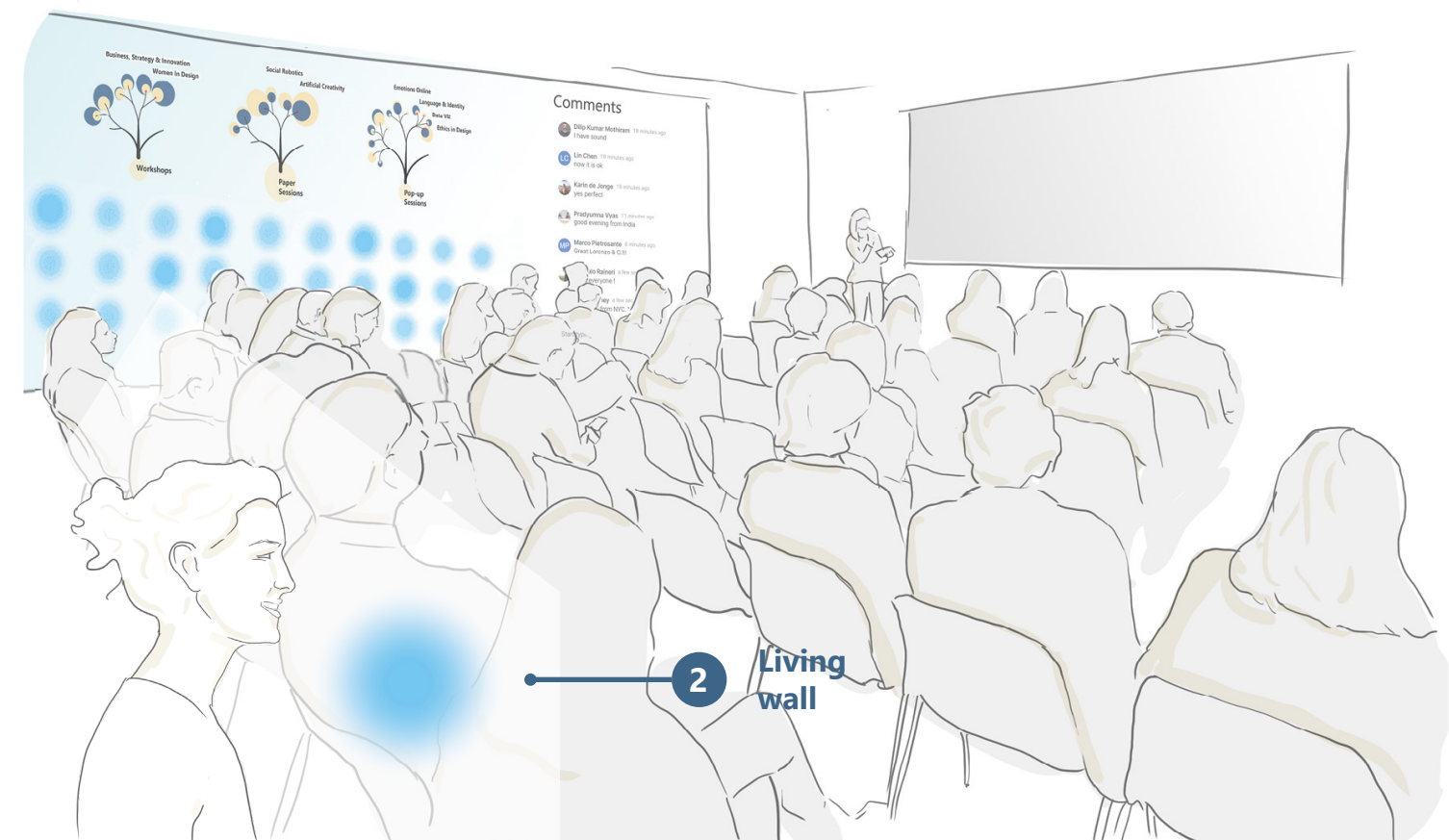


Figure 43

Visual of the living wall concept.

02 Individual digital space

"It is a conversation starter where you find someone and you see that you have been in two or three the same sessions. So you can just kind of message them: Hey, it looks like we're interested in the same thing, do you want to grab a coffee? Physically or virtually as well."

"The whole concept of the ramification is really nice, because then I can see what I am also missing. Or maybe I am doing too much of just one branch of the whole conference."

"People go there to meet specific academics, you know they have their research and they have ideas on who they would like to work with. So going to a conference is an occasion to actually meet in person, someone that you've been just reading his papers being kilometers apart."

"I think I mean knowing who is there and how to find them definitely it's interesting for me, because I mean the reason why people go to conferences in the end is to meet people in person to start conversations and hopefully to start working together or debating ideas."

An individual space within the digital platform visualizes peoples' individual experience at the conference. Traces of the participants' activities are indicated, such as sessions (1 in figure 45) that were attended or people that were met (2 in figure 45). A personal schedule helps people navigate through the conference (3 in figure 44).

What participants found interesting about this design element, were the opportunities of conversation starters that the interactive list of participants provides, especially for shy or remote participants. For example, by being able to see with who you have been in sessions together the most or who shares similar interests as yours.

In terms of content and being able to visually see your own activities was perceived as helpful as it provides people with an overview on what they might still be missing, or what they are doing too much at conferences.

Most participants mentioned the value of knowing beforehand who is going to which sessions, because often they already have in mind who they would like to meet at conferences.

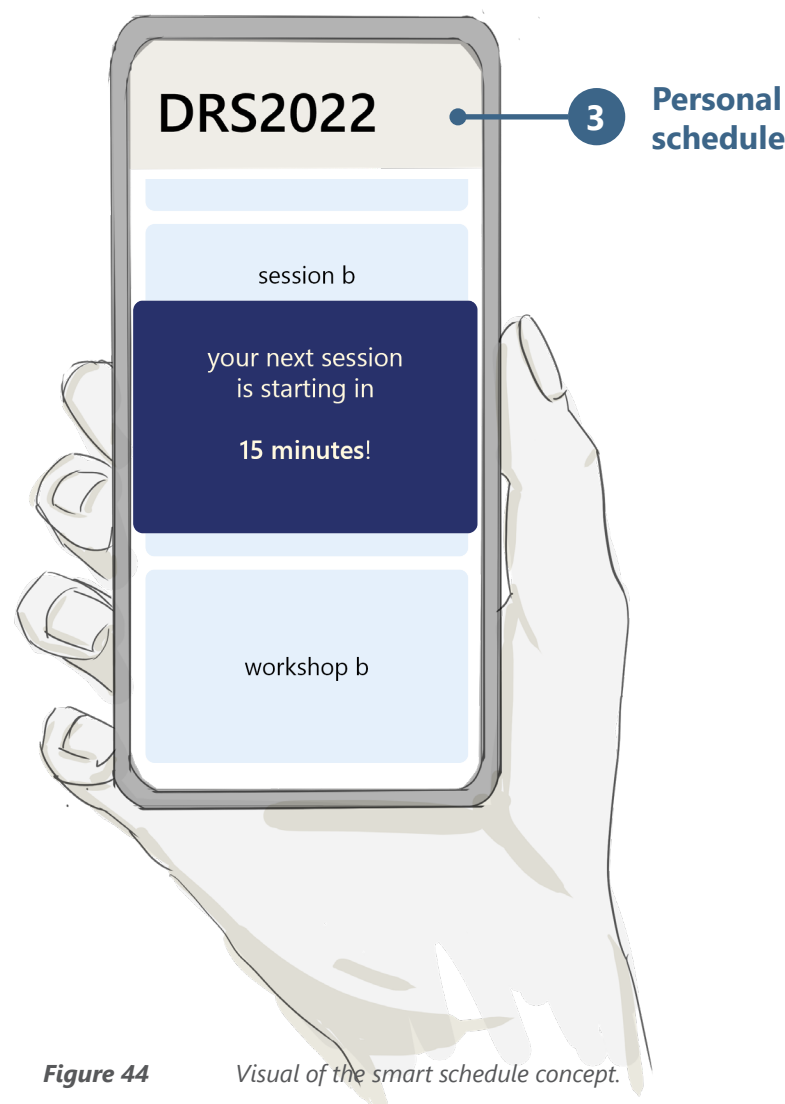


Figure 44 Visual of the smart schedule concept.

"Don Norman for example. Can you imagine what his life at the conference will be if people are able to track where he is. So the situation is that there will be that want to talk to him."

"I think, with the Conference, I guess, the people see your face like you have your tag with your name on it, but you know it's far away, so people don't quite know who you are. I think maybe online all of your Information is on there so someone can click and figure out what university email etc."

"For me, conferences are not a search or about seeing every face in the audience. The purpose of going to conferences, for me it is reconnect with the researchers. In LinkedIn I could also search for people. And I could also send them a chat."

However, a few critical aspects about this have to be considered. Firstly, letting people know who is going where beforehand, takes away a certain serendipity moment of meeting people. I would like my concept to focus on opening people's mind to also meeting new people instead of to sticking to similar people they already know. Secondly, what most participants mentioned were privacy concerns, especially for people with 'bigger names' in the industry, who might end up being followed at conferences or receive an overwhelmingly number of messages on the online platform. In terms of the way, the list of participants is shown, people have also expressed concerns about the visibility of their information and faces, meaning that there should be different options of visibility. Like mentioned in the previous design element, it should not be about seeing people's faces, but how people meet and interact. Another interesting finding that was mentioned by one participant, is that the conference should not feel like a search for people but go more organically, which is why the way of potentially searching through the list of people might not be of importance.

Lastly, having a personal schedule was perceived as useful by most participants, however, it should be merged with their personal calendar, which is why it could be enough to just provide the links to the event within the conference space which people can add to their own calendars.

Overall, this concept was perceived as useful but also calming, as it takes away some of the hard work away in preparing for conferences and it guides people through the event.

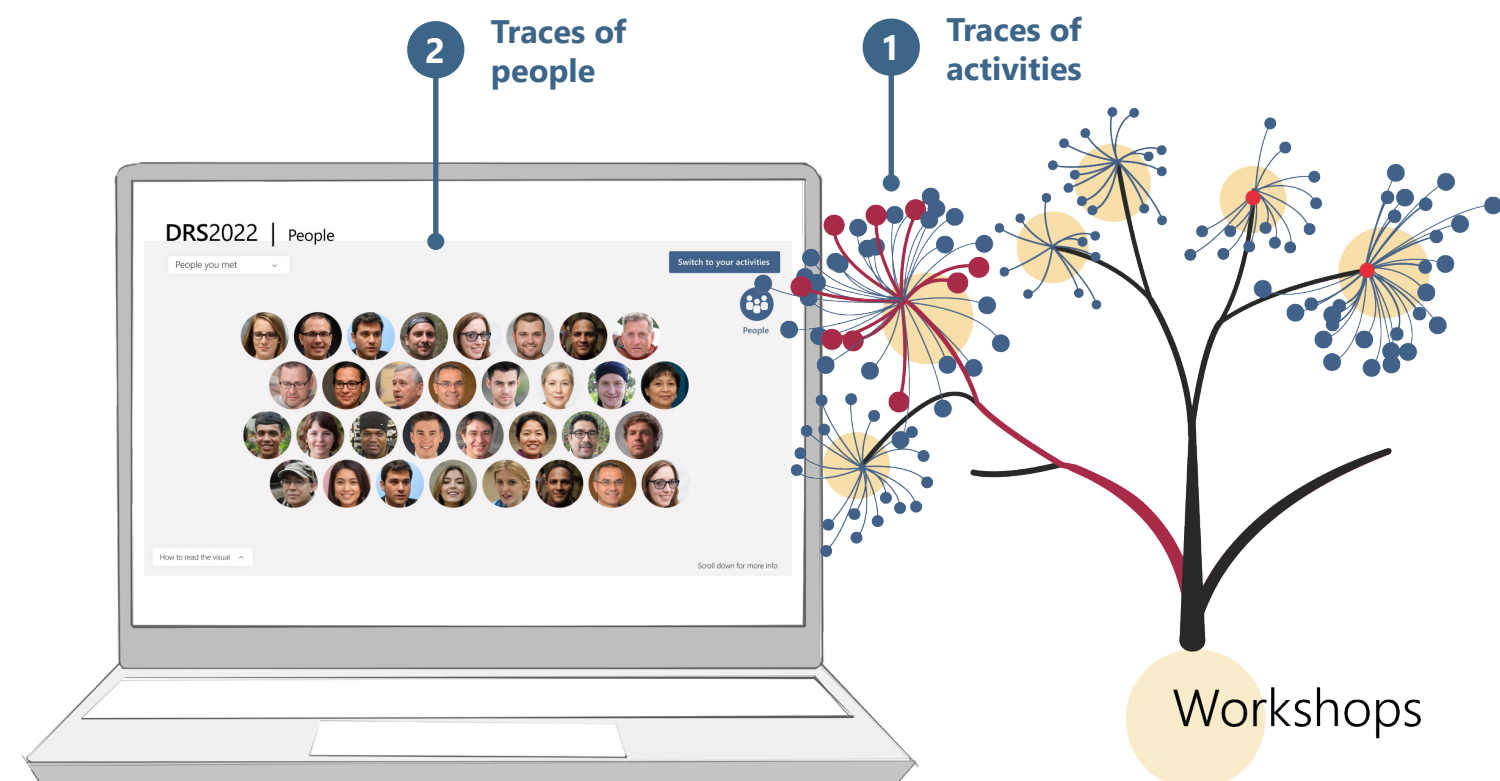


Figure 45 Visual of the traces of people and activities concept.

03 Momentary elements

"There's a way to communicate these talks to everybody, that would be really cool and they can just join you in like a hybrid space, I thought that was actually really cool."

"For more shy people then you know it's can be difficult to do. By creating this you actually give most people an opportunity to do it."

"There's always a need, especially in a hybrid setting, for spontaneous discussion."

"You got this little kind of break-out area, with chairs and a table, not all conference venues have those facilities. If you didn't have that sort of facilities for that space, how could you still do it?"

Two new designs of session or moment facilitation. Pop-up talks (1 in figure 46) focus on supporting spontaneous discussions at any time during the conference, while maintaining inclusiveness. Problem exploration sessions (2 in figure 47) focus on making academics aware of and start conversation about societal problems that design practitioners struggle with.

Most participants perceived pop-up talks as an opportunity for all people (whether they are shy or participate online etc.) to be able to discuss interesting topics. The way the session is communicated to others, provides an inclusive (ice-breaker-like) space that does not require you to know people. Furthermore, people valued the fact that a format like this promotes dialogue and emerging content in a less facilitated but more spontaneous manner, as there is always a need to chat and discuss about things according to participants' opinions.

A few concerns were expressed about the facilitation, which may be very pricy. Also, the way the physical space is designed could be considered in terms of: how can you make the interaction be perceived as spontaneous as possible, without evoking the feeling of sitting in a cubicle in a staged way?

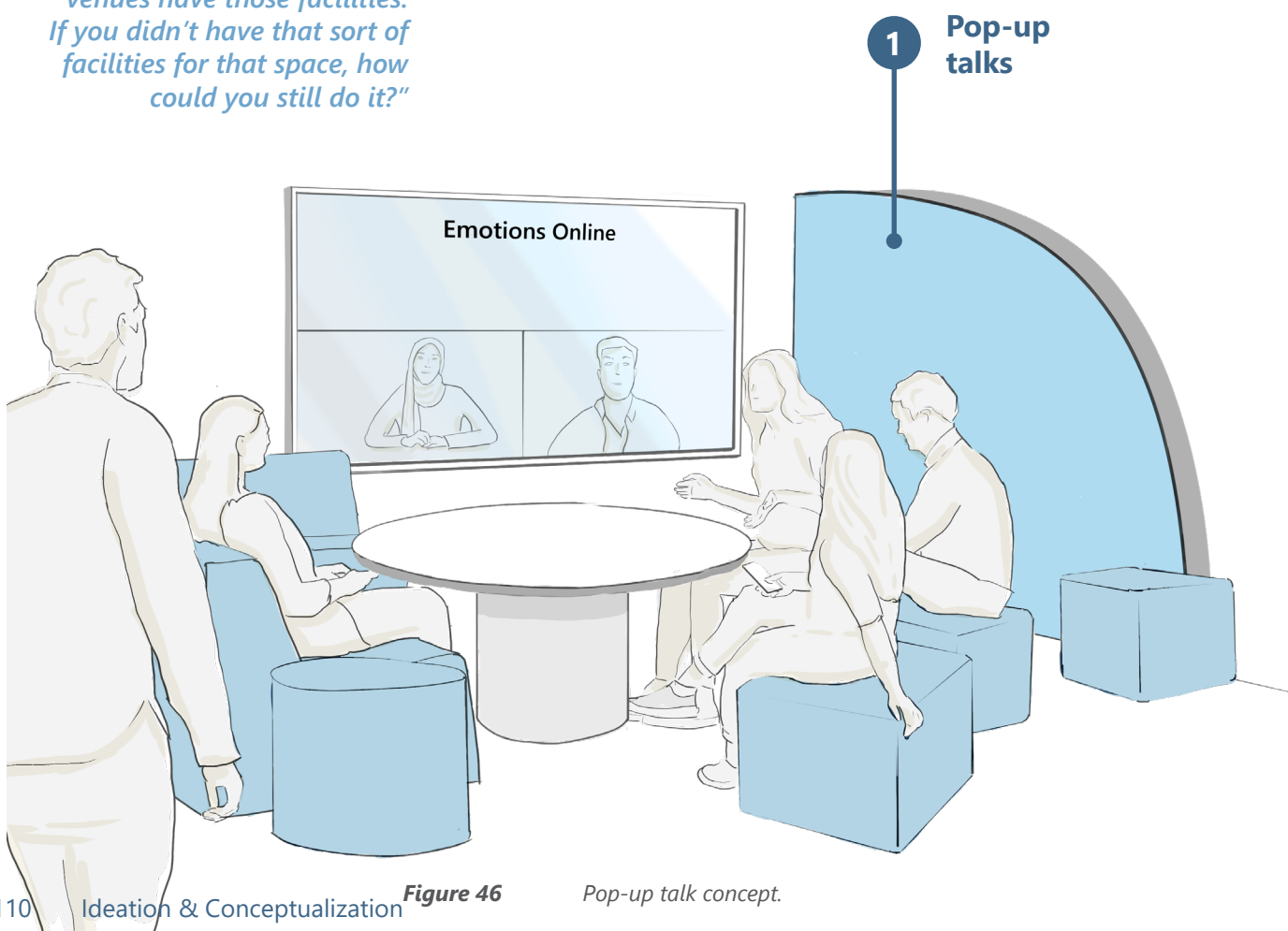


Figure 46

Pop-up talk concept.

"Academic discussion becomes really vacuum style because it gets too detached from reality, which is a problem that exists in academia. So I think it's nice that you're creating an intervention to to address this."

"From a validation point for researchers is it could be really also eye opening for them. Here's where their expertise is actually making a difference, or could make a difference."

"I wouldn't see it happening where people are in rows, full facing one direction. I think it is a more of a collaborative round. Exploration is a more collective thing."

All participants agreed that it is important to address the problem of academics becoming too detached from the real world. This session provides an opportunity to bridge this gap and help academics provide relevant research for practitioners. It was also mentioned that this session can be an eye-opening and validating experience for researchers to see the impact they can make and the recognition they can have with their research. Additionally, one participant mentioned that this format provides a space to include people that would normally not attend (such as practitioners) especially through a hybrid setting.

One suggestion that most participants mentioned is that it should be in a more casual conversational format in which all people feel in the same power relation and safe to share their opinion in order to provide dialogue. In conjunction with this, one participant mentioned that it could be useful to not restrict the conversation to a problem, but rather bring a topic to promote dialogue.

Overall, this design element was perceived as important for the academic community to generate meaningful knowledge and impact. The facilitation in terms of format and space design is something to take into consideration.

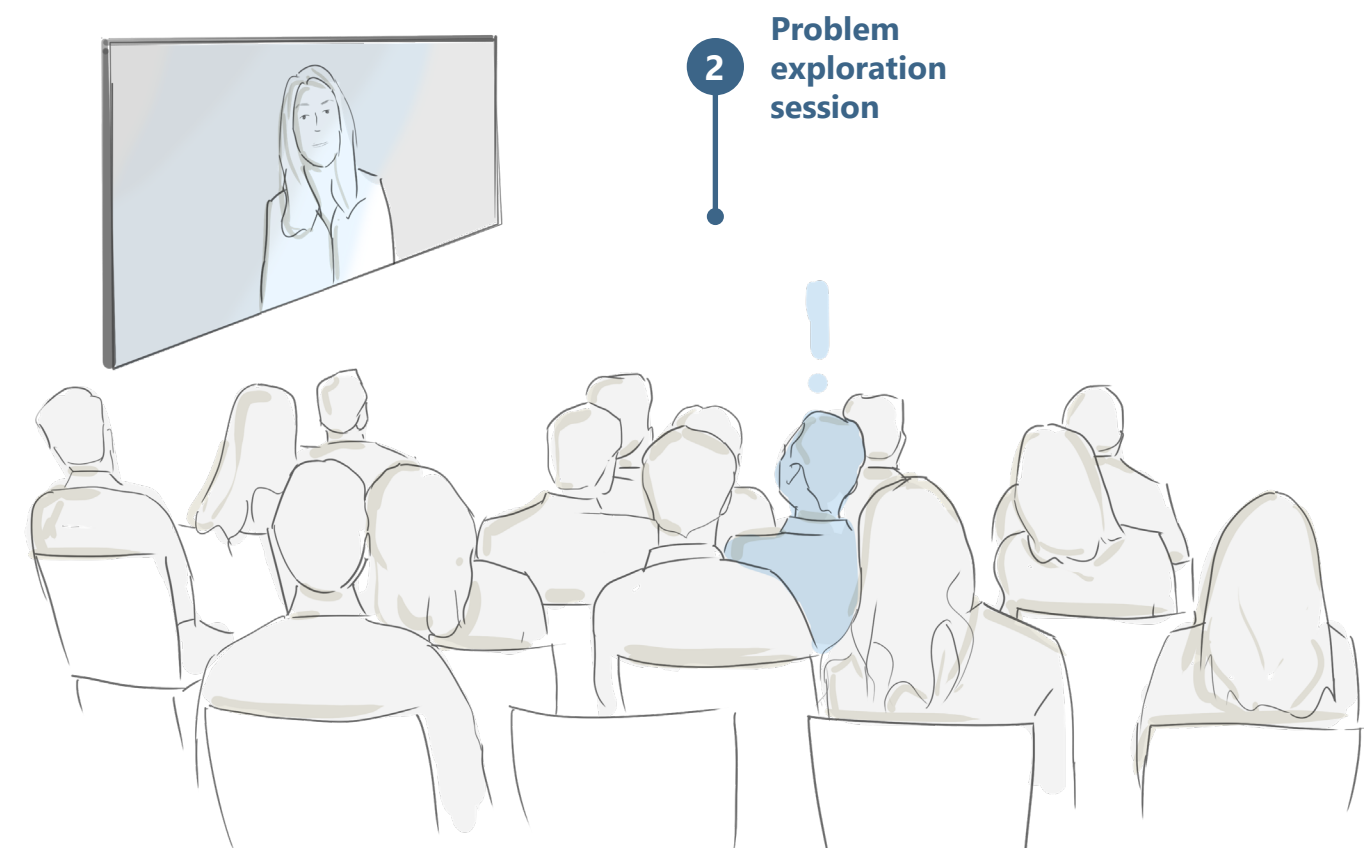


Figure 47

Visual of problem exploration concept.

5.6

Conclusion evaluation

All in all, the concept evaluation has given some important insights, not only for my final design but also for future work within this topic. While I will take some insights into account. Not all aspects from the evaluation have been implemented in my final design.

In the recommendation I will further state what else should and could be taken into consideration based on the concept evaluation.

What has been taken into the final design are the following aspects:

Make use of the interactive visual conference overview to explore similar or opposite topics within the visual (giving suggestions). Being able to see relations between different sessions helps.

Add human dimensions within the visual conference space, such as highlights, memories (presented by the organization or by participants) or interactions.

Make sure the visual conference overview is not distracting.

Do not focus on showing people's faces but how people can meet and express themselves.

Focus on topics, rather than problems of practitioners that can be discussed in a less formal dialogue format.

06

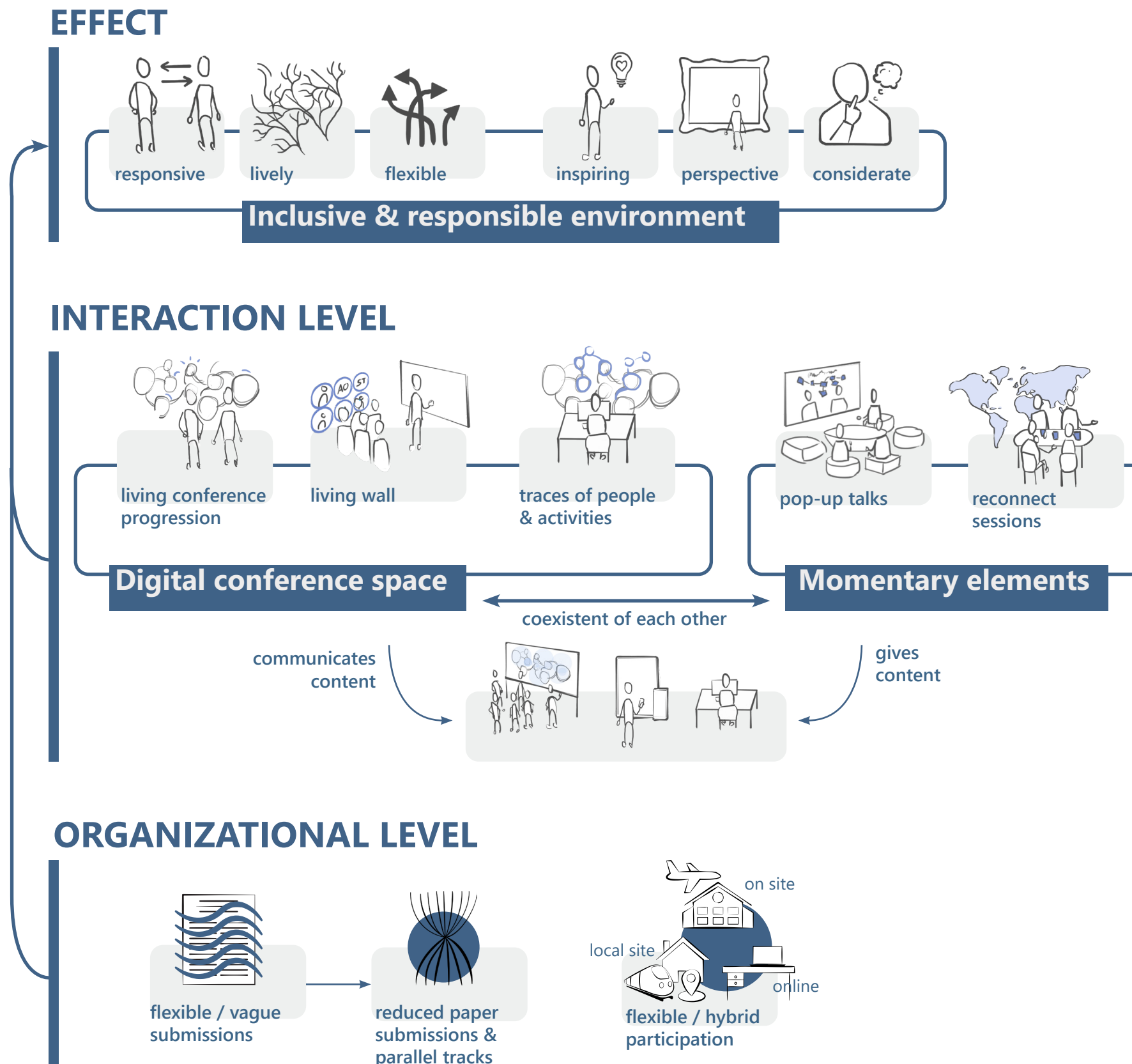
Final Design Presentation

After having generated ideas, conceptualized and evaluated the concept based on interviews with people and my research insights, a few changes have been made to create one final design:

The living conference.

This chapter will present my final design in more detail, starting with one general overview with all the design elements and what effect they have together. From there we will dive deeper, and I present to you the new conference scenario and its individual elements in more detail.

6.1 Final design overview



The final design consists of two different levels. Figure 48 illustrates my final design in an overview. The organizational level, seen at the bottom of the visual rethinks the way conferences are structured from the base to create an inclusive and impactful environment. The interaction level rethinks the way participants experience and communicate to one another during the conference for a more inclusive and impactful environment. The following pages will guide you through the different design elements in more depth.

Figure 48 Visual overview of the final concept consisting of an organizational and interaction level and their effect.

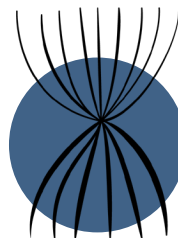
6.2 Organizational Level

In order to be able to create a more inclusive space and have individual contributions be considered, the way conferences are structured prior to the event could be revised for more flexibility and perspectives within participation. While the organizational strategy is important, it is not the focal point of this project. The proposed elements are meant as a starting point and inspiration for future possibilities in conferences' organizational structures. Based on my research findings, I propose the following interventions:

As previously stated, currently many universities only pay the admission fee for their researchers if a research paper has been submitted and accepted at the conference. However, my research indicates that this system contributes to researchers producing more lightweight research papers instead of fewer really profound ones ('university assembly line') as well as creating an exclusive rather than an inclusive environment. As academics should continue to gain in significance and impact in future, conferences can play a big role in supporting the impact of academics in future. We need to enable a valid participation for people without having to submit a finished research paper. Therefore, this first step proposes a more flexible and vague range of submissions in which researchers can also submit, for example, work in progress or research proposals, to gain valuable feedback at the conference or find collaboration for the future research that is proposed. By providing a vaguer range of submissions, academics are provided with more time, feedback from others and are included into the community. This can help to produce valuable, high-quality research to gain in significance. Through this, conference organizers could address and react to underlying issues that lie in academia.

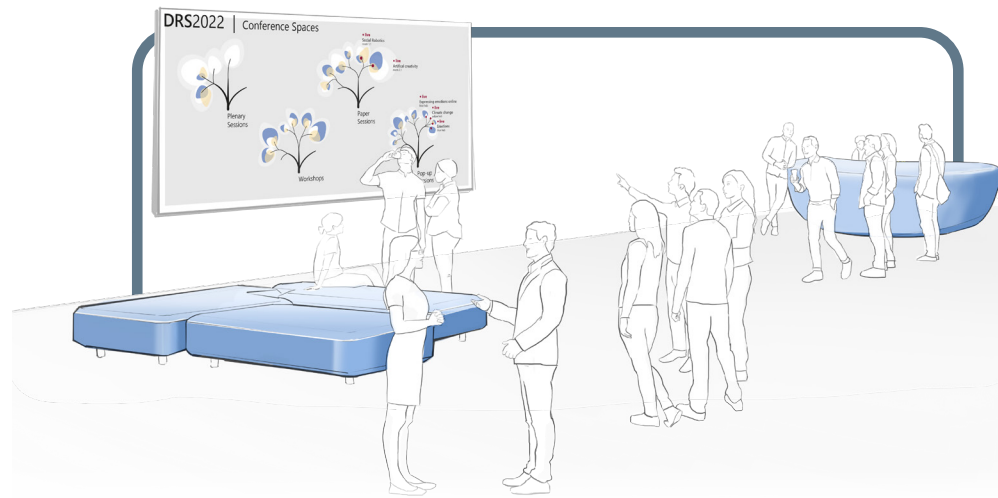
Having this flexible range of submission can reduce the paper production and submissions, which could lead to more consideration of the research papers that are presented at conferences. Another intervention to contemplate in order to consider individual contributions is to reduce the number parallel tracks or keeping them balanced with the number of participants especially at hybrid conferences. The reduced number of parallel sessions could create more audience for presented research but also make it easier for people to choose for sessions.

Lastly, we need a flexible participation to increase an inclusive environment and therefore also increase the quality of content. During my analysis I found that people are increasingly looking for flexible workspaces and lifestyles in future for better self-management within people's unique circumstances and schedules. This requires conferences to switch to a hybrid set-up. Besides it contributing to a much more sustainable solution, a hybrid format opens up many opportunities to include more people and provide a valuable space full of knowledge and conversations. Within this flexible participation I want to propose a set-up in which people are able to participate on-site, local-site or online. Besides, the type of participation could also be differentiated between active and passive. Because we want to draw more recognition of the research created by people, providing an option to have access to conference material (such as videos) for a certain amount of time, can provide a wider range of audience. This includes people that may not find the time to actively participate or people from organizational or governmental institutions that want to learn from research.

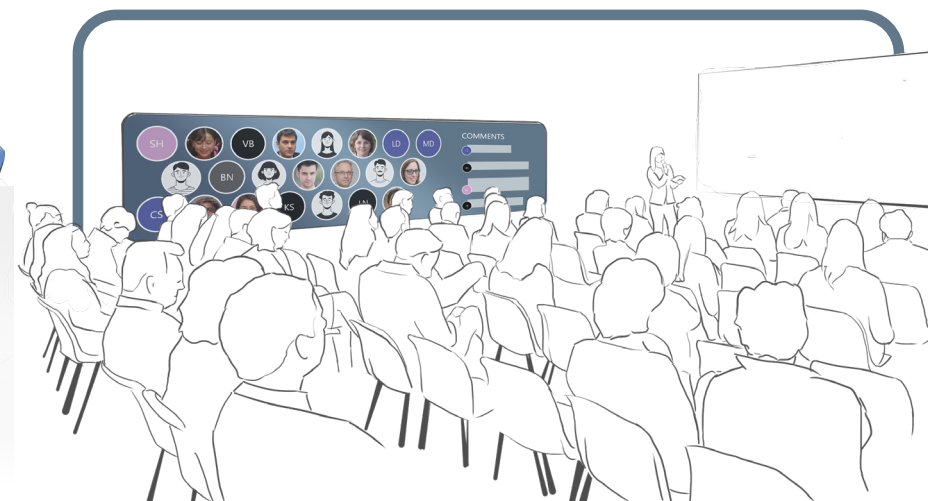


6.3 Interaction Level

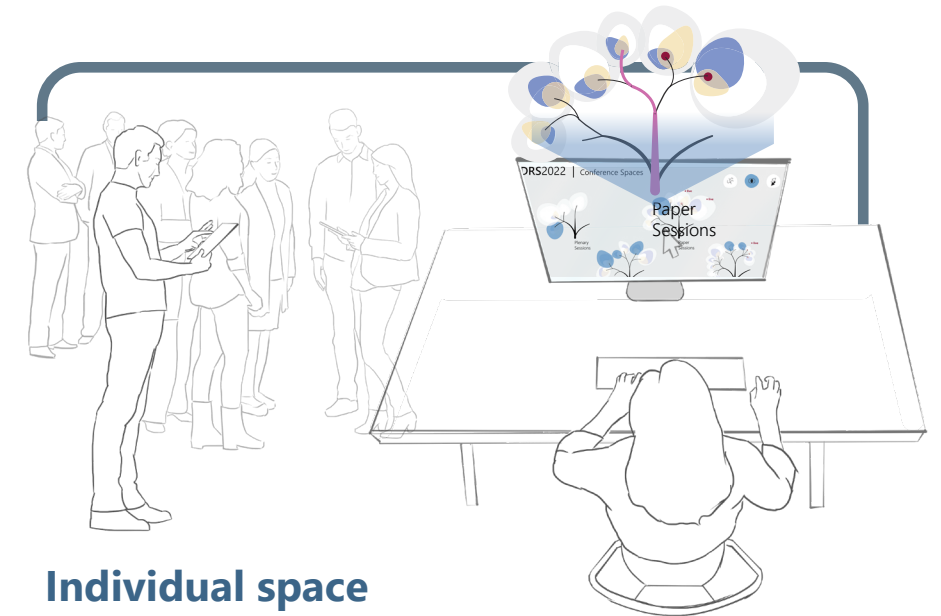
Digital conference space



Living conference progression

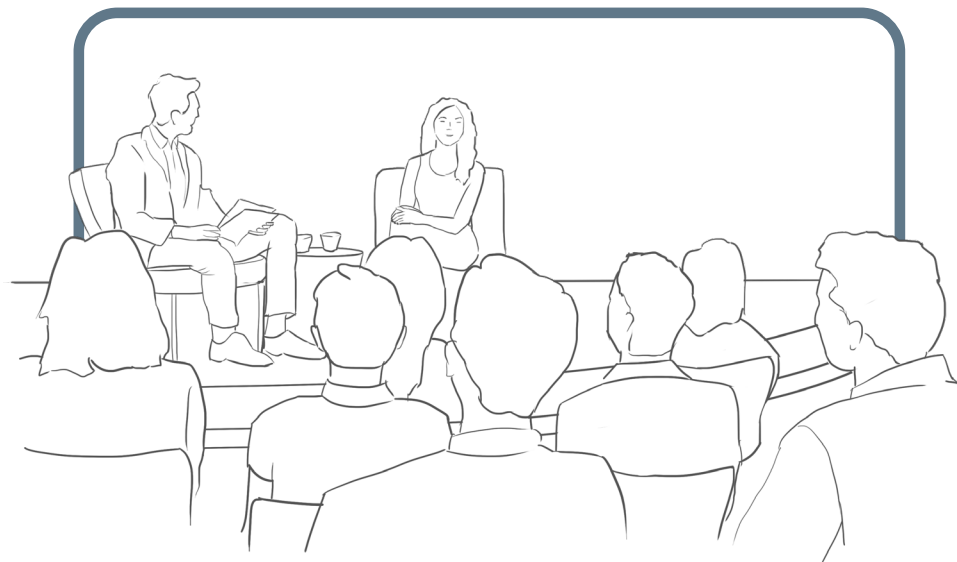


Living wall

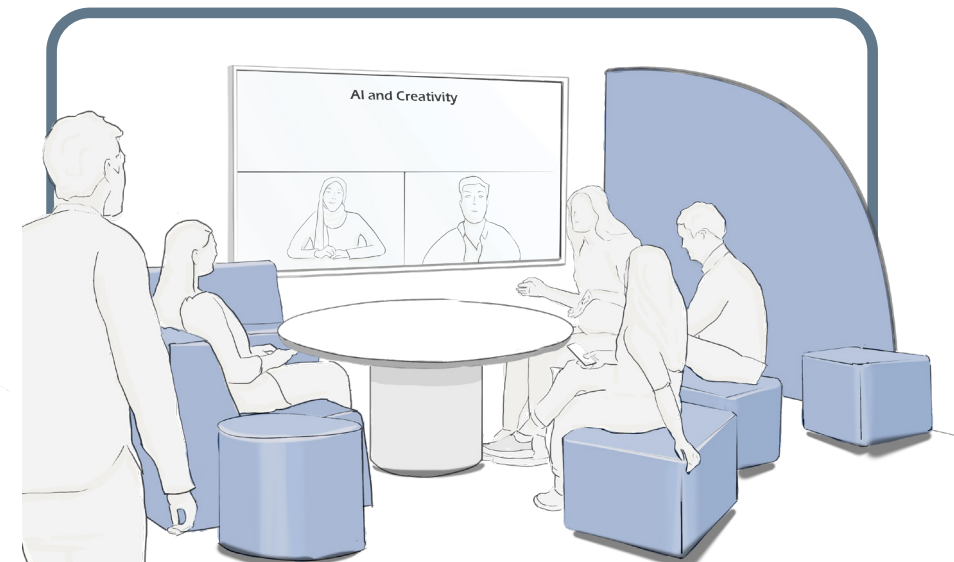


Individual space

Momentary elements

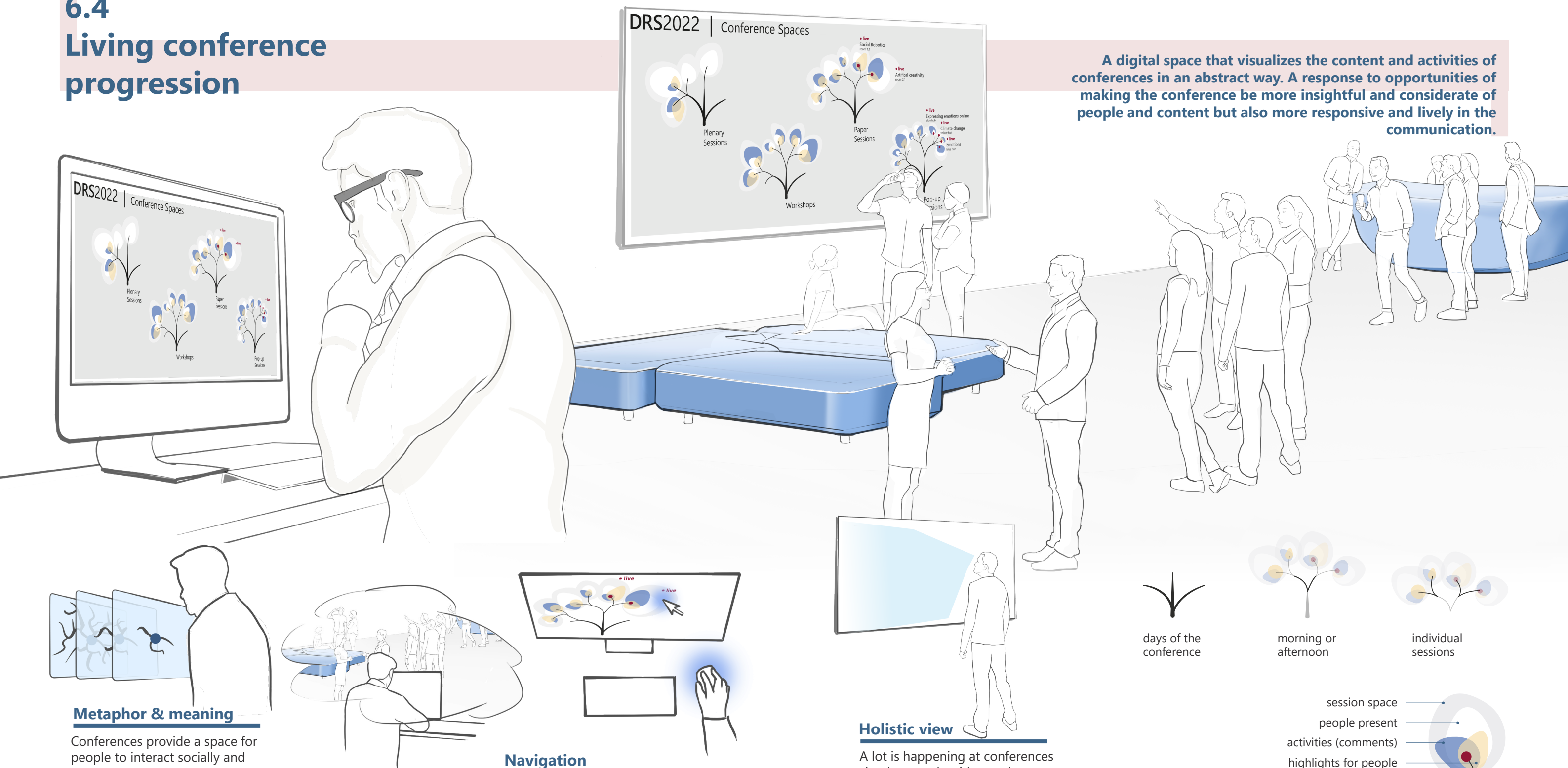


Reconnect session



pop-up talk

6.4 Living conference progression



A digital space that visualizes the content and activities of conferences in an abstract way. A response to opportunities of making the conference be more insightful and considerate of people and content but also more responsive and lively in the communication.

Metaphor & meaning

Conferences provide a space for people to interact socially and intellectually. The conference starts out as an empty facilitation but over time it is growing with new connections made and new content presented and created. The living conference progression metaphorically represents the conference growth through a live(ly) data visualization giving people the feeling of actively contributing as content creators.

Abstract immersion

In an online environment people tend to lose touch of immersion and space. This abstract technological space provides immersion for people in a creative and visualized way by providing proximity of conference activities.

Navigation

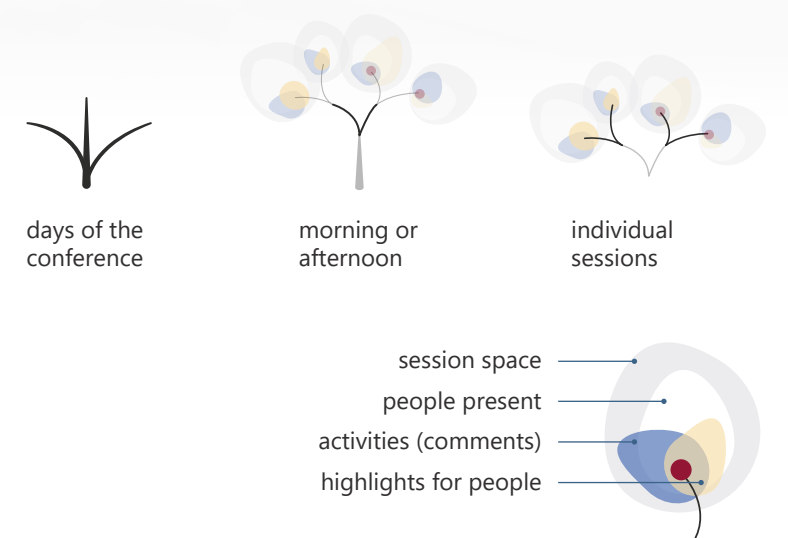
The interactive space can be used to navigate through the conference experience. For remote people it is easy to move to different spaces and switch sessions. For remote people joining in different zones at different times, it helps to grasp all conference activities and decide which sessions to rewatch.

Holistic view

A lot is happening at conferences simultaneously with people easily losing track of proposed activities. Instead of a timeline and list of sessions, a holistic visual provides people an overview and a general feel of what is happening at the conference overall in a more artistic way. Looking at a big picture can inspire to explore outside the personal and professional bubble.

Insights in content & highlights

Looking at the big picture stimulates people to look at content that might otherwise have remain unseen and provides opportunities to learn something unexpectedly new. The space visualizes days, times, sessions, number of people, but also human dimensions, such as comments made and highlights of participants. This space also provides an opportunity for conference organizers to present highlights from the conference in form of video snippets, quotes or pictures.



6.5 Living wall

Living wall with participants

The design on this page illustrates how virtual people could participate in conferences in a more credible or acceptable way. Depending on the session size the visibility of people varies. In small workshops during group work, participants should be shown with their camera on in order to communicate. In larger paper sessions, for example, it is not necessary to see faces.



General feel of participation

Independent from seeing faces, avatars or initials, all participants are represented in some way during sessions for experiencing the full range of people that join.

Feeling included

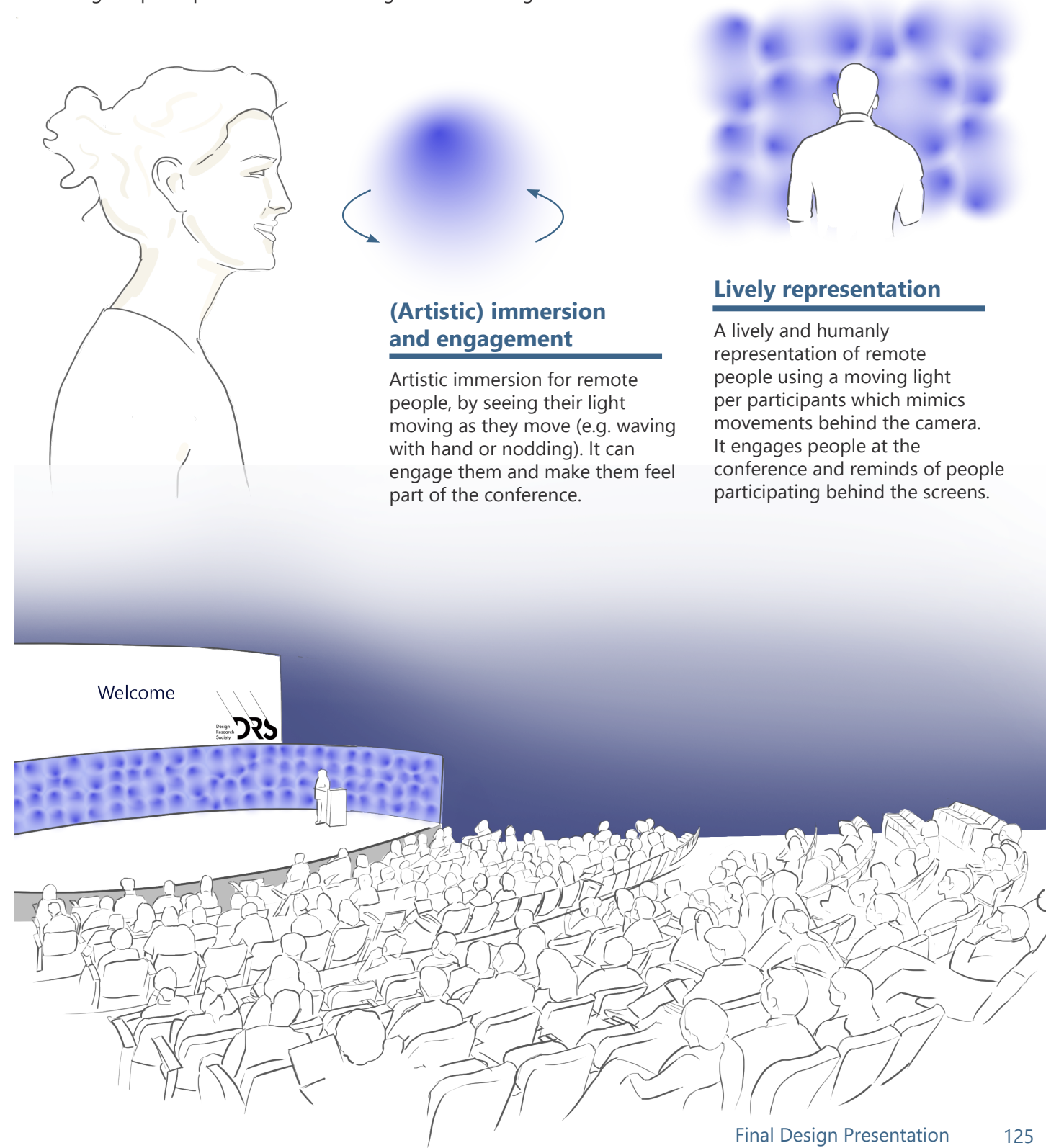
Having the illustration of people creates inclusion by reminding the people at the location that there are people participating behind screens. People from home can impact discussions by leaving comments for virtual and face-to-face participants to read and to discuss during larger sessions, making them feel heard and more incorporated.



A part of the digital space which focuses mainly on the lively incorporation of virtual people and how face-to-face participants perceive and consider them. It proposes two different kinds of representations: a design closer to reality on the left side while the right side explores a more artistic representation of people in future.

Living wall with more artistic take

This design, on the contrary, illustrates a more artistic representation of people. While this might be less credible to implement, it explores possibilities of illustrating life (people) that participates beyond the physical conference space, reminding people at the conference of the full range of participants. I envision a design like this in larger sessions.



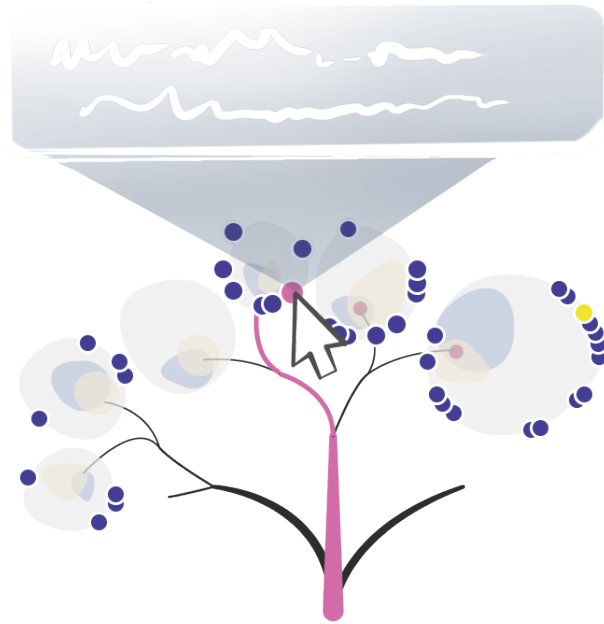
(Artistic) immersion and engagement

Artistic immersion for remote people, by seeing their light moving as they move (e.g. waving with hand or nodding). It can engage them and make them feel part of the conference.

Lively representation

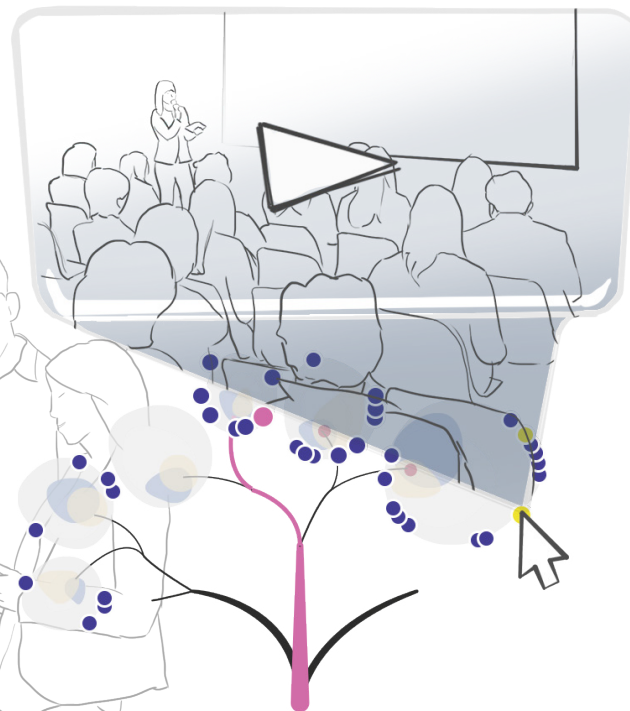
A lively and humanly representation of remote people using a moving light per participants which mimics movements behind the camera. It engages people at the conference and reminds of people participating behind the screens.

6.6 Individual space



Seeing traces of activities

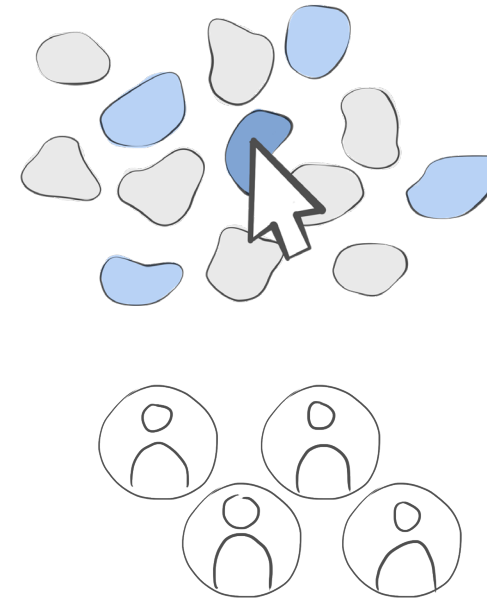
Within the space, participants can also see traces of activities and gain an overview of their experience so far. With this they can see what they might be missing or be stimulated to explore something new. An overview of activities can also help early career researchers in finding and building their interests, focus and identity.



Memorable moments

Conferences are about memories. So, people should save or capture memories in their individual space but also share it with others within the shared space. This provides opportunities to share human dimensions, within the living conference progression.

An interactive space within the digital environment that makes use of AI to create an individual space that differs among participants to make people be individually considered. It provides people with information, suggestions and connections between content and activities but also provides opportunities to connect with people.

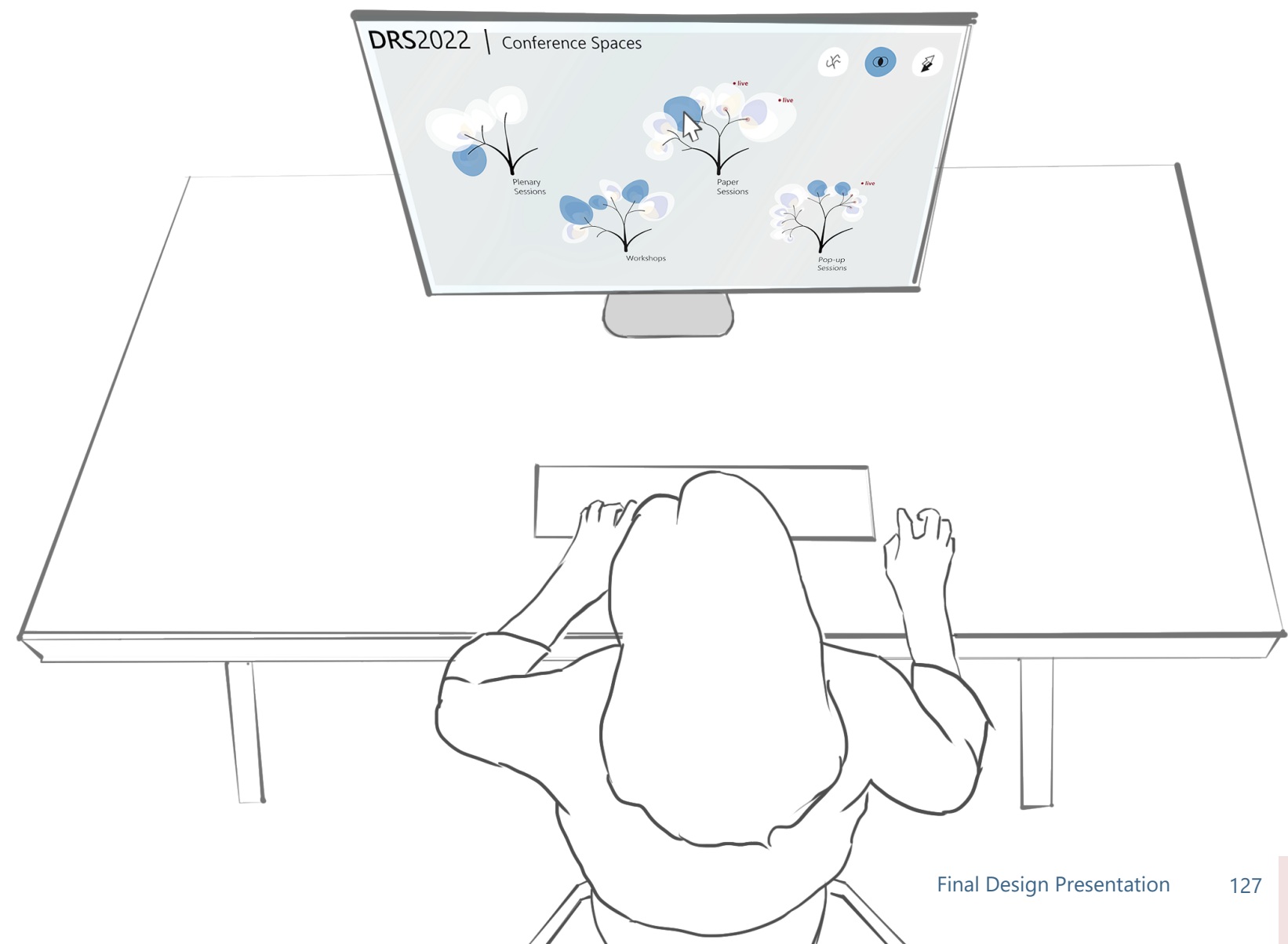


Suggestions

It offers a space within the conference visualization in which people get suggestions on other similar talks or even completely opposing talks. This can help people to open up their minds on joining sessions they would initially not plan to attend which can create unexpected learning experiences.

Seeing people

Not only activities but also people can be captured and suggested within the space. That gives people a chance to see others that you have (unexpectedly) common interests with. For example, sharing many sessions together.



6.7 Pop-up talks

A space (physically and digitally) that offers participants to open up talks or sessions spontaneously during the conference with anyone invited to join.



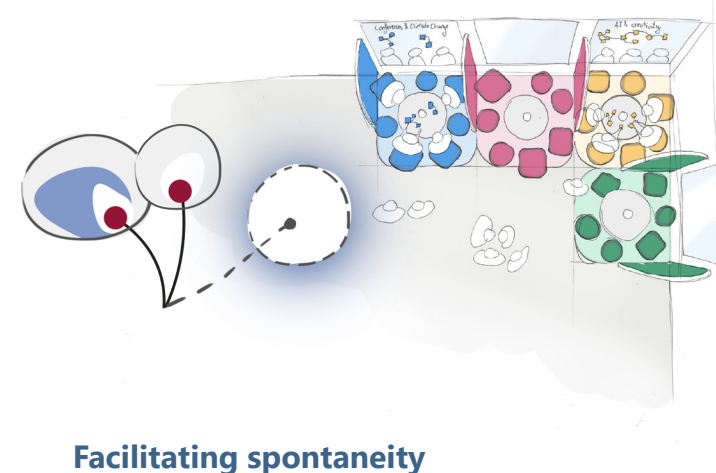
Inviting/inclusive space

The emergence of pop-up talks becomes visible within the digital space, by visualizing it in the conference progression, and the physical space by providing dedicated corners. With this anyone can be included to join, independent from being a virtual or face-to-face participant without having to know people beforehand.



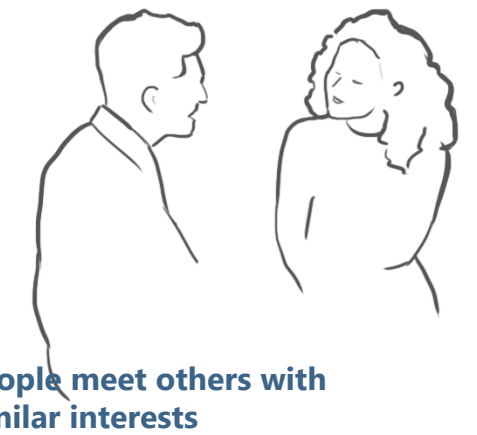
Nourishing need for discussions

People constantly have new thoughts, ideas and questions popping up during an inspirational session. This space helps them be able to continue on interesting thoughts with others at any time. Having the pop-up talks presented in combination with the visualized overview of the conference, helps other participants to have more insight about other people's thoughts and concerns within the field of research in a stimulating and inspiring way.



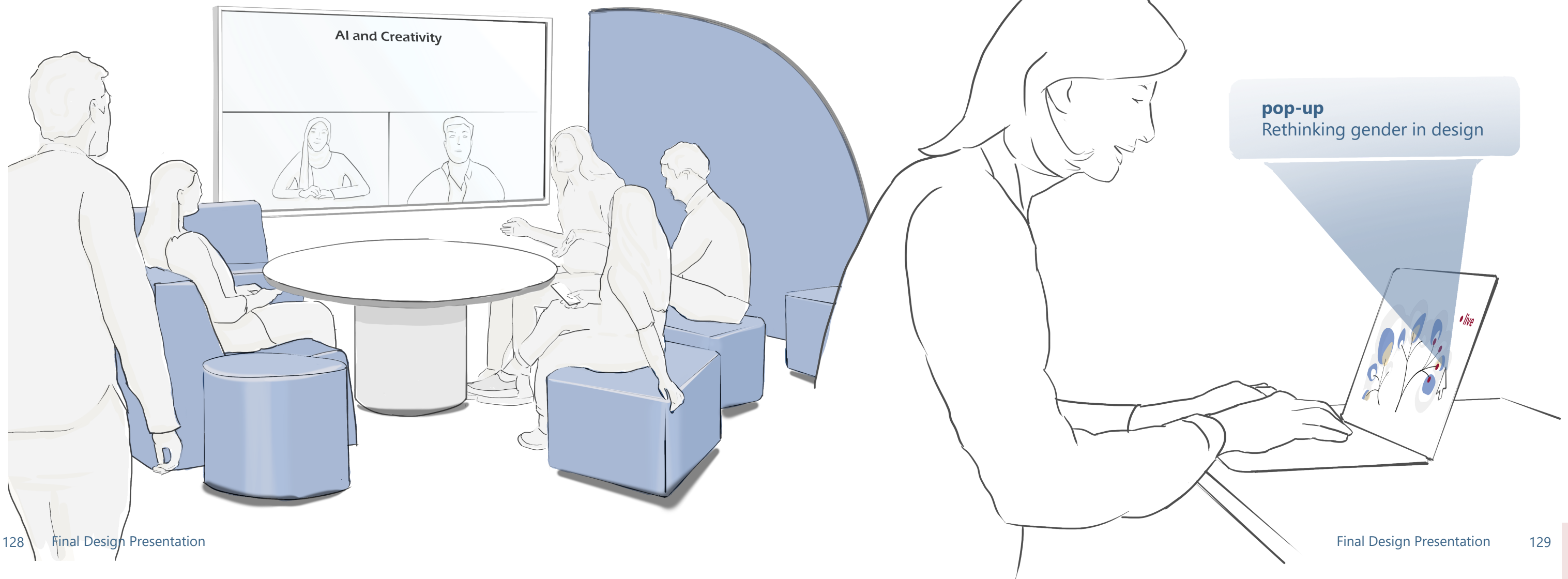
Facilitating spontaneity

An open and flexible format helps participants to create intuitive conversations even within a hybrid space. The space supports the spontaneous and organic movements happening at conferences while making it possible for any interested people to join.

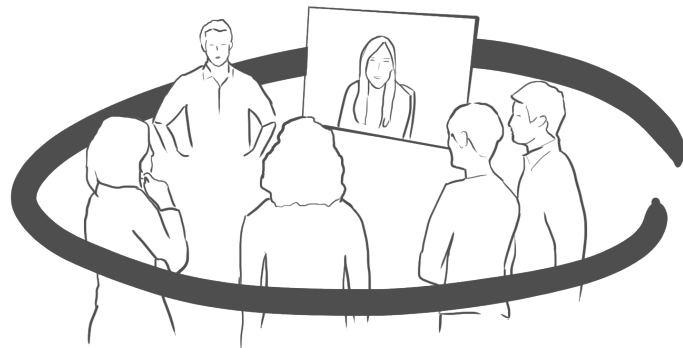


People meet others with similar interests

People start a talk based on a certain topic. Others will join if they are interested in this topic. This can result in making new meaningful connections with people that have similar interests.



6.8 Reconnect sessions

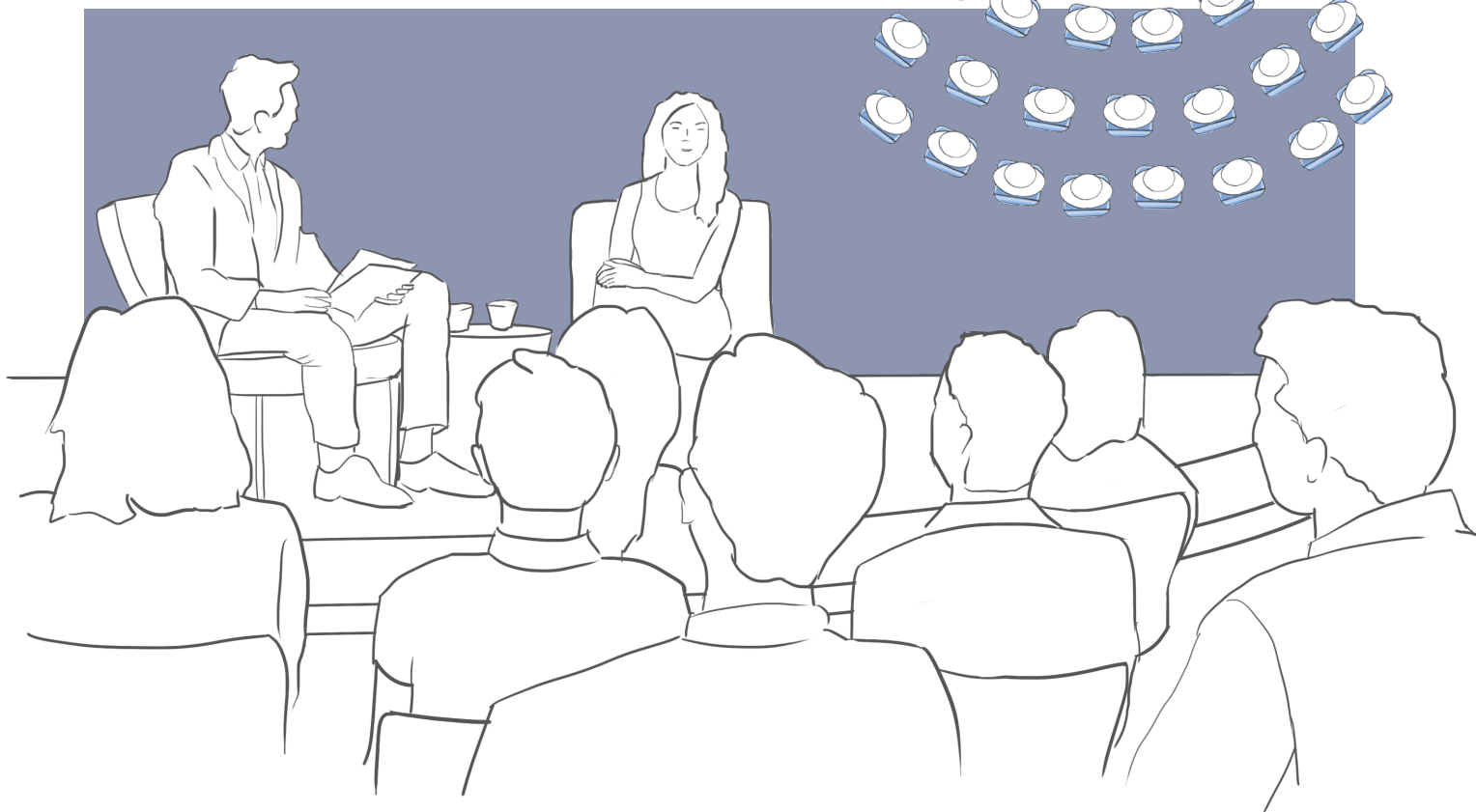


Include people that would normally not attend

Through this format and by offering it in a hybrid setting we are able to include people (particularly design practitioners) that would normally not attend conferences but also have a wider reach of audience to absorb the new knowledge creation.

Larger dialogue format

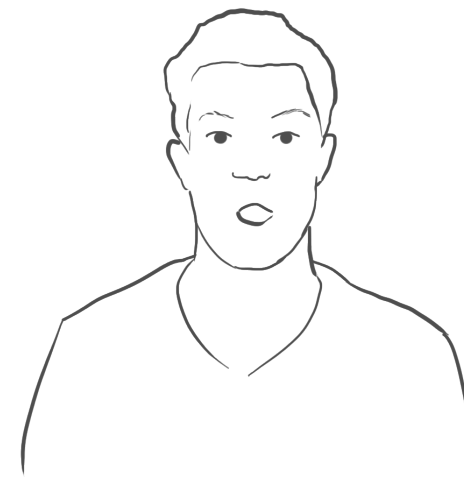
One way to do this is by creating a dialogue style format with two or four main speakers (design researchers and practitioners). This format can be useful when the audience is larger. It still provides a chance for the audience to interact with the speakers and together create a dialogue.



Reconnect with world and social problems

Being able to reconnect to design practitioners gives people the chance to bring relevant issues in the world to the surface. It provides an opportunity to bridge the gap between academia and the real world and can inspire design research to consider important problems in future research work.

Sessions that enable people to reconnect with design practitioners, the people that take on academics' knowledge, to talk about certain topics. This could take place in two different formats: A dialogue format with one or two practitioners and academics facilitating a conversation with a larger audience (right side). A smaller 'café style' session with conversations in small groups.

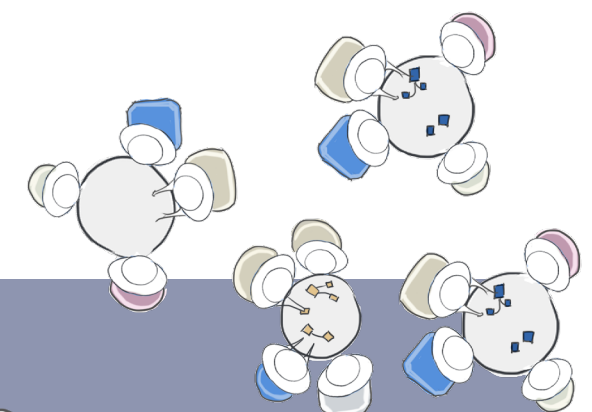


Academics recognize their impact

Having direct dialogue between academics, practitioners or other stakeholders from the field, can be an eye-opening experience for researchers by seeing the impact they can make in the world and the recognition they can have by practitioners when providing the right content.

Smaller café format

A smaller 'café style' format can be of advantage with fewer participants. Informal round table conversations make all people involved feel to be in the same power relation to provide input for an in-depth dialogue.



07

Project Conclusions

After having presented the future design vision in the last chapter, the final chapter of this report sums up my project with concluding words. First, the project and its outcome will be summarized from where I draw conclusions based on my initially stated project goals from chapter one. This is followed by discussions and limitations addressing the significance and possible flaws of my findings. Lastly, the report finishes by suggestions on how to move this project forward and a personal reflection on my (learning) experience.

7.1

Project summary & outcomes

This graduation project explored the possibilities of scientific conferences' future evolvement and involvement. By investigating the past, present and future of conferences, one final design scenario has been developed to answer the investigations' outcomes.

Interviews with design researchers and conference organizers as well as studying existing literature on scientific conferences (and factors impacting them) has revealed a development of conferences' purpose in the past until now. Due to the rise of technology as well as the growing academic community the purpose of conferences has shifted from focusing on knowledge exchange and career development to focusing on social interactions, serendipity moments and debate (creating knowledge). Also, the need of wanting to make meaningful impact due to societal changes and environmental impact has grown.

These insights together with the investigation of future trends that have an impact on academic conferences have exposed three major driving forces that can shift the purpose of academic conferences but also pose great opportunities:

- 1 Relevance and awareness of inclusion in which we need to provide safe and flexible spaces for people to be and feel included.
- 2 Relevance and awareness of impact as academics in which we need to stimulate responsibilities of academics.
- 3 Enhancing this inclusion and impact through technology by making people aware of other people and content with better becoming algorithms and multi-modal systems.

This research has led to finding out about conferences' opportunities to become a more inclusive and impactful society with hybrid technology, new organizational strategy and interaction design.

Due to these opportunities that arise from the three main driving forces, the goal for the redesign therefore was to create a conference in which people are exposed to and experience the full range of individuals and valuable content. With this a broader spectrum of people is able to participate, feel included and provide valuable insights. I also want to contribute to more impact and responsibilities of academics by stimulating more perspectives in terms of content and participants.

The outcome of this project is a framework of individual designs that address the organizational level of the conference as a basis followed up with the interaction level as the main design interventions during the conference. All design elements evolve around the product and interaction qualities of providing a more flexible and lively space on the one hand and providing a bigger picture for more insight and consideration on the other hand.

The organizational level provides a base for more inclusion at the conference by offering a flexible participation set-up (hybrid, active/passive participation). It also addresses the responsibilities for qualitative rather than quantitative content creation by enabling participant to join the conference without submitting a finished research paper. Lastly, more attention to individual contribution can be maintained by reducing parallel tracks or keeping them balanced with the number of participants.

Applying my research to the interaction design level resulted into a future conference scenario in which a technological space co-exists with the real conference space. With the use of data visualization, the conference activities and progress as well as the presence of people is visualized in a more artistic way, by which people (independent from being virtual or real) have the opportunity to gain overview, be inspired and navigate through the conference experience. Next to this technological space, momentary elements are presented that also represent the qualities of creating perspective and spontaneity in making connection with people and content.

7.2

Returning to my design goal

The goal of this project has evolved and changed as I progressed in my research. The initial assignment given to me by the DRS focused on designing a hybrid experience to save resources, spare the environment and be more inclusive. The design should help blur the lines between reality and virtuality but also increase the productivity of the event by using a hybrid concept.

As the project progressed, it became clear that conferences can have huge responsibilities and impact on the academics and their progress by providing the right space for them. I widened my focus by not only looking at hybrid experiences but also investigating the developing purpose of conferences and the possible future role that academic conferences can take based on the analysis of future trends to find new opportunities.

This led to the overall aim of developing a (possibly hybrid) design solution for the DRS conference 5 years from now (2026). It was also the aim to find out whether a hybrid set-up is the right choice for academic conferences. By focusing on how to create a new conference format and to which extend hybridity should be incorporated, opportunities in redesigning the overall interaction space at conferences emerge. Finally, I aimed to translate the designs into bridging solutions for testing at the DRS2022 conference in Bilbao.

With my project I have found new future opportunities for academic conferences to make a memorable impact on society. The design is taking a hybrid set-up and technology to its advantage to make people be and feel part of the conference (independent from attending virtually or face-to-face) and help them be inspired by the wide variety of people and content to be stimulated and look beyond their personal and academic focus. With my design I want to inspire the academic society on new possibilities to create meaningful research and impact. This design helps people explore the full conference space and consider or find unexpected new insights. The hybrid set-up also offers opportunities to reach a wider audience beyond academia.

I think that my design is a good starting point at exploring different possibilities for the role of academic conferences in future. This project shall also be a conversation starter for its readers to be inspired and start thinking and talking about possible futures and involvement within the scientific society.

My end result is not a finished product but rather a vision that explores different opportunities with a focus on desirability instead of being pulled back by viability and feasibility aspects. However, the research into future technology supports the feasibility of my design elements in future. To validate the desirability and feasibility of the project the next step is to translate the design into bridging design solutions for testing at the DRS2022 conference in Bilbao. This has not yet been fully realized but will be discussed in the paragraph 'How to move forward'.

7.2

Discussion & limitations

Prior to this project it was already assumed that creating a hybrid conference will be essential in future due to developments in climate change, societal inequalities and the disruptive pandemic. However, it was not clear to which extend the DRS should incorporate a hybrid set-up. It was also uncertain what role conferences can and should play in future.

With the help of the VIP approach the roll of conferences in the past, present and future was investigated from which a strategy and design vision could be created to respond accordingly to future trends.

Next to this, insights into advantages and disadvantages of online and face-to-face interactions were discovered in order to provide a concept from which virtual and face-to-face participants can benefit from each other in a hybrid setting. The visualized conference space, for example, takes to its advantage the capability of tracing data within the online space and visualizing it through AI in a more creative way to inspire and navigate people. This research is also addressing the underlying meaning of the big picture. Not only seeing the big picture of the conference visualized but also seeing opportunities for academics to incorporate different perspectives into their research that would otherwise remain unseen. While it is important to maintain a focus in research as academics, people should also be motivated to look beyond their research focus to be inspired and take different aspects into consideration. That also takes into account to reconnect with societal issues.

Not only more responsibility within research can be created with this but also more inclusion by being able to see the broad spectrum of people. We have learned that inclusion contributes to a better representation of people's opinions and therefore a more creative environment which is why it needs to play a bigger role in future conferences. My design elements stimulate people to think what can be possible in future to bring together face-to-face and virtual participants, how they can learn from each other and how new connections can be made. While a hybrid set-up favors the idea of inclusion it can also come with downfalls in which there is a separation between face-to-face and virtual people.

Overall, this research has shown that conferences can have a big impact on the way knowledge is created within academia for more meaning of research instead of overproduction. If organized well, they can inspire and stimulate academics and create an impactful environment full of relevant knowledge creation. Not only in terms of content but also in terms of people, we learned that it is important to acknowledge individual contributions and make people feel acknowledged.

With my research and proposed design elements, I want to encourage people, that are involved with scientific conferences, to look beyond a conventional conference design and explore new possibilities that arise with the help of (hybrid) technology in future. I wanted to provide ideas that range within novelty and radical changes, in which some ideas might be more realistic to implement now already (e.g. reconnect sessions), whereas other ideas are more out-of-the-box and future oriented (living conference progression). These partially controversial designs but also my research insights shall provide conversation starters and motivation to explore all the new opportunities that the future holds.

This research also comes with limitations or aspects to consider for further research.

First of all, the research has been structured with the help of the ViP approach. While this is a very future oriented approach which provided me with the right tools to design a future vision and come up with creative solutions it also gives designers the freedom to incorporate their own characteristics or own ingredients within a design. For me personally that was very helpful, however, it should be taken into consideration that the final design also reflects a small portion of my personal view on the topic while progressing within the design phases.

Furthermore, during the concept evaluation, it was not possible to prototype and test different ideas within a conference set-up due to time constraints. Instead, a video presentation was created to take the participants to the future conference scenario. This comes with limitations as the participants could not directly reflect on their experience with the proposed design but rather had to imagine what it would be like to experience the designs. Also, the sample size of the evaluation consisted of five participants from the academic field and/or conference organization. While this sample size was a good first indication of what the participants in general liked or disliked about the concept, it needs more participants to reach a clearer saturation point of the participants' desirability to evaluate the individual elements with certainty. Worth mentioning at this point is, that some design elements had a much clearer indication of saturation (three to five participants mentioned the same insights) than other elements (one to two people mentioned the same insight). Which design elements are more certain than others will be discussed in the final recommendations chapter.

Another interesting experience during the research and something to take into account is the target group of this project. Throughout my research I had the chance to talk to various design researchers with various backgrounds ranging from PhD candidates, university researchers and practitioners to (associated) professors and conference organizers. The conversation with every individual has been very insightful and inspiring, as design researchers have strong opinions on the topic and are happy to strive for providing many insights into the thoughts they have. This resulted in many similar but also completely opposing insights that should be taken into account as people and their intention at conferences can vary drastically based on their personality but also positioning in career. However, I believe that my design provides enough flexibility to suit different intentions of people.

Lastly, it should be taken into account that for the concept evaluation not only design researchers but also people that are involved in the conference organization have been interviewed which could provide some limitation. People that also organize a conference will most likely look at the design through a slightly different perspective which could impact the likeliness of the desirability presented in my outcome.

7.3

How to move forward

This report focusses on the visionary aspect of conferences in future and less about the feasibility and viability of the design. Therefore, in the following paragraphs, I would like to recommend some next steps in order to move forward with the project. First of all, as mentioned in my discussion, some design elements are more realistic to be implemented and accepted by people in near future than others. Based on the concept evaluation, pop-up talks and reconnect sessions were perceived as useful and desired by all participants. These are also the design elements with the least risk and change in interactions. Already now, people seek for options to reconnect with societal issues at conferences and work on increasing spontaneous discussions. They also require the least resources (especially reconnect sessions) in terms of design, technology, innovation and facilities. Therefore, these elements are more certain in its desirability, feasibility and viability to be able to implement now at conferences but are also the safest and more conventional options. More controversial opinions were perceived within the artistic and lively visualization space that include the living conference progression, the living wall and traces of activities and people. Three participants were experiencing these designs as very positive while two participants had neutral or negative feelings towards them in terms of usefulness and cost. Therefore, these designs are more uncertain in its desirability but also bring more difficulties in implementation in terms of feasibility and viability. It will require technology that tracks people, interactions and activities throughout the conference and AI algorithms for real-time visualization as well as making it interactive. This makes it less feasible to implement in the near future. Furthermore, because it involves creative visualization it also should involve people or agencies from the field of data visualization. I was inspired by data visualization artists such as Thomas Clever and Federica Fragapane (see figure 49) to mockup a visualization design. Looking back at the evaluation but also taking into account my own opinion and experience I gained through the research I find the reconnect sessions and the living conference progression are the most valuable ideas for the future conference. I think that they will provide academics a more stimulating environment and motivate them to create valuable research that considers people and content. Even though the conference progression was perceived as quite controversial, it provides a possibility to represent what design is about. It is a starting point to make design research conferences become more designed and

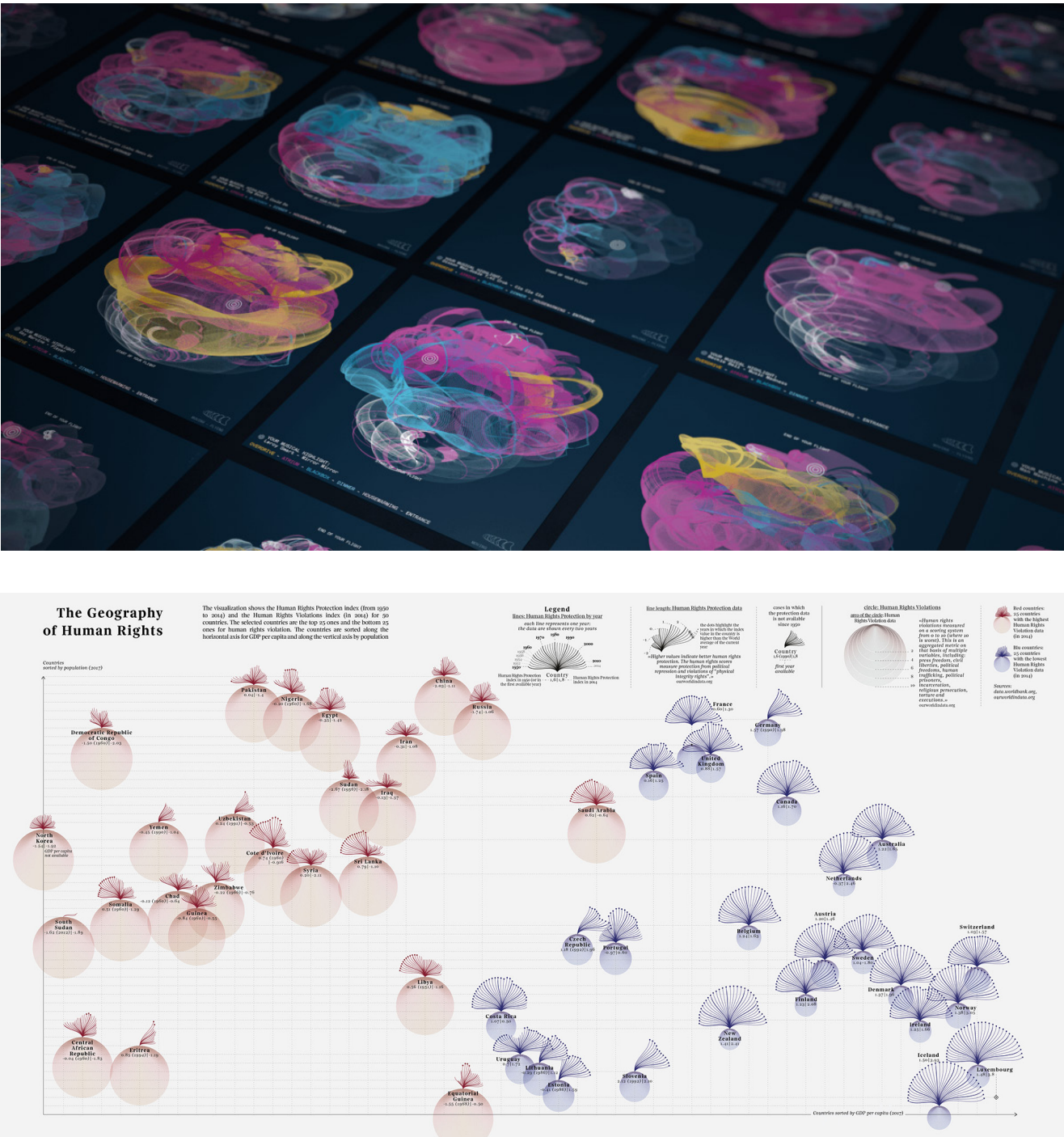


Figure 49 Two examples of data visualization used in a design project by Thomas Clever and Federica Fragapane.

implement what designers have developed in regard to the research created. Pop-up talks would be another valuable design that could be implemented in near future, as these are a chance for face-to-face and virtual people to meet and interact directly und unexpected.

To make these ideas a realization companies like Clever Franke that work with data visualization and create platforms for organizations could be a possibility to incorporate for future implementation. An alternative would be working together with a data visualization artist or designer and a programmer to create a platform.

Next to this the technology has to be taken care of and available at the conference, which includes sound, recording, video, light, tracking systems and a variety of digital screens or projectors (amongst others) to make the hybrid conference as I envisioned it a possibility.

The DRS2022 conference in Bilbao could be a great place to start prototyping and testing first ideas. For example, the living conference progression could be prototyped into an artistic conference map, where all sessions are visualized in a creative way and made interactive through a platform for navigation. It leaves out the real-time data visualization, which might be harder to test yet, but the navigation and visual aspect of the idea can be tested. Pop-up talks could be tested by creating little booths with displays and camera and a channel through slack, for example, to communicate the need for discussion of certain topics.

Lastly, reconnect sessions would be the easiest to test out at the next conference as it just requires to invite design practitioners and a facilitation set-up without having to worry too much about any technology or design.

Overall, even though this report was focused on the visionary approach for the future in place of the feasibility of the design, I hope to be able to inspire people with these recommendations to bring further some of the ideas and the overall vision I created.

7.4 Personal reflection

Lastly, I would like to share my experience and what I learned throughout the process in this personal reflection.

First of all, I surprised myself with the attitude that I went into this project. Telling myself that this was the last chance to enjoy an educational experience by the TU Delft and be guided by some very experienced people, has really helped me greatly to go through the project. It helped me overcome the feeling of constantly having to prove myself and the fear of failure.

This is also why I took the courage to use a, to me, completely new method, Vision in Product Design. I am very happy that I have taken the initiative to learn a new method while receiving the guidance I needed from my supervisors. It has helped me in completely rethinking the existence and purpose of a product instead of working with conventional problem solving.

Another great learning experience was to see my work in progress as material for discussion in meetings with my supervisory team. In previous work, I was struggling to show unfinished work. But my supervisory team has always acknowledged my work as a progress and made me feel comfortable to share everything along the way. I think that stepping away from my work and using it as discussion material has helped me greatly in not taking feedback personally but rather value every feedback given to me in order to progress to better results.

Another important learning experience I have made, is the value of taking time off. Spending time away from my project and taking enough breaks in between was so important for me to keep my mind fresh. I learned when it was time to take time off but also when it was time to pull through and not give up. This project was another example of a design process becoming a rollercoaster experience. Some days were difficult and left me feel hopeless, while others were very motivating and left me feel hopeful. But I learned how important it is to trust the process and have faith until the end, even if that means to go through some tough days.

Overall, I am very happy and proud of myself that I had the courage to pursue a master. Even though I am not sure yet whether I want to be an interaction designer in future, it has helped me so much to look at the product design process from a different angle. I will always look back at the experience in a very positive way.

08

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