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# *Yes, And* Co-Creating Value

Case study: BotH$_2$nia hydrogen network

**TURKU AMK**

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# YES, AND CO-CREATING VALUE

Case study: BotH$_2$nia hydrogen network

The purpose of this thesis was to introduce improvisation theater's *Yes, And* mindset as a truly human centric, real-time activity that is, as an inclusive, viable skill for co-creating value between and mutually for actors in a group dynamic. Passive or less pro-active actions lead to lower interaction and possibility for creativity and unexpected opportunities. The aim of the study was to help the Commissioner, BotH$_2$nia hydrogen network to understand what gave value to their member-actors in relation to the network service, in order to respond in a relevant and pro-active manner and towards future strategic development.

The overall design process was guided by the Design Council Double Diamond and the literature review that aimed to define important theoretical areas of the thesis. The main hypothesis was "*Yes, And* co-creating value". The main areas included *Yes, And*, service-dominant logic value co-creation, design thinking and doing, and service design method and tools. Triangulation of mixed research methods, in particular the research methods observation and semi-structured contextual interviews, and service design tools empathy and service ecology maps were utilised during and after the conference, "BotH$_2$nia goes Luleå" where 145 participants came together to drive transition to clean hydrogen economies.

Results of the research showed that key factors that influenced *Yes, And* happening in conference group activities could be observed, collected, and ordinally measured, and correlated with value topics raised in the participant interviews. A *Yes, And* rating scale showed that BotH$_2$nia network was applying a *Yes, And* approach already to 7 out of the 11 value topics. Results indicated that all theories complimented each other and helped validation, demonstrating also that value co-

creation supported generic actors in an exchange, rather than persona influenced target groups. All aspects of the study culminated in three main *Yes, And* themes recommended to the Commissioner, which validated and supported further strategic development of the network. Overall, it was proposed that even with increasing validation in peer reviewed literature, *Yes, And*, deserved to be in more robust research studies in the future. *Yes, And* contributed tangible mindset and skills to the actualisation of mutual value co-creation in human and resource exchange groups, as an enabler for the benefit of all actors. A real-time *Yes, And* mindset, and both verbal and non-verbal manifestations, proved a strong compliment to service-dominant logic value co-creation theory, and both were brought to life by strategic design thinking and service design methods and tools.

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**Definitions**

Author
In this thesis the description "author" encompasses four interchanging roles: writer, researcher, design thinker and service designer, depending on the task at a particular time.

Yes, And / Yes, But / No
As the main topic of this thesis and to assist the reader, this two-word phrase will always appear italicized in written text in the following manner, *Yes, And*. It should therefore not be confused with other acceptable grammar versions, for example, 'yes, and' or 'yes and'. *Yes, But* and *No* will also follow the same text rule as *Yes, And.*

Member-actor
In this thesis the description refers specifically to $BotH_2nia$ network actors and their relationship with the group, which can represent paying and non-paying members, partners or friends.

Actor
Defines all other general people, subjects or entities in relation to an active situation, for example theater actors, participants, stakeholders, public actors or households.

# 1 INTRODUCTION

The scene is set. The space is ready with a diverse group of actors, made up of multidisciplinary expertise from different backgrounds and geographical locations and representing a broad demographic. And action, let co-creation begin.

However, with all the potential and good intentions, it does not necessarily mean that all actors are engaged, experiencing first hand, contributing, or benefiting from the exchange or situation.

Improvisation theater (improv) and a *Yes, And* mindset (Leonard & Yorton, 2015; Vera & Crossan, 2004) and from the author's own personal improv experience reveals a practical, in the moment human interaction skill set which can be both verbal or non-verbal and have the ability to equalise a group of potentially unrelated people, resulting in inclusivity and unexpected creativity. The attributes of acknowledgement, being in the moment, open to possibility and accepting a person's offer as a gift to build -upon, present co-creating value at its best; progressive, rewarding, and transformative for individuals and the group as a whole. The main focus of this qualitative research is to present the potential and benefits of *Yes, And* as an enabler in human interaction and group dynamics and presents the hypothesis, "*Yes, And* co-creating value".

Demonstrating *Yes, And* in action, the author, and a representative from $BotH_2nia$ hydrogen network meet on a plane and recognize their complimentary expertise and shared vision, and discuss a possible working partnership and commission for this thesis. Through initial personal communication on December 14th, 2022, the appointed Commissioner explains the need to understand what gives value to the actors in their $BotH_2nia$ hydrogen network, in order to be able to respond and guide strategic developments of the network so that it remains relevant and supports all actors' transition to the clean hydrogen economy.

The thesis will leverage the common threads between improv's *Yes, And* mindset and skills, with the theory of service-dominant logic value co-creation (Vargo & Lusch, 2017), design thinking and doing, and service design methods and tools (Stickdorn et al., 2018). This research will demonstrate that value co-creating is a fundament to all of these areas and therefore arguably complimentary and beneficial in providing deeper validity to each. It will reveal that *Yes, And's* truly empathetic, hands-on approach is potentially a missing link to often theoretically referred frameworks and functional methods and tools.

The BotH$_2$nia network is the case study and provides the opportunity to explore and test out *Yes, And* capabilities, especially during a planned conference in Sweden, "BotH$_2$nia goes Luleå". By using the observation research method, it is possible to find out what factors influence *Yes, And* happening in groups, and with selected interviews with participants after the event define what topics are considered of value to all actors in relation to the network, and make correlations between the two.

Design thinking and service design practices have value co-creation as a key component reinforced by human centredness relating to diversity and multidisciplinary (Clatworthy, 2017; Cross, 2023). Service design supports holistic thinking and provides multiple guiding methods and tools to understand complex relationships and exchanges. Increasingly organisations see the potential of integrating these design practices, in order to benefit from the dynamic and fluid, iterative nature of the process and help bring together people to innovate solutions and create opportunities (Koskela-Huotari et al., 2021). However, with the maturity and elevation of these design practices in recent years, and their response to complexity and societal global challenges, combined with the goal orientated business nature of organisations that focus on competitive, functional, operational centric systems often neglect, or do not know how, or are not able to get true potential and value out of co-creation activities for generic actors (Ekman et al., 2016).

*Yes, And* mindset and attributes are robustly presented in this thesis by utilizing qualitative and quantitative mixed research methods, in order to finally deliver practical *Yes, And* recommendations for the Commissioner to guide their strategic development. With increasing validation in peer reviewed literature, *Yes, And* deserves to be involved in more rigorous future research studies, in order to contribute to the actualisation of mutual value co-creation in human and resource exchange groups, that can bring collective benefit to all actors, whether individual or larger groups.

## 1.1  Background
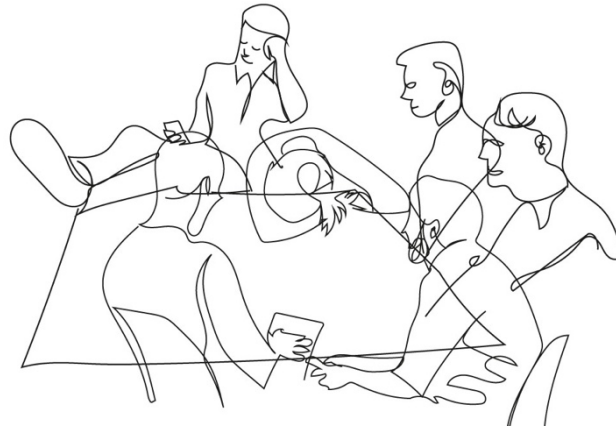


Figure 1. Continual line illustration symbolizing human interaction and group dynamics.

The origins of this thesis and research study derive from the author's desire to understand more about human interaction in group dynamics as symbolised in Figure 1, and asks why people sometimes appear active, passive, or inactive, as shown in Figure 2, affecting the potential of, for example a service system (Ekman et al., 2016), or actors on a stage, or a social or community group activity, network collaboration or business culture (van der Bijl-Brouwer, 2022). In a group, friction, judgement, or exclusivity can affect individual and collective involvement and exchange, and consequently any contributions to valuable alternative ideas or unexpected opportunities (Stickdorn et al., 2018).
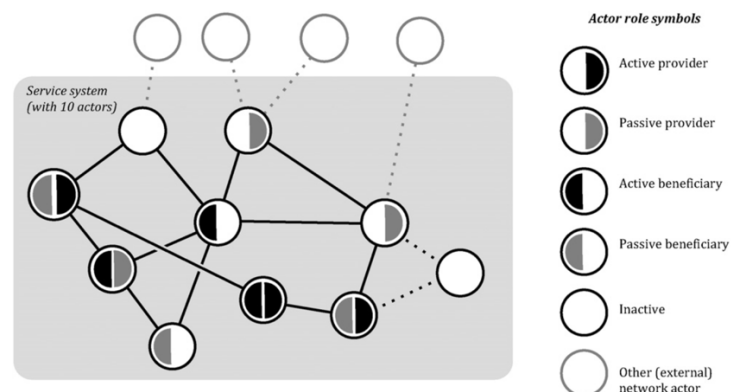


Figure 2. Exchanges and relationships between generic actors in a service system (Ekman et al., 2016).

The thesis author attends improvisation theater (improv) classes (Levels 1-6 short form) since August 2022 at Boom Chicago in Amsterdam, the Netherlands (Boom Chicago, n.d.). In contrast to passivity and inaction, the author experiences first-hand actor to actor and group dynamics that continually strive for inclusivity, supportiveness, and transformation for the group collectively and

individual actors alike. Despite continually interchanging people and unexpected topics in the moment, building upon everything is a proactive wish with positive energy. A *Yes, And* mindset and approach is apparently in action and embedded in the improv culture and activities and reveals a simple and highly human interaction that appears to give value to all actors involved. The author acknowledges this should be experienced by as many people as possible, or at least investigated if *Yes, And* happens naturally, it is measurable and transferable (Leonard & Yorton, 2015).

A chance meeting and discussions on a plane reveal complimentary expertise, needs and goals to form a designer-Commissioner partnership that can contribute to a combined research study, in particular at a hydrogen network conference offered by the Commissioner. This serendipitous moment is fuelled by similar interactional attributes to *Yes, And*; unexpected connection, reframing things with different expertise and seeing potential for shared positive value towards a greater impact (McCay-Peet & Toms, 2015). This proves to be a strong thread and driving force throughout the project.

## 1.2    Commission

The Commissioner for the thesis research project is Raahe Region Development, the development service unit in the City of Raahe (City of Raahe, n.d.). The research project focuses on the BotH$_2$nia network and its related services (BotH2nia, 2021a). They constitute work package 5 in a project called national hydrogen network for public actors (Raahen Seudun Kehitys, n.d.), which is publicly funded by the 42 project partners and the Council of Oulu region (Council of Oulu Region, n.d.), information of which is supplied by the Commissioner on January 9th, 2023. Minna Näsman is the project manager and with a background in communications, research, and energy business development has been working on the project since its inception in October 2021. Näsman guides all day-to-day operations, strategic developments, and acquisitions of the network, ensuring it remains of value to its members, relevant, proactive, and dynamic. In input provided by the Minna Näsman on 15th May 2023, Näsman says, "Trying to enable, even accelerate, a deep-going industrial transformation with all the tools that are available in the communications toolset, really is a challenge I gladly accepted".

Figure 3 shows announced hydrogen projects in the Gulf of Bothnia which lies in the most northern part of the Baltic Sea, between Finland's west coast, where the City of Raahe is situated in the North Ostrobothnia region of Finland, and Sweden's east coast, with the main cities of Luleå and Skellefteå. This played a role in demonstrating the geographical scale and European reach of the projects and significance of Bothnia within it.
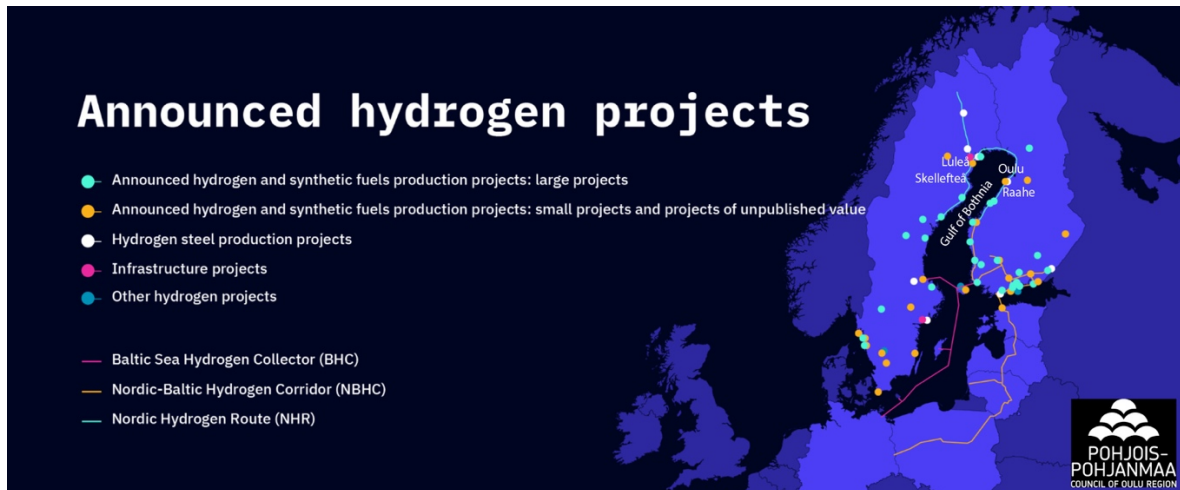


Figure 3. Map showing the cities of Raahe, Oulu and Luleå, and announced hydrogen projects in the Gulf of Bothnia (BotH2nia, 2021a).

The main purpose of the BotH$_2$nia Project is to support hydrogen networks to prepare municipalities and regions in Finland for the imminent industrial transition of the hydrogen economy. This supports the idea that hydrogen represents a clean solution for the future and that timing is critical for all the relevant parties that can contribute to this change collectively (BotH2nia, 2021a).

The project objectives are to create and maintain a network that can bring together all of these diverse parties so that they can help create a Nordic hydrogen hub (cluster) around the Gulf of Bothnia and present the north as a viable and strong player in the European hydrogen industry, as shown in Figure 3. In order to do this, the network needs to attract multidisciplinary actors from diverse sectors and locations which should include research institutes, business organisations, investors, city councils and municipalities and many more (BotH2nia, 2021b).

The BotH$_2$nia Project aims to attract investment to this area that can fund and develop new projects and contribute to building the largest hydrogen cluster in Europe for the mutual benefits of local, national, and international parties alike. The BotH$_2$nia network, as part of this project aims to facilitate a central source for all expertise in the hydrogen sector, where all actors are welcome

and can connect and collaborate openly and resources and information can be shared and accessed freely in order to enable a shared goal of a clean hydrogen economy (BotH2nia, 2021b).

## 1.3   Goals

The goal of the overall thesis is to support or refute the hypothesis "*Yes, And* co-creating value", based upon a thorough literature review on the theme and the other key topics of service-dominant logic (Vargo & Lusch, 2017) and design thinking and doing (Brown & Kãtz, 2019; Cross, 2023; Johansson-Sköldberg et al., 2013). This will provide in depth understanding and a balanced view of what has already been discussed, practiced, and reported in those fields, in order to objectively answer the research questions in the study.

The intention is to present the benefits that such a design research study gives the Commissioner and the BotH$_2$nia network service offer towards the complexities of clean hydrogen transition and social change. It will give insights through the eyes of *Yes, And* to their need of understanding how their diverse group of member-actors is working, and what the member-actors regard as valuable in order to inform where and how to transform the network in an appropriate manner (van der Bijl-Brouwer, 2022). A *Yes, And* applied mindset and criteria for the research will help to reveal whether the ambitions and intentions of the network owners are aligned with member-actor experiences and expectations, in order to provide a mutually supportive network space that is continually relevant, sustainable and secures required funding towards 2030 and beyond (BotH2nia, 2021a).

The thesis presents improvisation theater's *Yes, And* as a transformative real-time, human interactional skill that champions person acknowledgement and build-upon mindset, that relies on trust, inclusivity, and openness to move forward. It champions *Yes, And* as a tangible, complementary partner to design thinking and service design activities in orchestrating a space for co-creating value and mutually beneficial multi-actor exchange (Stickdorn et al., 2018). It is the goal to investigate and understand *Yes, And* in action and see how much is occurring naturally amongst people and what factors are influential.

The thesis objective is also to demonstrate that design thinking, and insights gained through applying service design and research methods can be beneficial in providing guidance for BotH$_2$nia

network service development and future strategic sustainable actions. Building upon the research findings and observations the goal is to translate the overall key insights into a succinct and useable BotH$_2$nia network *Yes, And* framework to offer new strategic focus areas and recommendations.

The research approach in the case study uses mixed method triangulation (Carter et al., 2014) of qualitative methods (Oun & Bach, 2014), and quantitative ordinal measuring (Franceschini et al., 2004), and service design methods and tools (Stickdorn et al., 2018) to obtain primary data collection for analysis. The design of the research process is based upon the established Double Diamond framework which enables iterative, adaptable, testing and continually evolving research phases, organised also to integrate real-time, two-way information and communication flow between the Commissioner and the author (Design Council, 2019). The research approach finds out through observation and interview methods if *Yes, And* naturally happens between actors in a group event and determines what are potentially influencing factors to help assign co-creation value.


### 1.4    Research hypothesis and questions


This research hypothesis, "*Yes, And* co-creating value" incapsulates the combination of the need to understand the benefits of real-time interactional activity and how that can answer a real-life network value co- creation challenge, as represented in the research questions:


1. What are the influencing factors for *Yes, And* to occur amongst co-creating actors?
2. How can the BotH$_2$nia network provide *Yes, And* co-creation value for its actors?


The research hypothesis and questions form the red thread and criteria for the research study to be accountable and offer a worthy contribution to existing material (Toledo et al., 2011).

## 1.5    Frame of reference

Figure 4 shows the organization of the key themes of this thesis and the relationship between them, giving the foundation of the study and establish a common criteria on which all aspects of the thesis are written and should be interpreted and evaluated, from both internal and external perspectives (Skaalvik & Skaalvik, 2002). The *Yes, And* mindset and attributes are the central focus of this thesis, and in particular presenting how they support value co-creation, especially around recognized core themes of "present and open to possibility", "acknowledgement of another", "accept offer and build upon it" (Halpern et al., 1994) and "easy to navigate and negotiate". It presents these themes has overlapping and potentially beneficial to service-dominant logic value co-creation theory, who's 5 axioms dynamically interlink "actors", "resource integration", "service exchange", "institutional arrangements" and "service ecosystem to form a framework for value co-creation (Vargo & Lusch, 2017). The *Yes, And* attributes are also seen to be an important guiding principle for design thinking and doing practices, where there is also application of human-centred service design methods and tools.
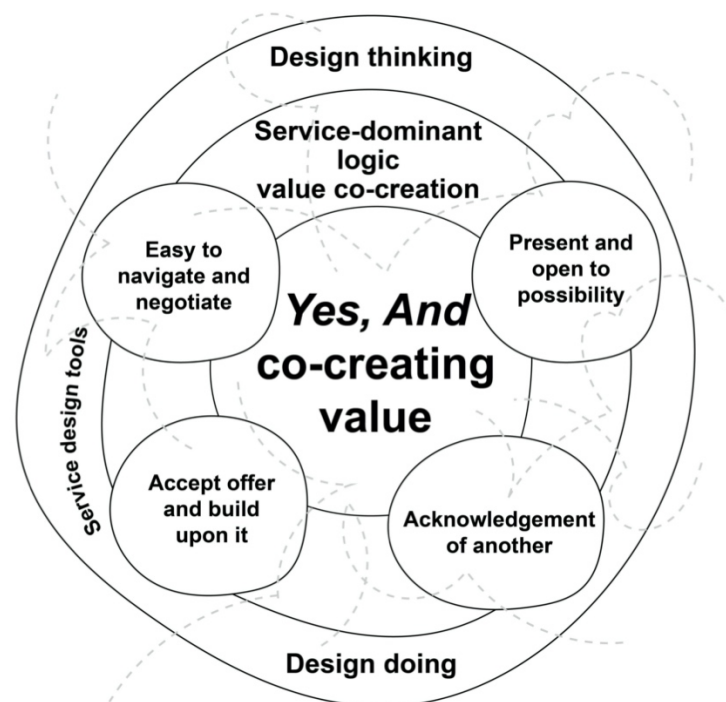


Figure 4. Frame of reference for *Yes, And* co-creating value. (Adapted from (Skaalvik & Skaalvik, 2002)).

## 1.6    Double Diamond process

Figure 5 shows the Double Diamond design process developed by the British Design Council. By applying the diverging and converging design thinking methodology through overlapping phases of Discover, Define, Develop and Deliver, the full potential of creativity and innovation is possible (Design Council, 2019).
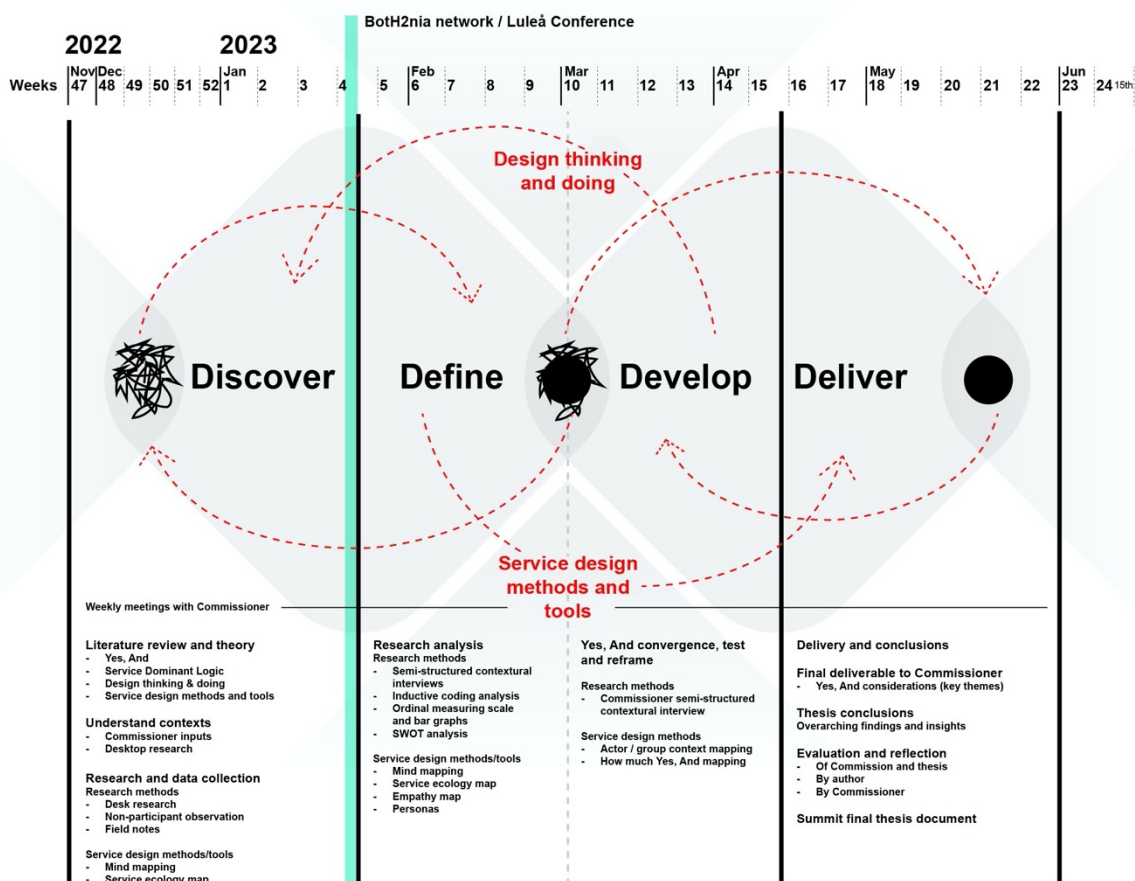


Figure 5. Double Diamond process framework. (Adapted from Design Council (Design Council, 2019)).

The Discover phase gives understanding to the research challenge in the broader literary context and through first hand research with users and data collection, and in this thesis includes a theoretical literature review and methods of desk research and non-participant observation, and service design tools of mind mapping and service ecology mapping. The Define phase refers to the analysis of the data in relation to the research question and iteratively reframing to gain focused insights using semi-structured contextual interviews with empathy maps, inductive coding and ordinal measuring and personas. The Develop phase allows convergence to expand the reframing

and embrace alternative perspectives from new sources, quickly prototype ideas, whilst cross checking with current thinking. To hone and define more precisely possible solutions to the problem in this phase, additional semi-structured contextual interviews and brainstorming with the Commissioner, combining multiple mind mapping exercises are utilized. The Delivery phase tests and selects the strongest concept to improve and present as a viable outcome for future development.

## 1.7 Literature review and research methods

The literature review is conducted through reputable and peer-reviewed books, articles, and reports, in order to understand relevant fields connected to the thesis topic and research goals and builds upon evidence-based methods and findings presented in secondary sources where primary sourced material is not directly accessible. (Booth et al., 2016).

### 1.7.1. Qualitative research

The benefit of qualitative research is that it allows systematic collection, organizing, translating, and interpreting of data with an emergent nature. The strength of this type of research for this thesis lies within its ability to change and reveal new phenomenon and concepts during the research process (Kitto et al., 2008; Kuper et al., 2008; Watt, 2015). Commonly using small sample groups, it supports a human-centeredness approach to gain insights in human behavior, attitudes and interactions through people's experienced daily lives by standing in the shoes of the people themselves (Oun & Bach, 2014).

### 1.7.2. Desk research

Desk research is an important preparatory activity and will be utilized at the start of the project to begin to understand and scope the various topics and aims associated with this thesis and in relation to searching for relevant theoretical background to validate the research project. This secondary research method can be, for example through databases, online searches, libraries, or events in order to collect any forms of existing information or sources relevant to the subject area (Stickdorn et al., 2018).

### 1.7.3 Semi-structured contextual interviews

The main aim of semi-structured interviews is to understand firsthand experiences of people with direct inquiry with them. People, or often referred to as actors can include stakeholders, users, customers, internal or external to an individual, group or organization and in relation to a situation that is connected to them and the research objective. In-depth discussions can reveal their wishes, fears, ambitions, expectations, and perceptions in the context of the thesis topic and collecting primary qualitative data (Stickdorn et al., 2018). Semi-structured interviews can use a flexible, conversational style format where the interview can feel less formal and more personalized, in contrast to a structured interview format, and for some participants this open-ended approach encourages them to discuss up more. However, it is important during this research to be aware of subjective and assumptive interpretation when analyzing, when perhaps there is not the more structured framework associated with structured interviews (McIntosh & Morse, 2015). Qualitative interviews are considered a common component in mixed method research where quantitative numerical information can be collected from data sets generated from the interviews (McIntosh & Morse, 2015).

### 1.7.4. Non-participant observation

A commonly used ethnographic method, originally founded in anthropology where experts of that field would immerse themselves, either directly or passively like a fly on the wall for long periods amongst certain human participation activities. Understanding through observing the experience from aspects such as, background context, culture, and behavioral attitudes of the members in a situation provide valuable insight. Design researchers partake in the same type of empathetic study, but normally for shorter periods and most commonly in an overt capacity, where the subjects are informed, or it is obvious that a research activity is going on. At the beginning of the Discover phase in this research, pre-determined sets of criteria based on the research goals, will aid a systematic approach both in the actual observation itself and equally in the collecting and recording of the data. Themes that will be observed include the setting, interactions, and behavior (Martin & Hanington, 2019). Limitations and validity of the method can include the observer's

personal judgements or external factors that influence the situation, or value measuring criteria that affect depth and scope of the study. With this in mind the nature of observation and observer can be seen to interpret a slice of reality in relation to a moment in time (Oun & Bach, 2014).

### 1.7.5.   Data collection and analysis

With the researcher indirectly part of another person's experience, it is important to acknowledge and stipulate whether the research activities are overt or covert (Van Deventer, 2009). Overt, means that the researcher is open and transparent about their intentions to any research subjects, but can lead however to biases where subjects consciously or unconsciously provide different information or alter their behaviour to accommodate the situation. Covert research is more beneficial in capturing unbiased data, due to the fact that the researcher's intentions are not publicised or known to the subjects but can have more ethical and legal implications. (Van Deventer, 2009.) Data collection for this research will be a combination of handwritten and digital field notes and photography to document aspects of the study in context in preparation for analysis (Phillippi & Lauderdale, 2018).

As an invaluable methodological strategy, reflexivity enables the researcher to remain aware of their own biases and ideas during the entire research process, where personal assumptions and connections can be unintentional and subjective, influencing the process. Continual reflexivity is acknowledged by the author as a strong asset and positive skill for any researcher as it can validate original intentions, highlight where clarification is needed and inform decision making (Kuper et al., 2008; Watt, 2015).

### 1.7.6.   Inductive coding analysis

In this thesis, inductively coding research data manually or electronically will allow significant or frequent themes to emerge, rather than assign predetermined themes. The themes will be arranged with a basic code, a category code and global theme, and with an inductive approach adding new codes when in process of studying the data, or deductive approach where categories

are defined up front, deriving from research literature. Data will be studied more than once and combine results from several passes (Thomas, 2003). Textural data from interview transcripts, once coded are further examined with a quantitative component and translated into numerical data, so coding must be comprehensive in order to calculate the frequency of category themes found in the participants' responses (McIntosh & Morse, 2015)

### 1.7.7. Quantitative ordinal measuring scale

The benefit of ordinal measuring in this research shows the order of variables based on concepts, such as satisfaction rating, degrees of frequency, or a ranking scale from 'bad', 'good' to 'excellent'. In quantitative research terms, ordinal is not regarded as highly precise, but is used widely by, for example service providers and marketing companies to evaluate services and products, as customer preferences and responses can be seen quickly and easily translated into a bar graph or pie chart to determine if more robust research should be undertaken (Franceschini et al., 2004). These types of metric visualisations will be beneficial to utilise in this study.

# 2   YES, AND

Improvisation theater (improv) on stage ebbs and flows spontaneously between actors through dialogue and physical exchange, in the moment conjuring up dramatic and playful scenes building upon random themes, words and phrases offered by an engaged audience. Improv fundamentally is not based on trying to be funny, but rather on an honest, authentic response to a situation (Halpern et al., 1994). It represents a lively, continually alert, total human-centred activity. In a performance, this manifests as intuitive ingenuity, agility, and revelation with communication flowing both on stage between actors and equally with and between the audience. It is an all-inclusive gig, where everyone in the space is considered and consciously encouraged to fully participate (Crossan, 1998).

It is generally reported that modern improv theater emerged with the Compass Players out of the University of Chicago in 1955, followed by the creation of the Second City comedy theater in 1959 and the Chicago improv scene (Second City, n.d.-a). Second City continues to deliver a distinct format of audience inspired suggestions and impromptu actor interaction and performance (Leonard & Yorton, 2015; Seham, 2001 as cited in Robson et al., 2015). Second City champions *Yes, And* as a fundamental approach for human interaction and co-creation and continues to teach through training programs (Bega et al., 2017), for individuals together, small groups, large groups, companies, and organisations, demonstrating that the principle remains essentially the same for all (Leonard & Yorton, 2015; Second City, n.d.-b). In practical terms familiarity to *Yes, And* mindset and principles can be experienced first-hand, and learnt through role playing and games over the duration of a course for example at a place like Second City or Boom Chicago in Amsterdam (Boom Chicago, n.d.).

*Yes, And* gives the impression of being strictly a verbal phenomenon, but its potential is far greater when grasped from a verbal and non-verbal perspective where body language and behavior also can play a suggestive role in the communication between actors. The next sections aim to present examples of the basic principles, through written texts and well-known improv phrases, supported by academically peer-reviewed literature and important legitimate, non-peered material on the subject, together with illustrations that represent behavioural, body language representations of *Yes, And.*

### 2.1.    I accept your offer and build on it



Figure 6. Continual line illustration symbolizing the *Yes, And* sentiment, 'I accept your offer and build on it'.

A corner stone sentiment of the *Yes, And* mindset, '*I accept your offer and build on it*' symbolizes texturally an interactional moment between actors which is mutually of value to themselves and more crucially to the collective whole. It starts always first with the acknowledgement of each other, a positive inclusive act that communicates that a connection is registered with no judgment (Vera & Crossan, 2004). From this point an exchange is possible, where a 'metaphorical' offer or gift can be given by one actor to another, literally represented in Figure 6. The offer or gift in improv terms can be for example a line of dialogue, a specific action, an emotion, or a physical or imaginary object, and translated into business terms could be, for example a project, an innovation, a product, or interaction (Hoffmann-Longtin et al., 2018). With *Yes, And* mindset, when a gift is offered by an actor, the idea is that the receiving actor should always choose to accept it, again reinforcing the basic acknowledgement of the offer without judgement (Leonard & Yorton, 2015). There should always commitment to build upon this offer by bringing a gift of one's own to the exchange, resulting in a co-creative act that provides mutual value to all the actors involved (Halpern et al., 1994).

This mindset and skill can not only be applied during improv comedy, build forward an unexpected scene in the moment, involving full participation from actors and audience members, it also represents co-creation in full dynamic swing and shows the value of doing it authentically together with openness and inclusivity. Co-creation is a collective participatory activity and particularly in companies, organisations, networks, communities, and societies are important development spaces, where diverse actors get together, exchange gifts towards improving, developing, or bringing about new ideas (Elizabeth et al., 2008). However, even if all intentions are good, just having diverse actors together does not automatically mean or guarantee valuable co-creation, where all parties mutually contribute and benefit to a greater whole and collective solutions. All actors should feel confident that their voice will be listened to and accepting to build upon other's gifts (Hoffmann-Longtin et al., 2018). This communicates an authentic appreciation of the value of an offer and mutual agreement and willingness to join together to see what might come out of an exchange, and being open to new possibilities that can lead to innovation (Robson et al., 2015).

In order for *Yes, And* to work well and be transferable, there are two other aspects that serve as the support pillars to this corner stone.

## 2.2.    I'm here and I'm present
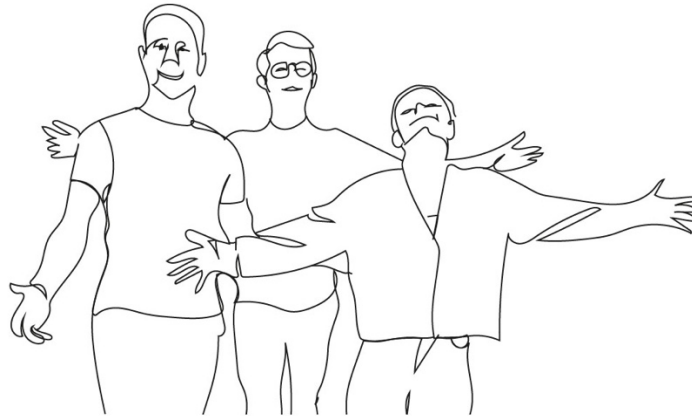


Figure 7. Continual line illustration symbolizing the *Yes, And* sentiment, 'I'm here and I'm present'.

Figure 7 illustrates the body language of this sentiment, 'I'm here and I'm present', where an actor shows that they are actively engaged and open to other actors at a given moment, and they demonstrate they are actively listening to what is being said and appreciate what they are seeing (Halpern et al., 1994). This gives a strong signal that an actor is able to put aside momentarily any pre-planned or determined thoughts or biases in order to be able to response fully and genuinely to the situation and what is being offered and give the opportunity for another actor to response *Yes, And* (Wiener, n.d.). In business and organisations, processes, goals, and deliverables are necessary, but can intentionally or unintentionally influence how an actor might receive a potential golden gift from another actor at a certain moment. From a *Yes, And* point of view this may be an opportunity or innovation lost or blocked unnecessarily, because an actor does not acknowledge its value and is not fully engaged in the moment.

## 2.3.    Don't worry, I've got your back



Figure 8. Continual line illustration symbolizing the *Yes, And* sentiment, 'Don't worry, I've got your back'.

The phrase, 'Don't worry, I've got your back' communicates a support and trust. It acknowledges the willingness to support any challenges or concerns that an actor might have or that are inhibiting during a group dynamic or co-creational exchange (Crossan, 1998; Vera & Crossan, 2004). Figure 8 visualises the idea that actors are in it together, equally and without competition or sense of hierarchy and that they appreciate empathetically the bigger picture, with everyone remaining strong and never losing face. Improvisation and *Yes, And* is built upon trust in the moment and environment and it is working positively with all of the complex, multiple layers that constitute human, social interaction, and interpersonal skills (Wiener, n.d.). It allows all persons to be equal and have a chance to speak and come with their contribution to the greater whole that everyone is part of and wishes to mutually develop (Leonard & Yorton, 2015).

# 3   *YES, BUT* AND *NO*
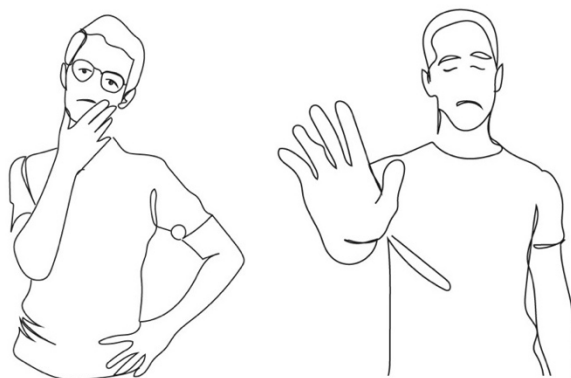


Figure 9. Continual line illustration symbolizing the *Yes, But* and *No* sentiments.

Figure 9 visually represents the more common, alternative body language responses to *Yes, And*. It is accepted that responding in a *No* way is sometimes required, but generally is felt as blocking to moving forward, giving the idea that it is not possible to build upon or offer an alternative direction (Halpern et al., 1994). *Yes, But* is essentially *No* in disguise, as the preceding *Yes* just becomes zeroed by the *But* that follows (Harding, 2020; Leonard & Yorton, 2015; Stickdorm et al., 2018).

Improv theater's *Yes, And* provides the primary basis for the theoretical framework of this thesis. However, comparable principles are also used in many acceptance-based therapies, providing evidence-based trustworthiness for its strategic value and effectiveness to move something forward. Haley (1973) presents the infamous classic *Yes, And* example from renowned American psychiatrist Milton H. Erickson which referred to a patient pertaining to be Jesus Christ, with Erickson's response, "I understand you have had experience as a carpenter?", enabling him to direct him towards the productive task of building a bookcase (Haley, 1973). It is presented by Haley that Erickson uses resistance as a positive enabler against a potential blocking action or situation, a new behaviour or direction can then be diverted, for example change of location or objective and then positively alter the perspective on the original situation (Haley, 1973).

Improvisation in general is often regarded as risky and with no apparent structure or boundaries and promote feelings of failure, fear, unsanctioned or cause of misunderstanding for organisations, who, in stark contrast need to adhere to strict processes, structures and protocol to deliver set goals (Fisher & Barrett, 2019; Macpherson et al., 2022; Weick, 1998). On the contrary, it is

argued that applying a form of *Yes, And* mindset, mistakes can be reframed as gifts, giving opportunity to realign and further create, improve, or adapt, for example in patient care where a mistake, can highlight a new insight to improve (Hoffmann-Longtin et al., 2018).

Most human interactions and transactions are based upon already established norms, like roles, assumptions, habits and expected results from particular situations or relationships, which can render an offer as not relevant or implausible, so evoke a *Yes, But* or *No* reaction. Also being a hero or having a strong ego can influence how people perceive a situation or counter act (Wiener, n.d.).

It is not surprising therefore that *Yes, And* has significant value as a negotiating skill (Harding, 2020; Menkel-Meadow, 2020). On the outset, the literal text phrase gives the impression that an actor has to always say yes to a fellow actor and their offer, even if deep down they disagree or simply do not wish it at that moment. The principle behind *Yes, And* in fact goes deeper and enables an actor to still acknowledge and accept an offer, but gives the opportunity to be adversarial with a counter argument, delivered in a non-judgemental way so that value co-creation continues to thrive. This is a valuable attribute in actor exchange space, as effectively it primarily accepts there to be difference, and shows that diversity and competition offer opportunity.

# 4   *YES, AND* BUSINESS

Improv's spontaneous, intuitive qualities can be applied well to dynamic systems that are constantly adapting, emerging patterns, and growing in complexity (Crossan, 1998; Crossan et al., 1996). Organisations are increasingly part of larger networks and ecosystems looking to their employees and partners to have the ability to be adaptable and shift quickly. This demands getting out of traditional mindsets and having the skill to reframe a situation confidently and safely within an environment, which leads to innovating sustainably, averting crisis, or getting ahead of competition (Vera & Crossan, 2023). There is similarity between an improv scene's emerging story line, and that of organisational strategy, where both need to be credible, believable, coherent and in relation to actor exchange and contexts (Crossan, 1998). Improvisation theater is synonymous with funny response scenes, but if the throw away nature of improvisation is understood more

clearly, then organisations can benefit, build strategies and cultures of trust and teamwork that enable all parties to fully operate and prosper (Crossan, 1998; Moshavi, 2001). However, Vera and Crossan (2023) highlight that the Covid-19 pandemic brought to the fore the challenges of organisational paradoxes and the struggle between having structure and needing freedom, something which improvisation theater manages to balance with a strong of code of conduct which in turn gives freedom. Organisations and businesses are increasingly embedding an improvisational mindset and encouraging *Yes, And* values as part of company culture, and promoting the acceptance of mistakes and errors and supporting risky experimental actions. If a company culture, internal or external facing adopts improv's real-time approach to communication and information, then an always ready, dynamic, and flexible co-creative environment flourishes (Vera & Crossan, 2004).

Leadership in an improvisation group is a democratic rotation of guiders, where leading responsibilities are shared amongst all the actors in the group (Crossan et al., 1996; Vera & Crossan, 2004). In contrast business advocates, for example facilitators, managers or leaders to keep things focused and on track, in order to meet goals and deadlines.

As a business management tool increasingly companies and organisations are seeing *Yes, And* as a valuable asset for conversation, co-creation, and innovation (Leonard & Yorton, 2015; Robson et al., 2015). Often non-peer reviewed, but renowned business literature and publications, for example Harvard Business Review and Forbes Coaches Council advocate the benefits of *Yes, And* (Brown, 2017; Gino, 2019). To give credibility to the potential of *Yes, And*, such articles would do well to be under-pinned with evidence-based articles and studies. For example, as shown in the IISTC Practicum Data 2014–2019 chart in Figure 10 from the report "The Teachable Moment", entitled "Using Improvisation to Increase Graduate Students Communication Self-Efficacy", multidisciplinary science teams acknowledged increased effective and confident communication skills, after an improvisation program (Gillian-Daniel et al., 2020). This is particularly crucial in these areas where communicating complex information amongst experts is key, and even more so is making it accessible for public buy in, especially when impactful energy topics are on the primary topic (Leshner, 2012).
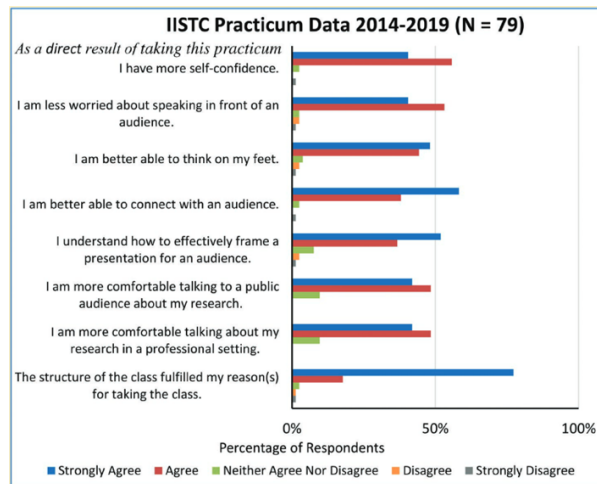
Figure 10. Increased communication skills for science teams after using improvisation  (Gillian-Daniel et al., 2020).

# 5     SERVICE-DOMINANT LOGIC

The key to co-creating value within actor networks is understanding and recognising the interplay that is continually and dynamically occurring between the beneficiaries of value and resource access (Vargo & Lusch, 2017). Resource can be defined through creation, application, and overall integration, and take any form, such as data, status, knowledge, emotions, ideals, and social interactions (Vargo & Lusch, 2004). Actors can be mutually a value beneficiary, a resource in themselves, where traditionally they are seen separately to their resource  (Chandler & Vargo, 2011).

Service-dominant (S-D) logic as presented originally by Vargo and Lusch (2004) represents the economic and social shift from a goods focused exchange model to an emerging service orientated model (Vargo & Lusch, 2004). This shift challenges the traditional producer to consumer transactional value relationship, where company centric actions are based on provision of value to a customer or user and replaces it with actor to actor (A2A) exchange, within a multi-diverse network of actors, and which exist in a larger service ecology system or service ecosystem within something society (Lusch & Vargo, 2014; Vargo & Lusch, 2017).

The S-D logic theoretical framework as shown in Figure 11, comprises of five dynamically, but inextricably interlinking parts, referred to as axioms (Lusch & Vargo, 2014). Lusch and Vargo (2016) define the first axiom as, "service is the fundamental basis of exchange" which relates to

knowledge and skill being a mutual, beneficial exchange in service between actors. The second, "the customer is always a co-creator of value", refers to actors mutually creating value as a result of them interacting through indirect means or first hand with each other. The third, "all social and economic actors are resource integrators", refers to the complex, multiple sources that the actors bring to the table and interact with between each other. The fourth, "value is always uniquely and phenomenologically determined by the beneficiary", states that actors all experience, for example a product, service or feeling, uniquely and attach consciously or subconsciously their own personal meaning and consequently value to it alone or in relation to a multitude of other entities. The fifth axiom, "value co-creation is co-ordinated through actor-generated institutions and institutional arrangements" refers to enabling and restricting activities such as setting and following rules, world views, practices, meanings, structures, and icons that influence or dictate value co-creation (Lusch et al., 2016; Vargo & Lusch, 2016). The five axioms are not in isolation from each other, but feed dynamically into each other to complete the idea of a holistic whole that should be viewed from a high viewpoint in order to retain the theory of simultaneous generic exchange between actors.
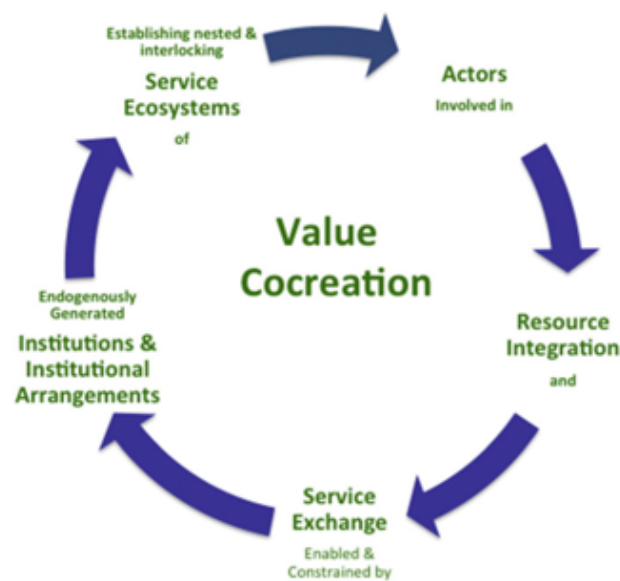


Figure 11. Service-dominant logic value co-creation framework with 5 axioms

(Lusch et al., 2016; Vargo & Lusch, 2016).

As shown in Figure 12, micro, meso, macro and meta defines group contexts between actors, representing exchange between two individuals, or amongst multi-faceted networks and even

greater complex service ecosystems (Chandler & Vargo, 2011). The micro-context refers to the co-creation exchange between individual actors and how they serve each other through their own resource and capabilities. The meso-context refers to two actors indirectly serving each other through a third actor, highlighting that it is not necessary to be connected to still exchange. The macro-context refers to the complex system of multiple actors exchanging simultaneously, and both directly and indirectly. Finally, the meta-context refers to complex networks and ecosystems with scaled-up infrastructures that require institutional process and resource, replication mechanisms and the aspect of time for value creation to function on this multifaceted scale (Chandler & Vargo, 2011). Context is not always fully considered but is a crucial multidimensional fundament for value exchange. Through simultaneous and dynamically changing viewpoints, context frames and guides processes of potential of exchange, resource, and service for individual actors, from their unique perspective and mutually from the perspective of the service ecosystem as a whole (Vargo & Lusch, 2017). Theoretically being aware of context, acknowledges difference and encourages the idea of standing in other actors' shoes.
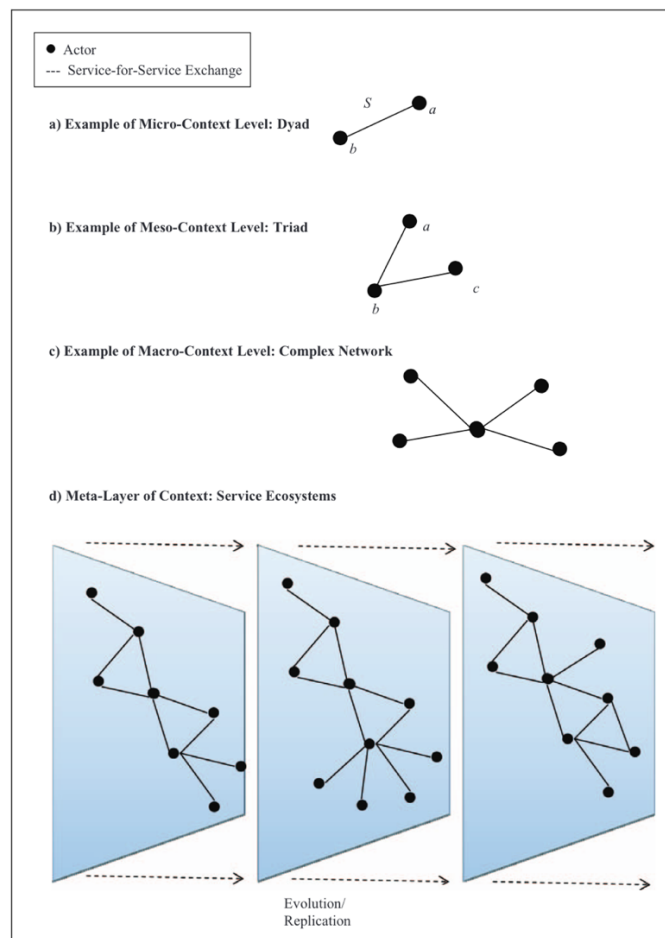


Figure 12. Micro, meso, macro and meta exchange contexts between actors and groups (Chandler & Vargo, 2011).

It is recognised that there are also barriers to service-dominant logic's axioms in relation to the actualisation of value co-creation, when translating the theory into practice. For example, transferable practical guidance and skills for addressing awareness, strategic approach, co-ordination, interaction, communication, and for managing conflict and difference with different roles (Ajmal et al., 2023).

# 6    DESIGN THINKING AND DOING

Design thinking is intrinsically mutually dependent on design doing and consequently a corner stone of design as an activity and practice. The design thought process needs an outlet of continual testing and realisation, in order to see, experience and understand if an idea is relevant and has potential for innovating further (Clatworthy, 2017; Cross, 2023). Tim Brown the CEO of design firm IDEO, has identified three foundational components that are at play in this process; viability, feasibility and desirability and went on to present this as a framework for evaluation. The first aspect, viability, relates to a potential sustainable business case or model that could come out of a creative idea. The second aspect, feasibility, asks if the idea is technologically and functionally achievable to actualise. The third aspect, desirability refers to how the idea relates and feels relevant to humans and their lives (Brown & Kãtz, 2019).

Design thinkers switch constantly between these aspects, balancing the emphasises and prioritising in relation to particular project brief requirements and internal and external influences. Being comfortable with this iterative skill and process champions trial and error and learning on the job. This flexibility builds on the basic principle that user needs are always evolving and understanding them means design thinkers re-connecting with new inquiry and updated improvements (Prud'homme Van Reine, 2017). It is not surprising that many companies, institutes, and organisations therefore adopt design thinking (and consequently doing) strategically into their organisational cultures to problem solve and drive innovation. (Prud'homme Van Reine, 2017). Organisations create desirable experiential offerings to customers or users along a timeline, where they are encouraged to interact with them at moments and places, historically known as

touchpoints, and with the aim to enhance their lives or serve as a solution to a particular need or problem (Polaine et al., 2013b) This customer journey or experience can include and be as tangible as a physical product, as indirect as a steppingstone to something else or as intangible as a personal, subjective feeling about a network, culture, or space, or many hundreds more of diverse exchanges and interactions (Motta-Filho, 2021).

Tim Brown presents design thinking as a human-centred approach, where at its core, design thinkers empathetically endeavour to observe, listen, and experience first-hand what products, services and experiences mean to people, both from an emotional and functional perspective. Design thinking, an evolution of design, follows the transition to product production and selling with the aim of offering meaningful interactions with them for people, developing further to incorporate responses to human social, behavioural and sustainable needs (Brown & Kãtz, 2019). This human-centred inclusivity is a long-established narrative and seen as a foundational asset of service design and designers, however, is often neglected or not fully optimised by organisations. Service design is predominantly a Western phenomenon that by nature therefore is from a perspective of predominantly that one reality, with service design frameworks and expertise deriving from Western mechanisms of replicability and scalability to problem solve, resulting in perhaps a narrower practice of human-centredness (Duan et al., 2021).

# 7  SERVICE DESIGN TOOLS

It is noted that whilst traditional service design processes are important and integral, to really elevate the practice to be more instrumental in business and social innovation there needs to be a move from just applying methods and tools, towards shifting mindsets and ultimately cultures of organizations. Design thinking operates in an overlapping non-linear way, always feeding back in and around a challenge or question, often aligning with goals. This natural process can also sometimes be hindered or limited by the very boundaries it supports and advocates, namely solution based, experts designing, and increasingly administering process and frameworks, which can narrow perspectives and reciprocal dialogue capabilities (Manzini, 2016).

Service design and associated methods and tools should reflect and support lived experiences where one can strive to be self-aware and experience agency, taking responsibility for one's actions, and respond fully to others by being in their shoes and positively interact and create the possibility of mutual value to build forward collectively (McIntosh & Wright, 2019). The potential of using a lived experience perspective begins to show promise in broader social policy (McIntosh & Wright, 2019).

### 7.1. Mind mapping

This self-reporting, thinking method is ideal for visually capturing complex information, topics, themes, images, thoughts, ideas, facts, and themes in one space. When problems are complicated and seemingly unconnected, this is an organic diagrammatic process to relate parts to other parts, to create links, spokes, or associations in relation to a central theme, topic, or question. As more nodes are added outwards from the theme in the centre, related primary and secondary sub-themes begin to emerge. This is a dynamic process for one or multiple people in groups where discussing plausible connections, prioritising and rearranging is an integral part building an overarching visual view of all the parts. Mind mapping is an accumulative, sensemaking process using simple visual and word cues and results in an infinitive edged study of how parts potentially relate. It is often used as a springboard for more focused themed research methods, which can home in on specific areas to study in detail (Martin & Hanington, 2019).

### 7.2. Service Ecology Map

The service ecology map is beneficial to kick-off the research project, as it can visually present complex, diverse actors placed in relation to a particular service. In a collaborative setting, service stakeholders and actors are mapped according to pre-discussed and mutually agreed criteria and themes. The process is interactive, and mapping involves discussing the most appropriate position for the actor's company or organisation and reveals positions between actors and the service, actors with each other, and even more beneficial in relation to a broader context outside of the service if necessary. The latter provides a valuable extra perspective which is outward looking rather than only inwardly focused. Defining boundaries of service ecology map, gives strict criteria

and shows when and how actors can be re-arranged or reveal where they are less present, in order to validate, understand and probe reasons and provide input for further service development (Polaine et al., 2013a).

### 7.3. Empathy map

The empathy map, as shown in Figure 13 is a human centric tool to extrapolate deep empathetic insights from users, stakeholders, and customers, tapping into their attitudes and behaviours about a particular topic, and based on the alternative framing of thematic questions. This visual, collaborative template can be used in interviews and consists of a set sequential structure that guides the process. The middle of the framework for this research symbolizes the interviewee's position and proposed relation to BotH$_2$nia network and from which viewpoint they should answer all questions. Emanating from the centre are four emotive standpoints of which the actors are asked to respond with for the subject; 'What do you think and feel about the subject', 'hear', 'see' and 'say and do about the subject'? There are two further sections of "pains and gains", in relation to the central subject. The Empathy map is an ideal method for understanding people's deepest feelings on a subject and consequently probing opportunities and tensions points that might otherwise be held back in more formal interview settings. It can also be used as a springboard for other service design tools, such as persona creation where human-centredness is crucial (Martin & Hanington, 2019b).
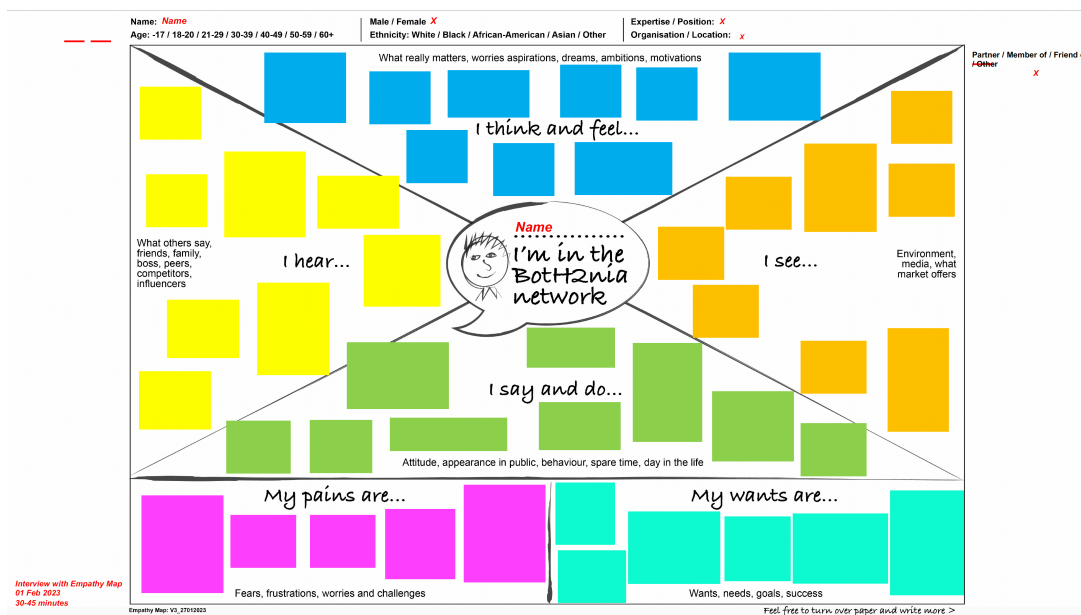
Figure 13. BotH$_2$nia network empathy map template for interviews (Adapted from empathy map (Martin & Hanington, 2019).

### 7.4.    Personas

Personas are archetypes based on actual field research and interviews with customers, users and actors that use a particular service or multiple services. Through gathering information, fictional manifestations of particular groups of people representing certain target groups can then be defined. Patterns reveal common attitudes, goals and behaviours that then can be represented visually and texturally to form a complete picture of particular personas. This information can include demographics, lifestyle, influences and activities and key business aspects. A persona should feel authentic, believable, and tangible, as this gives human focus and consensus for design teams, clients and organisations to refer to them during all parts of a service process. This allows multiple parties to discuss scenarios and experiences that particular personas might have and guide decisions and direction along, for example different target groups' customer experiences (Martin & Hanington, 2019).

# 8    Research

### 8.1.    Discover phase

It was evident from the first weekly online meetings on December 14th, 2022, with the Commissioner and the initial BotH$_2$nia Project material supplied (see Appendix 1), together with independent desk research that the scale and aims of the BotH$_2$nia Project and the overall hydrogen economy transition were ambitious, complex, and fast paced. Design thinking and service design methods gave a holistic overview by mapping out as many known aspects as possible, in order to help define the scope, perimeters and feasibility of the research study. The weekly meetings ran from December 2022-June 2023 and were fuelled by a dynamic *Yes, And* mindset between the author and Commissioner, a fully interactive, iterative, and adaptive service design approach.

Prior to the start of this research, the BotH$_2$nia Project and network service had already been running approximately a year, with development and communication strategies were across touchpoints such as a website, social media, newsfeeds online and face to face events (BotH2nia, 2021a). From the gathered material, an initial mapping was created (see Appendix 2) to understand more precisely any emerging themes. Figure 14 placed the BotH$_2$nia network in the centre, resources, common goal, hydrogen economy and collaboration opportunity were defined and confirmed with the Commissioner on January 10$^{th}$, 2023, as strong connecting themes.
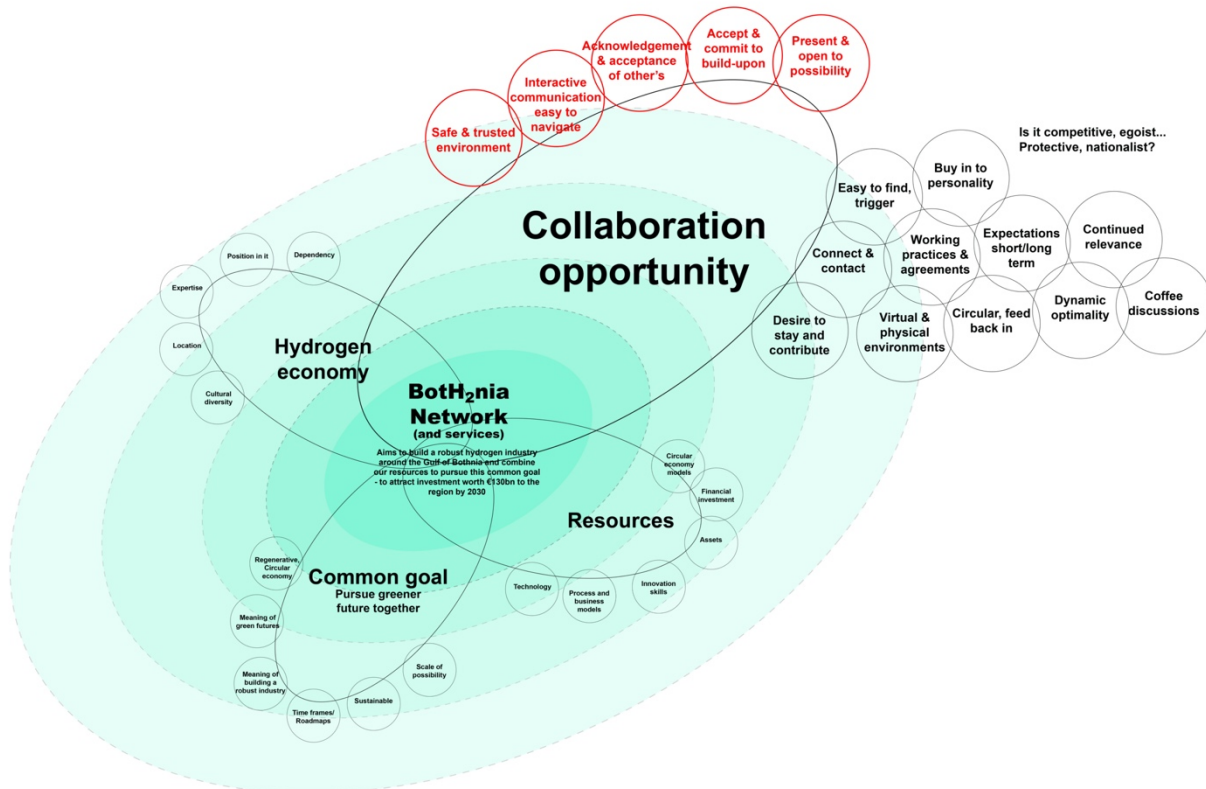


Figure 14. Mind mapping of initial emerging themes for the BotH$_2$nia network and defining *Yes, And* criteria, as indicated in red (Adapted from mind map tool (Martin & Hanington, 2019).

It was observed that the area of collaboration opportunity presented some of the most comparable characteristics to *Yes, And* attributes, as indicated in red in Figure 14, and which would provide key criteria for fill-in charts for the upcoming observation activity at the conference (see Appendix 3). Consequently *Yes, And* openness themes were shared with the Commissioner on 23$^{rd}$ January 2022, and included observable aspects for the themes of a) Welcoming, b) Easy to navigate, c) Present and open to possibility, d) Acknowledgement of another, e) Acceptance of another's idea or offer and commit to build upon, f) Confidentiality, privacy, and governance. Inclusivity themes were considered also relevant and were represented on an additional fill-in

chart by the themes of diversity and demographics (Austin, 1997). These included the overarching sub-themes: a) equality and respect, b) group size, c) diversity, d) multi-disciplinary, e) language, f) social interactions (see Appendix 3).

It was important to understand the size of the network and begin to familiarise oneself with diverse actors, stakeholders and multi-disciplines that made up this large dynamic group. On January 13th, 2023, BotH$_2$nia Project organizers confirmed 102 member-actors in the network (BotH2nia, 2021b) (see Appendix 4). These were plotted on a service ecology map, together with the Commissioner who had in-depth knowledge of each organisation, group and business (see Appendix 4). The Commissioner had provided a document containing previously created target groups (research, education, planning and permits and investment) on December 22nd, 2022. During the brainstorm it was felt that a commercial business section would be beneficial to be added, together across all sections subdivisions of private (financed) companies and public (funded) organisations. It was also concluded that location was also a differentiator that needed to be represented, and so five circles radiating out from the BotH2nia network core highlighted first Finland and then moving outwards Sweden, Baltic Sea Region, rest of Europe and then finally rest of world on the outside. To add more complexity, the process revealed that the organisations did not all have the same relationship to the BotH$_2$nia network, and colour coded notes represented 'network partners', 'funding', BotH$_2$nia steering committee', 'not paying' and 'paying' members.
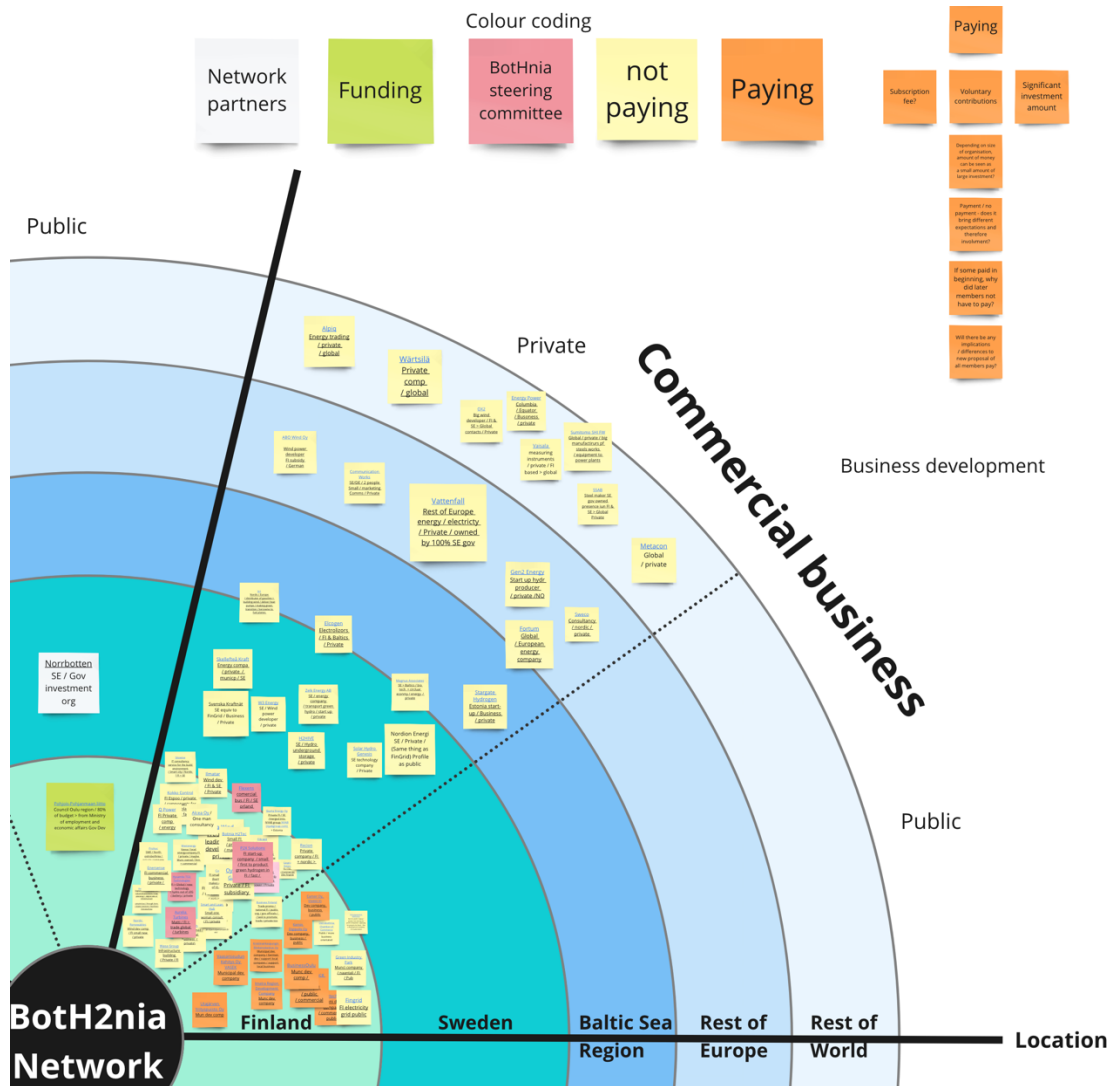
Figure 15. BotH$_2$nia network member-actors plotted on service ecology map, with snapshot of commercial business (Adapted from service ecology map (Polaine et al., 2013a).

It was noted that individual knowledge and viewpoint played a role in where the organisations were placed on the service ecology map, and that it was not possible to judge relationships and interactions between the organizations or speculate about the established target groups themselves. It did visually show that most actors fell into the commercial business section, with a concentration in Finland and then fanning outwards to the rest of the world, as shown in Figure 15. There were many targets group segments that were minimally, or not represented at all, highlighted by the lack of actors in those areas. This could have been due to the fact that the main network organizing hub was located in Finland, or simply no actors at that time existed there. The sub-sections of public and private further refined the placing and raised points of discussion round the topic of individual perspectives and motivation, also in relation to location and given target

40

groups. It was noted that all the paying actors (orange) appeared in only three of the target groups; research, planning and permits and commercial business, and these were also only the public sector. Non-paying actors (yellow) predominantly appeared in the private sub-section of the commercial business segment. The service ecology map showed that members of the BotH$_2$nia steering committee were minimally distributed, only appearing in two places, both of which were located in Finland. One appeared in permits and planning and four in commercial business, raising the question of the correlation with the general high-density areas of actors. All actors that were classified as network partners (light grey) were all found in the Swedish public sub-section of mostly the research target group, but also one actor appeared in the same area of the investment target group.

### 8.1.1. "BotH$_2$nia goes Luleå" Conference



Figure 16. General non-participant observation of overall "BotH$_2$nia goes Luleå" Conference, showing interaction moments and general look and feel.

As summarised in Figure 16, a 2-day hydrogen conference, located in Luleå University of Technology, Sweden (Luleå University of Technology, n.d.) ran from 24-25 January 2023. The event was co-organised by Invest in Norrbotten (Invest in Norbotten, n.d.), CH2ESS / Lulea University of Technology (CH2ESS, n.d.), Swedish Hydrogen Development Center, RISE (RISE, n.d.), and BotH$_2$nia / Council of Oulu Region (BotH2nia, 2021a). Offered by the BotH$_2$nia Commissioner and agreed by the co-organisers during online meetings on January 19th and 20th 2023, their conference was seen as an ideal opportunity to examine inclusivity and openness of participants, and in particular were intrigued about the thesis foundation of *Yes, And*, and whether it occurred in reality amongst diverse actors in a large dynamic group. There were 145 participants and ten countries represented, with Sweden having 72 participants, Finland 47 participants, and other countries like the Netherlands, Germany, Estonia, Latvia, Lithuania, Japan, Spain, Canada, and Denmark taking up the rest.

There was considerable interest and enthusiasm towards the research topic from the organisers and support to give the opportunity for such live research to be at the event. It was clear that this type and scale of event and the BotH$_2$nia network profile with in it would provide a valuable testing ground to gather insights into *Yes, And* activities and what is deemed valuable for participants and what aspects should the network retain or improve in relation to their own sustainable development strategy. It was noted that full comprehensive information about the conference was available publicly on the BotH$_2$nia website (see Appendix 5) (Both2nia, 2021). Also, for participant access only via a BotH$_2$nia Teams shared channel.

General non-participant observation was undertaken by the author throughout the entire two-day event, within the time schedules of 09:00-17:00 for each day and a registration evening before. The aim was to capture through observation field notes and the pre-determined themes (see Appendix 6) the behaviours, actions, and interactions of the diverse actors as they participated in the event schedule, and included visual, physical, and verbal examples. The extensive field notes (see Appendix 6) were transferred into mind maps to see any patterns or connections (see Appendix 7), between the inclusivity and openness themes and six sub-themes, with particular focus on the openness sub themes as this most represented the *Yes, And* attributes and key interaction moments, as shown in Figure 16.

### 8.1.2. Non-participant observation during a co-operation workshop

Prior to the conference, the *Yes, And* openness and inclusivity research themes were shared with the event organisers, and it was highlighted by the author that a workshop entitled: Workshop 3: "Co-operation and co-marketing the Nordic hydrogen markets" (parallel workshops with coffee) was relatable to the *Yes, And* thesis topic and could provide the environment for a non-participant observation study and data collection (Both2nia, 2021). Workshop 3 was already part of the planned agenda of the event, on Day 1, January 24th, 2023, 14:10-16:30 / 16:30-17:15, and participants had pre-selected the workshop before the conference via a shared Teams folder.

It was observed that there was an extra level of complexity to be captured as during the workshop activity timeslot there were in fact five interlinking parts, as shown in Figure 17. The author sub-defined the original openness and inclusivity themed fill-in observation charts, based on these five interactional and co-creational moments in order to potentially reveal different findings per moment and in relation to the total workshop activity as a whole (see Appendix 8).
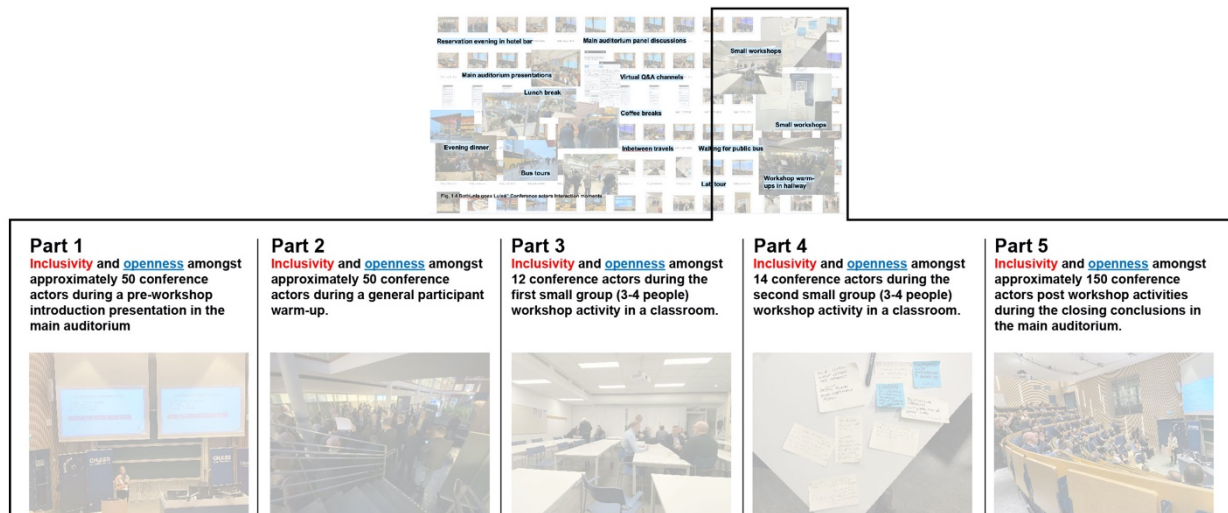


Figure 17. Non-participant observation of the five activities for Workshop 3: "Co-operation and co-marketing the Nordic hydrogen markets".

Part 1/5 was located in the main auditorium and included all participants (approx. 50 participants). that had signed up for Workshop 3: "Co-operation and co-marketing the Nordic hydrogen markets" was the observed group. The author was siting amongst the participants filling in the observation chart and writing field notes. There was an introduction by the organisers to the

overall workshop activities, with presentations that related to the workshop theme and instructions that informed the participants what they could expect. They were then asked to proceed to their chosen workshop, in this case Workshop 3.

Part 2/5 was the same 50 participants taking part in a warm-up activity, facilitated by the main event moderator, in the university general hallway, located just next to the auditorium. They proceeded to ask a series of questions based on some chosen themes, whilst fellow facilitators stood in four corners with possible answers. Each participant could then choose which answer best represented their personal or their company's viewpoint. The questions all related to the overarching workshop three theme of co-operation: a) "Where are you in value chain?" b) "How do your company co-operate" c) "Do you already have offers together with other stakeholders, common offers?" d) "How are you with info and exchange?" The latter question had been inspired by the researcher's themes of inclusivity and openness, which was reflected in the possible answer cards: "Very closed", "More open", "Less open" and "Very open". The author was positioned at the side, on stairs and filling in the observation chart and writing field notes.

Part 3/5 saw the first of a small group activity, where participants were located in a classroom discussing and note ideas around the general idea of co-operation, triggered initially by earlier themes that were generated when in the larger group. This activity was facilitated by a pre-arranged moderator who first asked people to divide into groups according to their place of origin, reinforcing the idea of cross-border collaboration Finland, Sweden or other (country). Each of those groups were given a number 1-3, in order to truly mix up the nationalities again, dividing the participants further into small groups of three or four people each. The groups were given 23 minutes to discuss and share ideas and finally present to the room their agreed one action point for the future. The author was sitting close to the participants on a small, separate table filling in the observation chart and writing field notes.

Part 4/5 repeated the above, but with five new groups, started discussions and wrote on post-it notes ideas building on the action points from the previous groups, with the duration a lot shorter than previous group, only nine minutes, so there was little time to discuss the ideas. Before leaving the classroom and the participants were expected to return to the main auditorium. The moderator collected all the post-it notes from both classroom sessions.

Part 5/5 was the last phase where all 145 conference participants came together again in the main auditorium. The main moderator concluded the overall workshop activities and asked each

workshop facilitator to summarise the key findings from their workshop with the intention to create a single list of collective action points for the future.

In order to observe how the specific research topic themes of *Yes, And* manifested throughout the co-creation activity and its parts, three types of interaction moments were defined by the author, as it was possible that these themes would be working on various levels with different instigators and actors. The interaction moments were a) general organisation and facilitation, b) organisation interaction towards participants, and c) participant interaction with each other. By categorising the interactions in this way, it gave insights into what was operating at an organisational level and what was intimately between the participants themselves, all beneficial to see how and if *Yes, And* was at play.

### 8.1.3. Post conference, semi-structured contextual interviews using empathy map

It was beneficial to compliment the observation research activities conducted in the conference with first-hand input from participants, in order to validate the *Yes, And* findings in relation to the BotH$_2$nia network and see if experiences and expectations aligned with network organisers and participants regarding valuable topics.

During the week after the Luleå Conference semi-structured interviews were arranged with nine randomly selected participants that the author had particularly connected with during the event. Firstly, an introduction email was sent to the former participant, asking if they would be willing to take part in the interview. The email briefly explained the interactive empathy map approach to the interview, that it would last 30-45 minutes, and that the final output would be anonymous. Nine randomly selected, former participants from the conference expressed interest, and a second follow-up email was sent to suggest dates and times for their final confirmation and agreement.

The interview was conducted online between the author and participant, beginning with a brief introduction visually of the empathy map template, as shown in Figure 13, and an explanation of the difference and benefit of this method compared to a more traditional interview format. In the beginning some basic demographic questions were asked, which included age bracket, gender, and ethnicity, and finished with expertise and position, organisation and location and relationship

to the BotH$_2$nia network, for example a member, friend, or other. These formed a general contextual background any potential biases from each interviewee.

Whilst communicating online it was important to guide the interviewee mentally into the centre of the template, which stated their name and the text, "I am in the BotH$_2$nia network", with the aim to funnel their unique and personal experience of the network service. From this start point the interviewer guided the interviewee intermittently around the template to each of the six themed sections: "I think and feel…", "I hear…", "I see…", "I say and do…", and then onto lastly, "My pains are…" and "My wants are…". In each section of each theme were also words to help give meaning of the theme and trigger the interviewee with their thoughts and verbal responses. Each time the interviewer reinforced the personal viewpoint needed from the interviewee, to obtain the most instinctive and genuine responses about being in the BotH$_2$nia network from those six perspectives. All the time, the responses were being typed onto coloured coded post-it notes in each theme section. It was noted that during the process, participants often commented that using the empathy map triggers made them think about topics differently and not always from a business perspective.

## 8.2     Define phase

Non-participant observation was undertaken during Workshop 3: "Co-operation and co-marketing the Nordic hydrogen markets", and was segmented into five activity parts. Part 1 comprised of approximately 50 conference actors during a pre-workshop introduction presentation in the main auditorium. Part 2 comprised of approximately 50 conference actors during a general participant warm-up. Part 3 had 12 conference actors during the first small group (3-4 people) workshop activity in a classroom. Part 4 had 14 conference actors during the second small group (3-4 people) workshop activity in a classroom. Finally, Part 5 comprised of approximately 150 conference actors in a post workshop activity during the closing conclusions in the main auditorium.
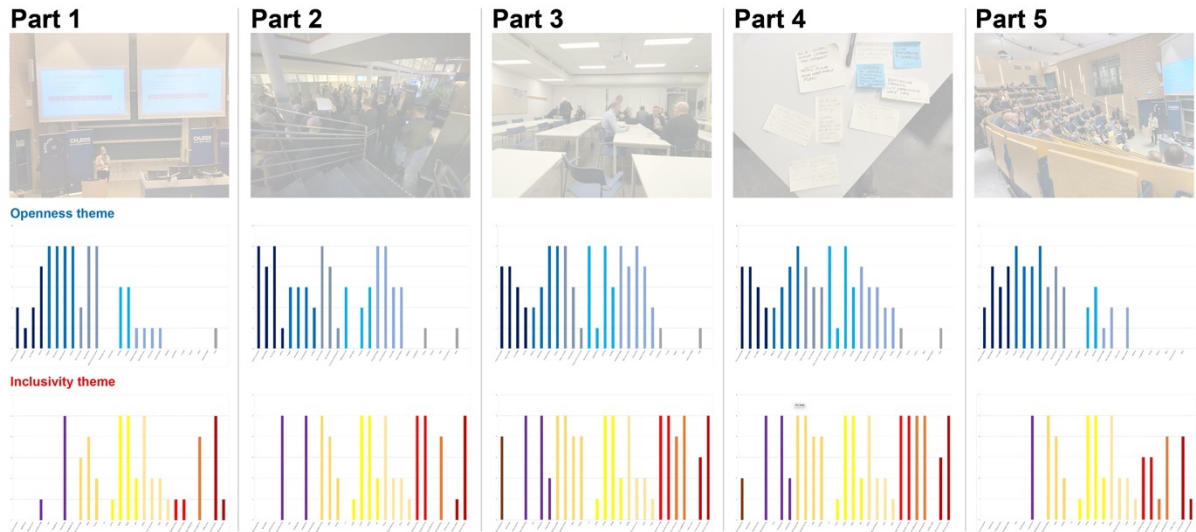
Figure 18. Five activity parts of Workshop 3: "Co-operation and co-marketing the Nordic hydrogen markets" with corresponding observation measurements for *Yes, And* openness and inclusivity themes.

Analysis built upon examined theory, the author's first-hand improvisation experience and discussions with the Commissioner. Broadly speaking it was acknowledged that *Yes, And* attributes were best represented in the 'openness' theme. This was reinforced when ordinally measured and translated into five bar graphs which showed the fluctuations between the five activity moments, as summarised visually in Figure 18 (for individual graph detail, see Appendix 9). As shown in Figure 19, Part 3 presented the highest measurements for the main *Yes, And* themes, a) present and open to possibility, b) acknowledgement of another, and c) acceptance of another's idea. Additionally, *Yes, And* sub-themes of easy to navigate, and welcoming also scored well in Part 3.
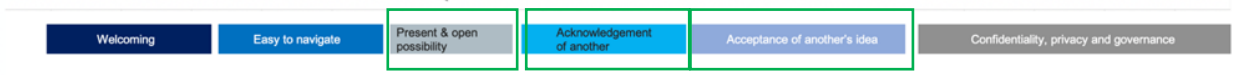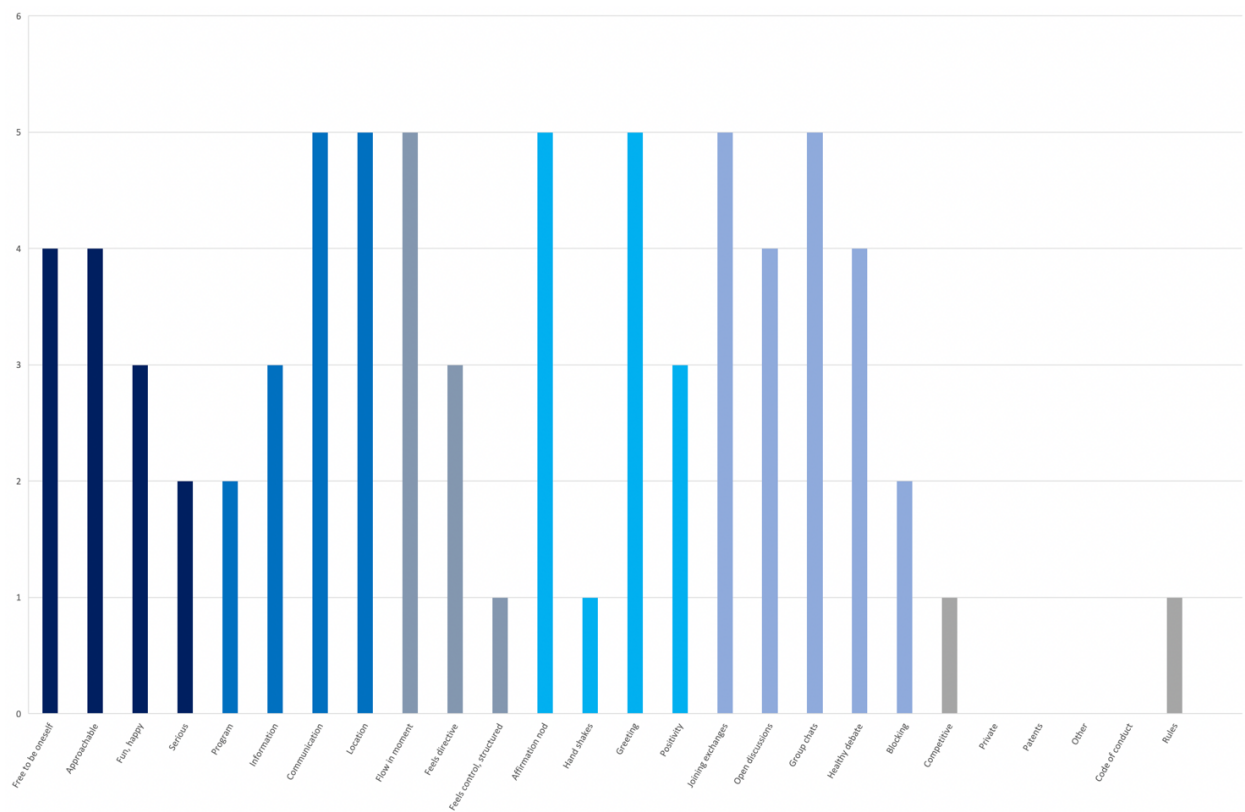
Figure 19. Part 3 activity of Workshop 3 showing the highest measurements of *Yes, And* in the openness themes; a) present and open to possibility, b) acknowledgement of another, and c) acceptance of another's idea.

The inclusivity theme and sub-themes of a) group size, b) multi-disciplinary and c) social interaction correlated with the fluctuations of the main *Yes, And* themes, also with highest measurements in Part 3 as shown in Figure 20. Within this study, diversity (basic demographics), equality / respect and language, were important for *Yes, And* co-creation, but were difficult to observe and resulted in more subjective assumptions by the author, so were set aside, as was also the theme, confidentiality, privacy and governance.
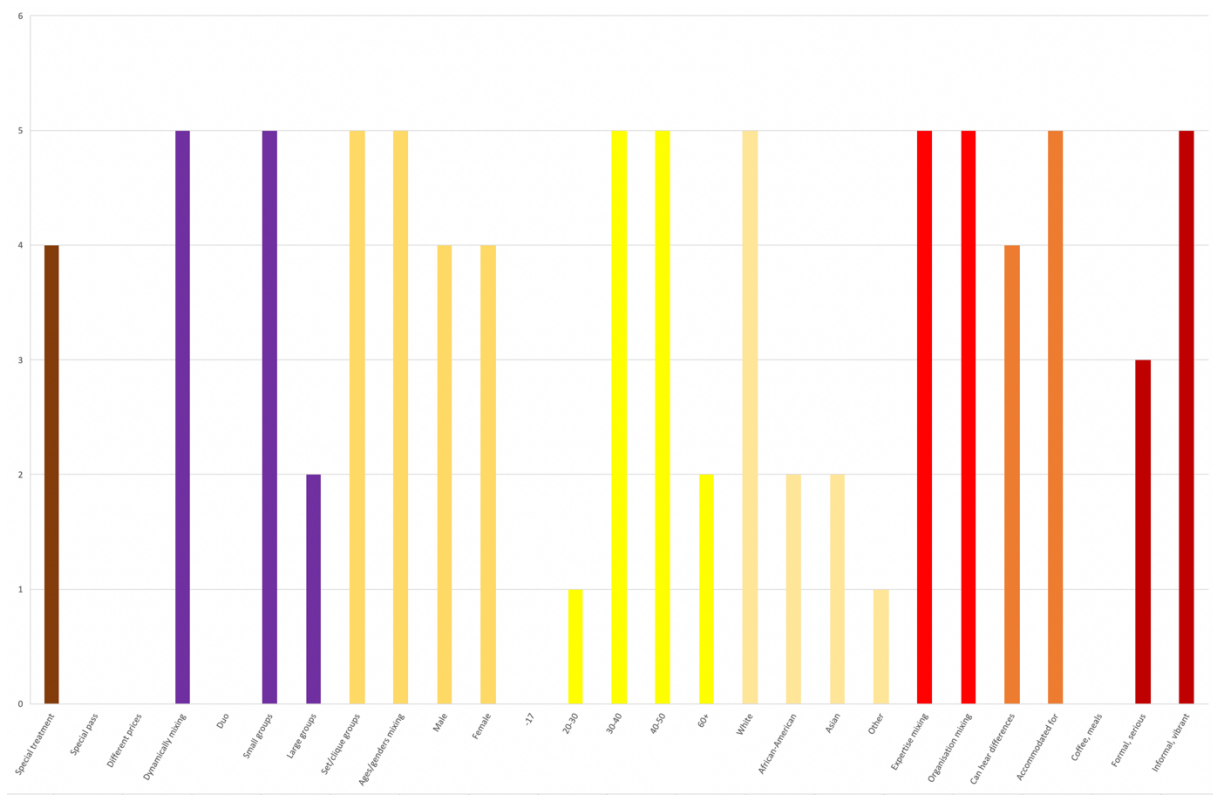
Figure 20. Part 3 activity of Workshop 3 showing the highest measurements of *Yes, And* in the inclusivity themes; a) group size, b) multi-disciplinary, and c) social interaction.

### 8.2.1. Measuring *Yes, And* influencing factors

The *Yes, And* main attribute, 'being present and open to possibility', in particular 'flow in the moment' was lowest in the beginning of Part 1, but remained consistently higher after that, which suggests that formality, which was present strongly in Part 1 influences actors' free flow. Organisational 'control and structure' during Parts 1 and 2, appeared necessary to keep activities on track and manage expectations, and this was also observed when there was a time constraint, for example in Part 4, the second smaller workshop it rose again when there was only nine minutes to co-create ideas.

The *Yes, And* key attribute 'Acknowledgement of another' was observed through general greetings and the feeling of positivity that ran through all parts, and during the smaller activities of Parts 3

and 4 'affirmation nods' and 'handshakes' were very high, probably due to universal codes of conduct and the natural expectancy to react in this way when in more intimate settings with other people.

The observation of *Yes, And* key attributes 'acceptance of another's idea/offer, commit to build upon, not unsurprisingly were low during Part 1 in the main auditorium, because social interaction, for example 'joining exchanges', 'open discussions', 'group chats' and 'healthy debate' were minimal to non-existent as participants were listening to the moderators and presentations on stage. All of these interactional aspects increased through Part 2 and then were at their highest in Part 3, both activities of which encouraged the highest interaction amongst participants, culminating in the first, longer small workshop (Part 3) where ideas and discussions were flowing and with collective aim to build on each group's action points. As time was very limited in the second small workshop (Part 4), interaction and exchange was less possible, but also the groups needed to take over the previous group's action points which seemed not always a natural flow for participants. It was also easier for the researcher to observe during the smaller workshops of Part 3 and 4 some minimal verbal 'blocking', for example resistance to other's ideas, also because of the close proximity of all then actors, including the researcher themselves.

It was noted that the theme 'easy to navigate' which demands specificity, for example relating to the program, information, communication and location was at its highest at the beginning Part 1 in the main auditorium, when the workshop activity structure was being explained and presented. During the warm-up in Part 2 structured navigation lessened from an organisational perspective, and appeared more spontaneously and randomly run. However, it seemed to rise again for the more manageable smaller workshops (Parts 3 and 4), although when comparing 23 minutes duration to 9 minutes, easy to navigate aspects were compromised a little.

Physical changes to group sizes were logically reflected in the bar charts as they changed from 50 people (Part 1&2) to groups of 3-4 (Part 3 and 4) and then finally back to 145 people (Part 5). It was seen that dynamically mixing happened most during Part 2 in the warm-up and then also in the smaller workshop groups (Part 3 and 4), particularly when the smaller groups were mixed up and put in sub-groups for the exercise. From a diversity perspective in Parts 3 and 4 when the groups were 3-4 people in the intimacy of the classroom, it was possible to precisely observe the breakdown of male to female. However, it was appreciated that observing only two small workshops (Parts 3 and 4) was a small sample size and therefore gave limited information.

Multidisciplinary as a theme was represented during the hallway warm up (Part 2) and there were high levels of different disciplines and types of organisations mixing as they were encouraged to exchange thoughts and their viewpoints. This level of mixing continued in the smaller workshop settings (Parts 3 and 4), but in a more intimate, personal exchange whilst they discussed topics more deeply and as a natural default in this situation revealed their expertise. In the beginning (Part 1) and the end (Part 5) when the group size grew, the formal setting with minimal social interaction meant that observable differences between expertise were less obvious, although a short questions and answers session in the audience did reveal some participant's expertise.

Overall, it was noted that group size and location setting played a significant role in both the author being able to observe more accurately differences across the criteria themes, and also that participants themselves could apparently focus their experience and interact, both informally and professionally accordingly and more precisely as more intimacy occurred.

The bar graphs showed also that even when all 145 conference participants were back in the main auditorium (Part 5), compared with 50 participants of the specific "Co-operation" workshop, also in the same location, a higher level of organisation inclusivity was happening to conclude and round up the entire activity all together, which by nature had to be less scripted and formal than at the start (Part 1).

### 8.2.2. Defining value topics for network member-actors

From the empathy map interviews eight actor types, and one network organiser actor type were visualized by the author which highlighted what each member-actor valued about the $BotH_2nia$ network in respect of the set empathy map themes (see Appendix 10). By using the human-centred empathy map as a tool in the interview, it encouraged personal feelings, thoughts, and dialogues about the network that one was in or connected with, rather than a distant, traditional business perspective and potentially more calculated response. The original purpose for this approach was to gain valuable insights from member-actors at the conference that would give input for creating personas. These could be used to validate the network's existing archetypal target groups of business and investors, researchers and educators and actors representing

planning and permits, as shown in Figure 15 (see Appendix 4). Alternatively, the process would reveal new persona archetypes for BotH$_2$nia network to explore as additional target groups.
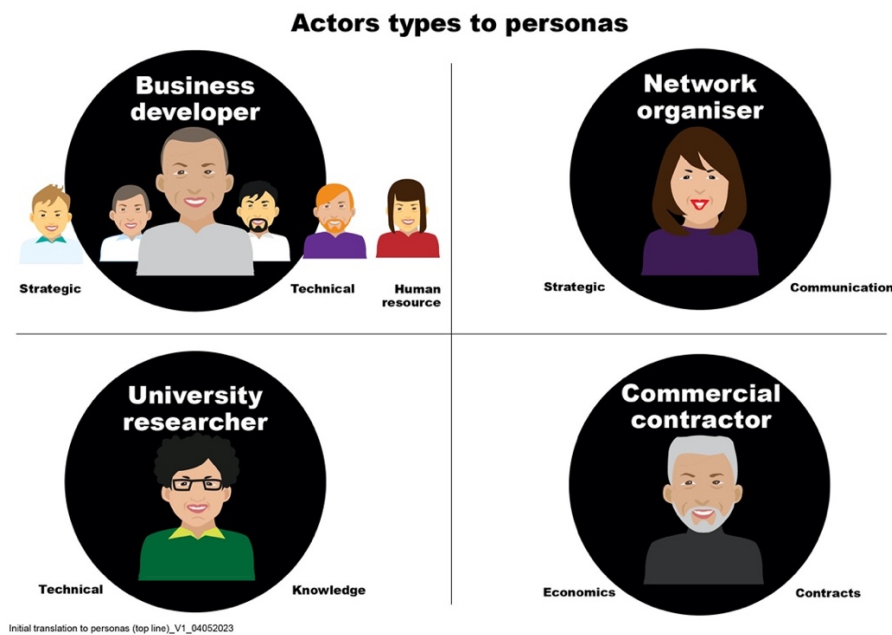


Figure 21. Four preliminary persona archetypes created from semi-structured contextual interviews of nine actors (Adapted from personas (Martin & Hanington, 2019)).

It was found that the data collected gave detailed insights of what was regarded as valuable network topics, and included both actor specific and general common themes combined. It was observed that when trying to define personas that a combination of the random, small interview set and potentially the nature of the participants at that particular BotH$_2$nia event resulted in four potential persona archetypes, as shown in Figure 21. Six out of the nine actors interviewed appeared to fall into the same persona type of 'business developer', which from the attributes of the participants covered expertise areas such as strategic, technical, and human resource. The remaining three formed personas, 'university researcher', which included technical and knowledge expertise, 'commercial contractor, which covered economics and contracts and finally, 'BotH$_2$nia network organiser', which included strategic and communication as expertise areas.

The original intention was to fully detail up these preliminary personas into comprehensive archetypes that could be leveraged by the BotH$_2$nia network to create traditionally recognized target groups for further network communication strategies. However, it was discussed with the Commissioner in the weekly meeting, March 16th, 2023, whilst plotting these preliminary personas onto the original service ecology map (see Appendix 11) that a more generic approach

would be beneficial, especially due to the mixed specific and general nature of insights. A generic approach would provide better understanding of the general expectations and hot topics that were important to all actors in the network, as opposed to focussing on specific topics for specific groups of actors, or target groups. This also reflected the service-dominant logic fundament that serving generic actors as a whole gave better value co-creation collectively and inclusivity.

Even though it was accepted that the interview sample was limited, it was decided that inductive coding of the original interview transcripts would allow common themes to arise out of the text and reveal what topics were seen of value regarding the BotH$_2$nia and network service (see Appendix 12). Crucially, the interview transcript with the BotH$_2$nia network organiser was excluded from this exercise, as this focus was only from that of the member-actors' point of view. As shown in Figure 22, eleven main category themes revealed themselves as value topics with the interviewees, each derived from emerged themes that were consequently labelled sub-coded categories:

- Category 1: Diverse expertise, derived from the emerged themes; 'cross border legislation and relations', 'develop skills', 'knowledge and academic', 'processes and projects' and 'business models'.
- Category 2: Relevance, derived from themes; 'stay up to date', 'readiness', 'competitive and follow individual paths', 'being part of and not an outsider' and 'identify with personally'.
- Category 3: Collaboration, derived from themes; '+/- shared information', 'contribute knowledge', 'learning a lot', 'opportunities' and 'be open and transparent'.
- Category 4: Human interaction, derived from emerging themes; 'meet up and events', 'social interaction', 'environment', 'keep arranging' and 'interactional moment'.
- Category 5: Scale and time, derived from themes; 'complexity', 'in the moment', 'lower time delays risk', 'see some parts and need whole picture' and 'contract ending'.
- Category 6: Progress, derived from; 'need action and proof of talk', 'show results', 'innovate', 'project feasibility', 'network should continue to grow' and 'network trajectory and north star'.
- Category 7: Group, derived from themes; 'network', 'community', 'members', 'project' and 'incentives to join'.

- Category 8: Common goal, derived from emerged themes; 'common interest', 'dedication', 'better society and future', 'more aligned is stronger' and 'afraid and fight it'.

- Category 9: Communication, derived from themes; 'network organization', 'publicity', 'enabling', 'not known outside' and 'do not understand what we do'.

- Category 10: Guiding and facilitation, derived from themes; 'role model', 'passionate network leadership' and 'political and not tech'.

- Category 11: Geography and association, derived from themes; 'regional', 'BotH$_2$nia Project', 'not on EU radar', 'BotH$_2$nia as differentiator', 'missed more national and international representation', 'more international as projects evolve' and 'comparing countries'.

The overall global theme was defined as co-creation.

As shown in Figure 22 (see also Appendix 10), the eight interviewed member-actors were a technology university representative, two chief technology officers, a senior manager for economics and contracts, an international business developer, a business development director, a business development manager, and a commercial business developer. For each interviewee's transcript, with colour coding it was possible to count and record the number of times each of the sub-themes occurred (see Appendix 12) which offered individual metrics for each interviewee, and more importantly an overall metric for each main category theme that could then be distilled into a basic Excel bar graph, as shown in Figure 23. For consistency the colour codes used in the inductive coding were also applied in the bar graph so that the two analysis were relatable.

| Code | Category Theme | Global theme | Technology university representative | Chief technology officer | Chief technology officer | Senior Manager Project Economics and Contracts | International Business Developer | Business Development Director | Business Development Manager | Commercial Business Developer |
|---|---|---|---|---|---|---|---|---|---|---|
| Cross border leg/relations; Develop skills; Knowledge/academic; Processes/projects; Business model | Diverse expertise | Co-creation | 14 | 13 | 7 | 11 | 8 | 11 | 11 | 9 |
| Stay up to date; Readiness; Competitive, follow indiv paths; Part of, not outsider; Identify personally | Relevance | | 3 | 0 | 0 | 3 | 6 | 1 | 4 | 2 |
| +/- Shared information; Contribute knowledge; Learn alot; Opportunities; Be open and transparent | Collaboration | | 7 | 7 | 13 | 7 | 9 | 10 | 6 | 6 |
| Meet-up/Event; Social interaction; Environment; Keep arranging; Interactional moment | Human interaction | | 4 | 8 | 6 | 2 | 2 | 12 | 3 | 3 |
| Complexity; In the moment; Lower time delays risk; See some parts, need whole picture; Contract ending | Scale and time | | 6 | 2 | 1 | 4 | 1 | 3 | 2 | 2 |
| Need action / proof of talk; Show results; Innovate; Project feasibility; Network should continue to grow; Network trajectory, north star | Progress | | 5 | 7 | 0 | 1 | 9 | 2 | 7 | 7 |
| Network; Community; Members; Project; Incentives to join? | Group | | 9 | 7 | 0 | 3 | 2 | 2 | 4 | 2 |
| Common interest; Dedication; Better society & future; More aligned=stronger; Afraid, fight it | Common goal | | 5 | 3 | 4 | 4 | 2 | 3 | 1 | 2 |
| Network organisation; Publicity +/-; Enabling; Not known outside; Don't understand what we do | Communication | | 8 | 10 | 5 | 2 | 3 | 0 | 9 | 6 |
| Role model; Passionate network leadership; Political, not tech | Guiding and facilitation | Co-creation | 1 | 3 | 1 | 3 | 3 | 1 | 3 | 2 |
| Regional; BotH2nia Project; Not on EU radar; BotH2nia as differentiator; Missed more national/international; More international as projects involve; Comparing countries | Geography and association | | 2 | 8 | 18 | 9 | 2 | 2 | 7 | 15 |

Figure 22. Inductive coding revealed 11 main categories of generic value topics for BotH$_2$nia network member-actors, including 5-7 sub-categories per main category.
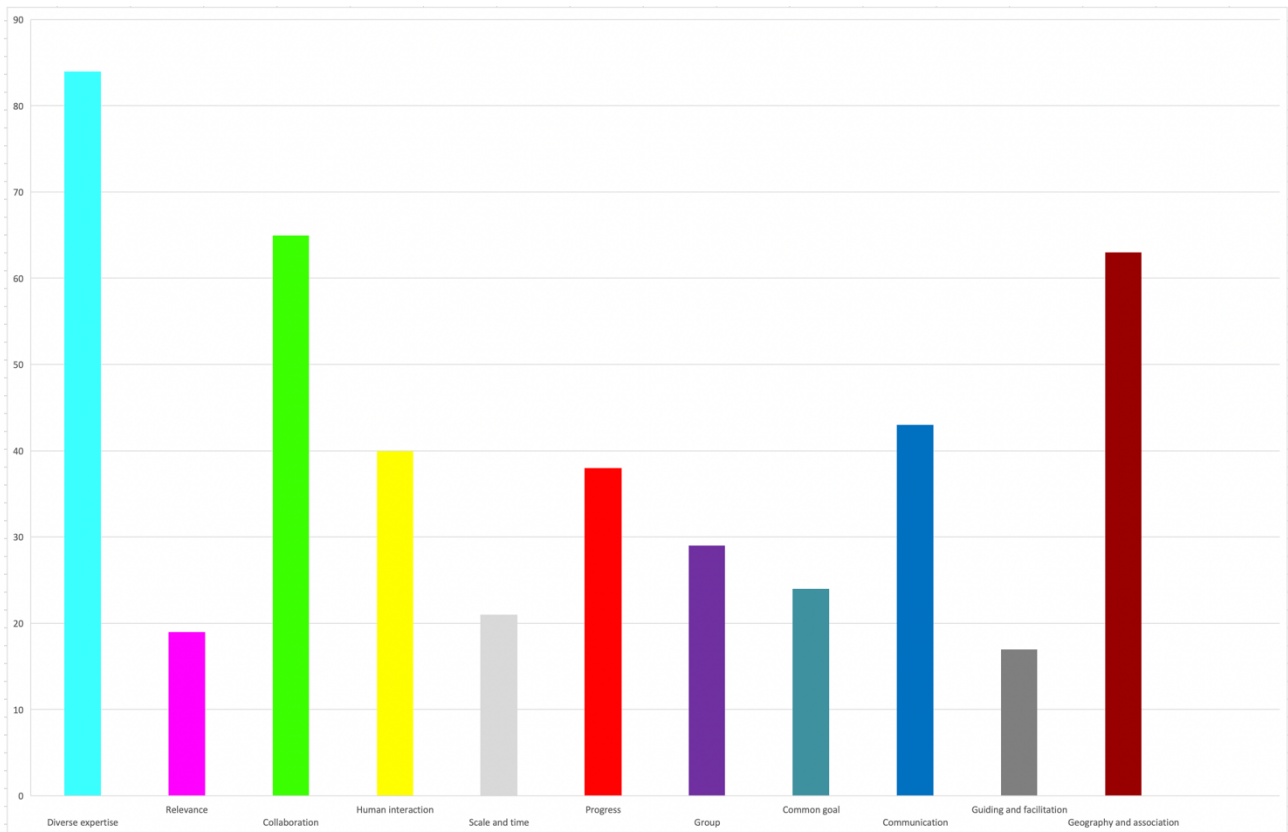
Figure 23. Bar graphs created from metrics distilled from inductive coded transcripts showing 11 generic value topics of combined network member-actors.

The outcome of the bar graph was shared with the Commissioner in the weekly meeting March 30th, 2023, to analyse and make observations from the findings from a BotH$_2$nia network perspective and also from a neutral service design perspective.

The bar graph showed not unsurprisingly that participants referred to the topics that fell closet to their personal remit and context, reflecting most predominantly the main category, 'diverse expertise', followed by topics in the categories 'collaboration' and 'geography and association', presenting the idea of potential dependencies on each other, for example that one's expertise and location are top of mind in collaboration. There followed another set of three categories, first 'communication', then almost equally 'human interaction' and 'progress', where it was discussed the possibility and logic of these categories representing the main characteristics for collaboration. Topics about 'group' then followed as a priority, and then 'common goal' and 'scale and time', which would suggest logical factors that underpin the success of the previous three seemingly important categories. It was discussed that the final two categories of 'relevance' and 'guiding and facilitation', compared to the most important categories were the most intangible or elusive to the interviewees, with the ever-changing nature of relevance and guiding and facilitation seen as the

responsibility of the BotH$_2$nia organisers, so either out of one's control or working in the background.

It was acknowledged that these findings, even when collected from a small sample group, showed generic topics of value, common to randomly selected actors, and suggested there were logical interdependencies between the themes. Service-dominant logic theory also presented the holistic zoom-out view of five dynamically inter-connecting axioms to enable value co-creation (Vargo & Lusch, 2017) and reinforce the concept of generic exchange between different configurations of actors (Chandler & Vargo, 2011). This was seen to provide valuable input for the overall project process at this stage and a springboard for further development and discussion with the Commissioner to leverage *Yes, And* in response to the needs of the BotH2nia network member-actors.

## 8.3 Develop phase

As presented in the Discover and Define phases, the original research design, analysis, and findings, and supported theories gave solid foundation to this development phase. With the hypothesis of "*Yes, And* co-creating value" and a Commissioner that wished to understand what their members-actors valued in their clean hydrogen transitions, the next steps further tested *Yes, And* as a potential strategic approach and contributor to determining future action points for the BotH$_2$nia network.

### 8.3.1 Actor exchange contexts

With personas put aside in the previous Define phase, the eleven generic value categories gained from the interview transcripts were brainstormed in the weekly Commissioner meetings on April 13th and 28th and May 4th, 2023. Service-dominant logic theory and 5 axioms framework, as presented in Chapter 5, reinforced the overlapping interplay and dependency nature in network ecosystems, and where actors are beneficiaries of resource access and under pinned by institutional arrangements, all of which determine the value of co-creation in the system (Lusch &

Vargo, 2014; Vargo & Lusch, 2017) Actor to actor exchange whether between two individuals (micro), three (meso) or more complex systems (macro or mega) are determined by contexts and viewpoints that continually influence activity within a greater whole (Chandler & Vargo, 2011). It was acknowledged by the Commissioner that BotH$_2$nia network owner and organiser continually operated on many levels and in all actor exchange states. The eleven main value categories established from the inductive coding and importance shown in the bar graph in Figure 23, were further plotted on the actor exchange states (see Appendix 13), with particular focus on the macro context, as shown in Figure 24, with the most valued and therefore closest to the actors at the centre and moving outwards.
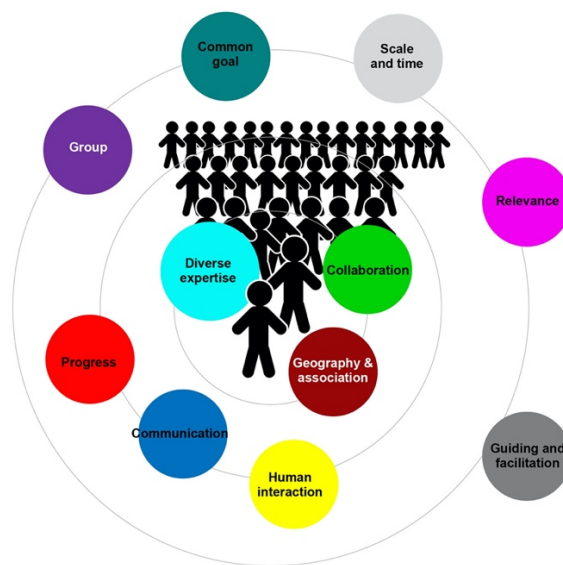


Figure 24. Eleven generic value topics plotted on macro actor exchange state, from BotH$_2$nia network point of view, with the most valued closest to actors in the centre (Adapted from (Chandler & Vargo, 2011)).

### 8.3.2. *Yes, And* convergence, testing and reframing

In a brainstorm on May 28th, 2023, the Commissioner was asked to rate how much *Yes, And* mindset or actual tangible manifestation they felt was present from their BotH$_2$nia network perspective in relation to each of the eleven value categories as shown in Figure 25, using an ordinal scale of 1-6, with 6 representing an excellent level of *Yes, And* in action. When a category received lower than 6, it was agreed this could be described as a *Yes, But* scenario, suggesting that

the network could potentially improve in value categories that were scored lower by an increased *Yes, And* mindset, awareness in action or pro-activity as an enabler. Based on the Commissioner input, the value categories of 'diverse expertise', 'collaboration', 'human interaction', 'progress', 'scale and time', 'relevance' and 'guiding and facilitation' were considered by the Commissioner to be working at high levels of *Yes, And*, especially in the sub-categories where they could influence. However, four out of the eleven categories received *Yes, But*; 'geography and association', 'communication', 'group' and 'common goal'. A *No* response was also discussed for those four categories to gain further insights for improvement. During the weekly meeting on 4th May 2023, ideas were brainstormed with the Commissioner about what areas BotH$_2$nia network were practically applying *Yes, And* and areas that could be improved in relation to the four challenged areas, also along a short-, mid- and long-term timeframe. A comprehensive summary of the "*Yes, And* in use" brainstorm, outcomes and improvement ideas were captured in a chart (see Appendix 14).

# Yes, And in use (current > potential)
Based on Commissioner interview and from BotH2nia network organization perspective

| | Low/None 0 | Poor 1 | Marginal 2 | Acceptable 3 | Good 4 | High 5 | Excellent 6 | Yes, And | Yes, But | No |
|---|---|---|---|---|---|---|---|---|---|---|
| **Diverse expertise**<br>Cross border legislation/relations<br>Develop skills<br>Knowledge/academic<br>Processes/projects<br>Business model | | | | | | | ✔ | **Notes**<br>Believe in whole perspective<br>All in same room, same time<br><br>Sometimes, can be resisted, complexity can make it more difficult | | Region specific, or company cluster - where only companies can become members<br><br>Many parties, want to own us - can't sell diverse aspect - factor thats making us different - impossible to say no to this theme |
| **Collaboration**<br>+/- Shared information<br>Contribute knowledge<br>Learn alot<br>Opportunities<br>Be open and transparent | | | | | | | ✔ | Relative to previous, has same genes<br>If you come together from difference<br>Need to transend comfort zone, to understand, learn and collaborate<br><br>Always endorse, keep, build upon<br>Increase and enhance | | Region specific, or company cluster - where only companies can become members<br><br>Many parties, want to own us - can't sell diverse aspect - factor thats making us different - impossible to say no to this theme |
| **Geography & association**<br>Regional / BotH2nia Project<br>Not on EU radar<br>BotH2nia as differentiator<br>Missed more national / international<br>More international as projects evolve<br>Comparing countries | | | | | ✔----> | | | | Includes also more challenges<br>Finland having troubles thinking internationally<br>Possibility of linking regions to take to larger Europe, eg. Benelux<br><br>Without local ownership > parties go specific, particular, tempation to become competitive = can be a threat to collaboration<br><br>At the core of trying to redefine regional discussions = try to keep local diversity, and come together as a larger whole | Turning to a national ambitions |
| **Communication**<br>Network organisation<br>Publicity +/-<br>Enabling<br>Not known outside<br>Don't understand what we do | | | | | ✔----> | | | | At the core of what we claim to do<br>Through effective, external comms, help accelerate<br><br>Evokes a feeling of being more complex<br>Possibilities of failing are so many<br>Possibilities so huge<br>Resources to manage it - internal vs external<br>Internal structures not in place, in process - = not possible to be clear at moment<br>Lack of resources - so aware not able to take care =a lot of cufucion then<br>But good buzz about us - bit afraid where it leads to - but if you can't sail straight | If get rid of all communication problems, wrong interpretations - these are all things that are difficult<br><br>If we are not a communication project, what would we be then? Other's afraid that we are a co-ordination organisation (no, no)<br><br>Communication is dangerous, some sort of power |
| **Human interaction**<br>Meet-up/Event<br>Social interaction<br>Environment<br>Keep arranging<br>Interactional moment | | | | ✔ | | | | Give people time to give to each other<br>Events where human interaction is possible, actual, face to face<br><br>Virtual, online is more defined as communication | | |
| **Progress**<br>Need action / proof of talk / show results<br>Innovate<br>Project feasibility<br>Nretwork should continue to grow<br>Network trajectory, north star | | | | | | | ✔ | This is bunch of doers - Yes to the requirement, know the importance, tangible to get things done<br>Minna also says yes, and can also have tools to make it happen, links to actors, effective communication tools - validated that were seen as helpful<br>Understand interest in trajectory - bare with me until becomes clear - feel responsibility to get answers, project applications, service purchases<br>Share concerns, perhaps too frank - also takes from support, see how it could be<br>Admits incompleteness. It's just direction, will turn out somehow - look for validation (which sounds good from operational point of view) | | |
| **Group**<br>Network<br>Community<br>Members<br>Project<br>Incentives to join? | | | ✔-------> | | | | | | What this is, how it works, laws of nature in this specific group, in this task = yes, it is important<br><br>3 = the unbearable incompleteness<br><br>Linked to collaboration | Will just be about running campaigns, more than a country campaign<br><br>If didn't have local contacts, would be only a campaign - no roots in anything actual - feel superficial<br><br>Roots and rooting are key |
| **Common goal**<br>Common interest<br>Dedication<br>Better society and future<br>More aligned = stronger<br>Afraid, fight it | | | | | ✔----> | | | | For theme yes, aim of sharing info effectively = tools to achieve common goal<br>Through mechanism to give info to make decisions, based on where they are located etc.<br>Addressed directly by communication, indirectly in the centre<br>Relies on dedication, resonating of thought on common goal,in order to facilitate transition = drawn to this network<br>BotH2nia also seen to attract investment to this region = economic goal, which leads to different goals ultimately, eg. one running for the money, one for the shape<br>Lower number first, due to conflict | Fine to tell common, eg. Sumon Latu - don't need to work for themselves - serving bigger entity<br>If don't like Suomon Latu approach, not for you, too stubborn, best go |
| **Scale and time**<br>Complexity<br>In the moment<br>Lower time delays risk<br>See some parts, need whole picture<br>Contract ending | | | | | | | ✔ | More describing smaller theme<br>More heteregeous than other circles - less easy to define<br>In the moment = using the momentum to react and make decisions, to direct progress<br>See whole picture, right now, aware of bigger, but to short, Sub-themes relate to each other<br>Yes is momentum, in beginning took available resources, best contract - with strengths<br>Shortsightedness has not been excuse to act<br>Direction is clear all the time, just dont see next step! | | |
| **Relevance**<br>Stay up to date<br>Readiness<br>Competitive, follow indiv paths<br>Part of, not outsider<br>identify personally | | | | | | | ✔ | Feel you can come as yourself, combines ownership and inner motivation, nurtured in individuals<br><br>Diversity for benefits, backwards forwards to each other's zones<br>Inner voices in most complex circles<br><br>Gives strength | | |
| **Guiding and facilitation**<br>Role model<br>Passionate network leader-ship<br>Political, not tech | | | | | | | ✔ | Related to Group theme<br>Communication is leadership, guides us<br><br>If looks like a tool or method, eg. faciliation - key to know which one to pick at right time, at what moment, where it is going = must get people to think in same direction<br><br>Is a soft human, rather than hard economic | | |

4 value topics have room for improvement

Based on 11 themes (inductive coding) that 9 interviewees found valuable in relation to network (random sample from conference)

Yes, And - Interview CommissionerBotH2nia_v1Template_28042023

Figure 25. *Yes, And* currently in use from the BotH₂nia network organization perspective, and based on the eleven main value categories.

**8.4. Deliver phase**

The three main areas that were delivered as part of this thesis and research project were the *Yes, And* table of recommendations, *Yes, And* ways of working and *Yes, And* outcomes connected to theory.

### 8.4.1. *Yes, And* table of recommendations

On June 11th, 2023, the author presented a table of recommendations to the Commissioner, under the heading of, "BotH$_2$nia network: *Yes, And* recommendations for a value co-creation culture for generic actors", as shown in Figure 26. The table was based upon multiple insights and input gained during the research process, and in particular the findings gained from the non-participant observation during Workshop 3: "Co-operation and co-marketing the Nordic hydrogen markets" and less optimized value categories extrapolated from the semi-structured contextual interviews of eight BotH$_2$nia network member-actors. The observation research method delivered findings that determined key factors that influenced *Yes, And* happening amongst actors in groups. The main *Yes, And* themes were, a) present and open to possibility, b) acknowledgement of another, and c) acceptance of another's idea, and sub-themes of easy to navigate, and welcoming, and were represented in the final recommendations table under the heading, "Provide interactional moments that support diverse contexts and viewpoints", as shown in Figure 26.

The semi-structured contextual interviews findings complimented well the observation method findings, especially in combination with the service design empathy map, which enabled a robust human-centred activity with the interviewees. Inductive coding of the interview transcripts revealed eleven value categories that the network member-actors regarded as important in relation to the BotH$_2$nia network. Following a *Yes, And* brainstorm with the Commissioner, four of those categories, when asked if they were *Yes, And* optimised, needed improvement. The four categories of; 'geography and association', 'communication', 'group' and 'common goal' were brainstormed and represented in the final recommendations table under the headings, "Encourage reciprocal communication and dialogue" and Promote common goal space and mindset", as shown in Figure 26.

Figure 26. BotH₂nia network *Yes, And* table of recommendations for a value co-creation culture for generic actors.

The recommendations table served as a holistic overview which presented three overarching themes that were supported with brief descriptors that provided sub-themes and extra information for the Commissioner and BotH₂nia network to leverage from in future developments.

**Theme 1: Provide interactional moments that support diverse contexts and viewpoints**

- Group size and format for micro, meso, macro and mega exchanges across geographies.

- Vary informality and formality of organisation, communication, and operations.

- Vary type, duration, and frequency of social interaction moments.

These are enablers for

- Ease of navigation to understand information, environment, and situation.

- Amount of specificity to draw upon, like multi-disciplines and expertise detail.

**Theme 2: Encourage reciprocal communication and dialogue**

- Acknowledge and convey across touchpoints that diverging viewpoints exist.
- Introduce *Yes, And* icebreakers at the start of events, meetings, workshops.
- Promote a meeting culture where actors speak in turns and listening is valued.
- Give trusted spaces for all actors to communicate their intentions in ways that they wish to.
- Encourage pre-meeting preparation in communities to enable focus and efficiency.
- Be a driver for pre-emptive society dialogue that presents facts for open discussion and wider co-creation.
- Visualise the strength of the network culture and its geographical and multidisciplinary diversity.
- Promote agency of communication or Communication Agency.

**Theme 3: Promote common goal space and mindset**

- Define BotH$_2$nia network value position, as service provider or co-creation exchange community for all.
- Acknowledge the network as a common, safe space and dynamic environment to connect, unite and do business in.
- Introduce a user friendly *Yes, And* code of conduct that all actors are encouraged promote and adhere to.
- Acceptance of difference and diversity can lead to common opportunity to build upon.
- As many hydrogen economies mature and satellite pilots evolve promote *Yes, And* tone of voice to navigate and help negotiate ownership and competition challenges.
- Promote *Yes, And* negotiation skills for progress, in particular across geographies.
- Invite impacted non-hydrogen actors to contribute to the value co-creation space.

The goal of the table was to suggest areas where a *Yes, And* mindset or physical skill set could be potentially applied, influence or play a role in guiding the best possibility for value co-creation for all BotH$_2$nia member-actors, in order to aid collectively the hydrogen transition aim.

### 8.4.2.   *Yes, And* ways of working

During the research project, a *Yes And* way of working was put into practice, which reflected the nature of the thesis topic directly and demonstrated in real-time the benefits of the mindset towards the progress and process of the project. It was acknowledged that the author and Commissioner, and the wider BotH$_2$nia network and member-actors already had some *Yes, And* attributes which delivered a co-creative atmosphere and space to dynamically exchange, both face to face at the conference and also online during interviews and weekly Commissioner meetings. Design thinking and service design tools were strong components in delivering this thesis and their human-centred and holistic approach delivered a thorough creative and strategic framework that could be clearly understood and reciprocated knowledge taken forward by the Commissioner.

### 8.4.3.   *Yes, And* outcomes connected to theory

Literature review and selected theories delivered a strong backbone to this thesis and research project, and provided validation, in particular to *Yes, And* which is often seen as ambiguous, intangible, and non-academic.

# 9    SUMMARY

The main areas of theory, *Yes, And*, service-dominant logic value co-creation and design thinking and doing with service design methods and tools were found to be complimentary areas of focus that gave depth of knowledge, validity and guidance throughout the overall thesis process and continually supported the hypothesis, "*Yes, And* co-creating value".

*Yes, And* deriving from improvisation theater in this thesis faced many obstacles and challenges to fit an academic mould and prove itself as an important topic, especially as recognition in peer reviewed publications and literature was often limited and was supported more with non-peer reviewed marketing and business material. The theory, together with a symbiotic Commissioner

brief and pro-activity, and compatible research methods and environments meant that the topic relevance was argued in a credible manner and validated by peer reviewed literature where possible. Iterative and continually evolving design thinking and doing through the appropriate use of service design methods and tools underpinned the project and weekly meetings with the Commissioner contributed in real-time to their own internal discussions and project development on the go.

### 9.1 Answering the research questions

The first research question asked, "What are the influencing factors for *Yes, And* to occur amongst co-creating actors? It was concluded that even though a seemingly ambiguous topic like *Yes, And*, theory and real-life improvisation lessons and experience could define a set of non-participant observation criteria to ordinally measure how much *Yes, And* happened during the "BotH$_2$nia goes Lulea" conference, in particular during a workshop activity entitled, "Co-operation and co-marketing the Nordic hydrogen markets". Primary influencing factors for *Yes, And* to occur amongst co-creating member-actors were a) group size, b) informality and formality of organisation, communication, or operations, and c) type and duration of social interaction moments. The degree of these primary factors in turn determined the nature of co-creation and how much between the actors was possible, which in turn enabled a) ease of navigation (eg. understanding information, environment or situation, and b) amount of specificity to draw upon, (eg. multi-disciplinary and expertise detail). Actual value of the co-creation for each actor could not be determined through observation alone, but the scope of *Yes, And* should be considered broad to include both verbal and non-verbal behaviours and interactions, where it was observed body language played a very crucial role. It was noted that the observation research method itself gave limited, generalised results, as can only be based upon assumptive cues, also with only one researcher observing. Multiple researchers observing would contribute to a more comprehensive and comparable data set.

The second research question asked, "How can the BotH$_2$nia network provide *Yes, And* co-creation value for its actors? Understanding what topics BotH$_2$nia network member-actors considered valuable topics was important for network organisers and required interviewing member-actors

themselves. It was acknowledged by both author and interviewees that using the empathy map as an interview framework definitely encouraged more personal insights regarding the BotH$_2$nia network. Service-dominant logic advocates that value can only be determined by the beneficiary and that value co-creation should refer to generic actors contributing into a whole, rather than specific target groups that are served within a whole. This thesis showed this aspect to be true where general topics of value for generic actors enabled broader discussions. In contrast, it was found that creating specific personas, although provided possible insights for target groups, also had degrees of exclusivity.

It was concluded with the Commissioner that BotH$_2$nia network was generally operating with a high *Yes, And* mindset. This was reflected in observation findings and interview responses with participants, resulting in what could be described as *Yes, And* BotH$_2$nia co-creating value for its member-actors. Four out of eleven value categories determined by the participants, were recognized by the Commissioner to be in a *Yes, But*, or *No* state. The final, delivered summary framework, "BotH$_2$nia network: *Yes, And* considerations for a value co-creation culture for all actors" (see Figure 26) highlighted three main focus themes as:

   a) Provide interactional moments that support diverse contexts and viewpoints,

   b) Encourage reciprocal communication and dialogue

   c) Promote common goal space and mindset

These were described by the Commissioner as validation in some areas and insightful for future strategic developments, without being overly prescriptive or limiting.

**9.2     Evaluation and reflection**

Evaluation and reflection of the overall research project focused on four areas, with input provided by the author and given by the Commissioner on 15th May 2023.

### 9.2.1. Project goals and aims

The author reflected that the sheer scale and complexity of the hydrogen topic in itself gave an enormous arena to test *Yes, And*, but demanded continual re-focussing on what was relevant, important and could be in scope of the research project, and remain true to the thesis frame of reference. $BotH_2nia$ network provided the environment to investigate *Yes, And* amongst diverse actors in multiple ways and in particular the "$BotH_2nia$ goes Luleå" conference in Sweden, which significantly to the overall thesis aim. The Commissioner evaluated that practical goals had been given as actionable recommendations for how to strategically develop the network.

### 9.2.2. Benefits of design thinking, service design tools and research methods

The author noted that although multiple methods were utilised in the research, it was acknowledged that more robust validity and bias limitations could have been improved by broader investigator and data source triangulation for example, more researchers involved, larger and more diverse interview sample groups, and a planned survey to obtain basic demographic information from network actors would have given a richer data set. It was found that actors had joined more than one hydrogen network or cluster, so also using a benchmarking method would have provided $BotH_2nia$ network additional insights for comparison.

The holistic overview and managing complexity mindset that comes naturally to design thinking were strongly at play in this project. Service design methods and tools enabled ideas and solutions to be visually ideated, captured and translated often in real-time to guide the process and the Commissioner's own thinking and strategic processes.

Having no hydrogen knowledge or background, or affiliation with an organisation or location meant that the author could take an independent, neutral viewpoint, considered an important characteristic of any researcher or service designer. However, there was sometimes added complexity for the author to continually switch hats between researcher, service designer and thesis author.

The Commissioner reflected that there were thorough and systematic ways of collecting, analysing and presenting material, and close collaboration enabled "creative wrestling of ideas" to finally reveal themselves. They also appreciated the continuity of seeing how the vision and values, and initial target group had been defined.

### 9.2.3. Project management and communication

The author reflected that *Yes, And* was a strong theme throughout the entire project and also between the author and Commissioner in their weekly meetings which resulted in a very proactive and responsive partnership and iterative way of working, with the energy and focus on mutually

supporting, understanding, improvement, openness and development. The Commissioner found the weekly meetings enjoyable and noted that discussions and sharing of thoughts went, in Minna Näsman's words, "all over the place" (author) "and beyond" (Commissioner), and also noted that in then beginning shared, documented expectations reflected the production of results accordingly.

### 9.2.4. Contributions and future developments

During the thesis process it was recognized by the author that both *Yes, And*, and service-dominant logic were essentially instigators of co-creation and the value it can bring. Service-dominant logic was more in terms of theoretical and structural framework, and *Yes, And* more in everyday human interaction in the moment, both building upon. *Yes, And* is potentially a missing

link to service- dominant logic, where it can provide an easily accessible and tangible, practical skillset to the 5 Axioms framework. Likewise, service-dominant logic presented transferable deep logic and reason to a mindset like *Yes, And*, and its associations with improvisation theatre. This was seen as especially beneficial when often the potential of *Yes, And* was more commonly advocated as a type of business tool in non-peer reviewed marketing related material.

The thesis and its findings contributed to the greater hydrogen economy goals through the eagerness of the Commissioner to take on board insights and immediately translate into their everyday tasks. Being aware of a *Yes, And* mindset and tangible actions seemed to ground the real human-centredness for all the people involved so that value co-creation was a lived experience.

The Commissioner evaluated that this thesis, at least for the following year provides a reliable backbone for network developments, and that the methods and ways of working will contribute even longer as they can be applied again as and when developing circumstances require.

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Appendix 1.

Appendix 2.

Appendix 3.

# Inclusivity

| | General | 0 None | 1 Poor | 2 Marginal | 3 Acceptable | 4 Good | 4 Excellent |
|---|---|---|---|---|---|---|---|
| **Equality / respect** | | | | | | | |
| Special treatment | | | | | | | |
| Special pass | | | | | | | |
| Different prices | | | | | | | |
| **Group size** | | | | | | | |
| Dynamically mixing | | | | | | | |
| Duo | | | | | | | |
| Small groups | | | | | | | |
| Large groups | | | | | | | |
| Set/clique groups | | | | | | | |
| **Diversity** | | | | | | | |
| Ages/genders mixing | | | | | | | |
| Male | | | | | | | |
| Female | | | | | | | |
| -17 | | | | | | | |
| 20-30 | | | | | | | |
| 30-40 | | | | | | | |
| 40-50 | | | | | | | |
| 60+ | | | | | | | |
| White | | | | | | | |
| African-American | | | | | | | |
| Asian | | | | | | | |
| Other | | | | | | | |
| **Multidisciplinary** | | | | | | | |
| Expertise mixing | | | | | | | |
| Organisations mixing | | | | | | | |
| **Language** | | | | | | | |
| Can hear differences | | | | | | | |
| Accommodated for | | | | | | | |
| **Social interactions** | | | | | | | |
| Coffee, meals | | | | | | | |
| Formal, serious | | | | | | | |
| Informal, vibrant | | | | | | | |

Observation Template V2_21012023

# Openness

| | General | 0 None | 1 Poor | 2 Marginal | 3 Acceptable | 4 Good | 4 Excellent |
|---|---|---|---|---|---|---|---|
| **Welcoming** | | | | | | | |
| Free to be oneself | | | | | | | |
| Approachable | | | | | | | |
| Fun, happy | | | | | | | |
| Serious | | | | | | | |
| **Easy to navigate** | | | | | | | |
| Program | | | | | | | |
| Information | | | | | | | |
| Communication | | | | | | | |
| Location | | | | | | | |
| **Present & open to possibility** | | | | | | | |
| Flow in moment | | | | | | | |
| Feels directive | | | | | | | |
| Feels control, structured | | | | | | | |
| **Acknowledgement of another** | | | | | | | |
| Affirmation nod | | | | | | | |
| Hand shakes | | | | | | | |
| Greeting | | | | | | | |
| Positivity | | | | | | | |
| **Acceptance of another's idea/offer, commit to build-upon** | | | | | | | |
| Joining exchanges | | | | | | | |
| Open discussions | | | | | | | |
| Group chats | | | | | | | |
| Healthy debate | | | | | | | |
| Blocking | | | | | | | |
| **Confidentiality, privacy & governance** | | | | | | | |
| Competitive | | | | | | | |
| Private | | | | | | | |
| Patents | | | | | | | |
| Other | | | | | | | |
| Code of conduct | | | | | | | |
| Rules | | | | | | | |

Observation Template V2_21012023

Observation fill-in chart (V2b template)

Appendix 4.

## Service Ecology: Part 2
### 13012022

Colour coding: Network partners | Funding | BotHnia steering committee | not paying | Paying

BotH2nia Network

Investment — Public / Private
Commercial business — Private / Public / Business development
Location — Finland | Sweden | Baltic Sea Region | Rest of Europe | Rest of World
Research — Private / Public / Research projects
Education — Private / Public / Training organisations
Planning & permits — Private / Public
Government policy, Law, Chambre of Commerce, Planning & permits, Governance
Industrial investment

**Members (taken from website)**

- ABO Wind Oy
- Alcea Oy
- Alpiq
- Aurelia Turbines
- Aurolahti Group Oy
- Bergmann Attourneys at Law
- Botnia H2Tec
- Business Finland
- BusinessOulu
- Communication Works
- Convion
- Corporatum
- Edupower
- Elcogen
- Energiforsk
- Energy Power
- Enersense
- Estonian Association of Hydrogen Technologies
- Etha Wind
- Filtrabit
- Fincat Oy
- Fingrid
- Flexens
- Fortum
- Gasgrid Finland
- Gen2 Energy
- Green Industry Park
- H2HIVE
- Hanken Svenska handelshögskolan
- Hannes Snellman Attorneys
- Helen
- Hycamite TCD Technologies
- Iin Micropolis Oy
- Ilmatar

- Imatra Region Development Company
- Kajaani UAS
- City of Kauhajoki
- Cursor Oy, Invest In
- Kemin Digipolis Oy
- Kiwa Inspecta
- Kokko Control
- City of Kokkola
- Brahe Education Centre
- Kristiinankaupungin Elinkeinokeskus Oy
- LAB University of Applied Sciences
- Lapland University of Applied Sciences
- City of Lappeenranta
- Luleå university of technology
- LUT University
- Magnus Associates
- Kvarken Council
- Metacon
- Nordic Renewables
- Oulu University of Applied Sciences
- City of Oulu
- University of Oulu
- OX2
- Oy Linde Gas Ab
- P2X Solutions
- Pirkanmaan liitto
- Ostrobothnia Chamber of Commerce
- Pohjois-Pohjanmaan liitto
- https://portofpietarsaari.fi/en/
- Port of Raahe
- Prizztech Oy
- Prohoc
- Pyhäjoki Municipality
- Q Power
- City of Raahe

- Recion
- RISE
- Siikajoen kunta
- Skarta Energy Oy
- Skellefteå Kraft
- Smart and Lean Hub
- Solar Hydro Genesis
- SSAB
- St1
- Stargate Hydrogen
- Sumitomo SHI FW
- Sweco
- Tampere University of Applied Sciences
- Tampere University
- Teknologiakeskus MERINOVA
- Turku Science Park Oy
- Turun ammattikorkeakoulu
- Turun Yliopisto
- Utajärven Yrityspuisto Oy
- Vaasa University of Applied Sciences
- University of Vaasa
- Vaasanseudun Kehitys Oy VASEK
- Vaisala
- Vattenfall
- VTT
- W3 Energy
- Wärtsilä
- Wasa Group
- Westenergy
- WSP
- Zelk Energy AB
- Åbo Akademi

## BotH2nia Network – commercial actors

## BotH2nia Network – public actors

The BotH2nia network aims to build a robust hydrogen industry around the Gulf of Bothnia and combine our resources to pursue this common goal.

www.both2nia.com

# Appendix 5.

### Building the Nordic hydrogen economy

**Luleå in Norrbotten moves fast forward to the hydrogen economy. Join BotH2nia to see how northern Sweden takes leaps forward in hydrogen-related business, research, and building infrastructure.**

**BotH2nia goes Luleå 24 - 25 January 2023**

**Time:** Tuesday 24 Jan 2023, 9.00 - 17.00 CET

**People:** Businesses, investors, administrators, researchers and educators enabling the transition to hydrogen economy

**Place:** Luleå University of Technology, 97187 Luleå, Sweden

**Moderator:** Cecilia Wallmark, Director of the hydrogen initiative CH2ESS at Luleå University of Technology

**Program:**

**9.00** Welcome to Luleå!

Introduction to the purpose of the day, and overview of on-going activities by the organizers.

*Cecilia Wallmark / The hydrogen initiative CH2ESS at Luleå University of Technology*
*Lena Segerlund / Invest in Norrbotten*
*Ida Heintz / Swerim*
*Johan Sandstedt / Swedish Hydrogen Development Center, RISE*
*Matti Malkamäki and Minna Näsman / BotH2nia, the network of Baltic Sea Hydrogen Valleys*

**9.40** Keynote 1: Welcome to new energy markets

*Mikael Nordlander / Vattenfall, Herkko Plit / P2X Solutions & TBC / RISE*

**10.25** Keynotes 2 & 3: Hydrogen valley cradles

- Industrial parks as hydrogen hotspots

  *Malin Larsson / Luleå Energi and Berndt Schalin / Flexens*

- Cross-border, public-private cooperation in hydrogen infrastructure projects

  *Max Murugan / Nordion Energi, Johan Sandstedt / H2ESIN, Kirsikka Kiviranta / VTT*

*11.15 Coffee*

**11.45** Investments transforming the industry of the North

- Example investment: steel

  *Tomax Hirsch / SSAB*

- Example investment: fertilizers

  *Jorge Requena / Fertiberia*

- Example investment: synthetic fuels

  *Ted Bergman / Green North2 Energy*

- Example investment: maritime transport

  *Osamu Ikeda / Chiyoda Corporation Netherlands*

Panel discussion: opportunities created by known investment plans

*12.35 Lunch*

**13.35** Keynote 4: Permitting solar, wind and hydrogen in Sweden and Finland

*Robert Wedmo and Anna Häger / Ikmatar & Linn Arvidsson / Sweco*

**14.10** Parallel workshops with coffee

- Workshop 1: Business and investments (incl. Q&A for before noon presentations)

- Workshop 2: Role of education in building the Nordic hydrogen node

- Workshop 3: Co-operation and co-marketing the Nordic hydrogen markets

**16.30** Summary: presentation of workshop results, general discussion

**17.15** End of working day, rest

**19.00** Dinner

---

**Time:** Wednesday 25 Jan 2023

**Place:** Buss tour to different sites

**Program:**

**8.45** Start of tour at Kulturens hus, Skeppsbrogatan 17

**Bus #1:** Swerim

**Bus #2:** LTU

**11-11.45** lunch

**11.45** Buses #1 & #2: Guided tour to Port of Luleå

**12.45** The role of ports and shipping in the energy transition

**Place:** TBC

**Moderator:** Moderator: Ellinor Forsström, Project Manager, RISE

**Program:**

- Swedish port development: what happens in the hydrogen area? / Ellinor Forsström, RISE

- TBC / Port of Luleå

- Kenny Westlund / BothniaLinkH2, Uniper

- Rafael Schmidt / Hydrogenius LOHC

- Wouter Demenint / Port of Rotterdam

- Hele-Mai Metsal / Port of Tallinn

- Comments from the Finnish side of the Bothnian Bay (ports and speakers TBC)

- Fredrik Granberg / Luleå University of Technology

**15.30** end of seminarium

**Bus #1** to the airport

**Bus #2** to the city center

**Registration is now closed**, as the seats have been filled. If you'd like to be added on a waiting list, please send an email to both2nia@both2nia.com with the topic "waiting list". We'll return to you in case of cancellations. The event is free of charge. However, a no-show fee of 1000 SEK is applied, so remember to cancel your booking as soon as possible if an obstacle occurs to free your seat to next in line.

---

## BotH2nia goes Luleå

Luleå in Norrbotten moves fast forward to the hydrogen economy. Join BotH2nia to see how northern Sweden takes leaps forward in hydrogen-related business, research, and building infrastructure.

📅 24 - 25 January 2023

🕘 9.00 - 17.00

📍 Luleå, Sweden
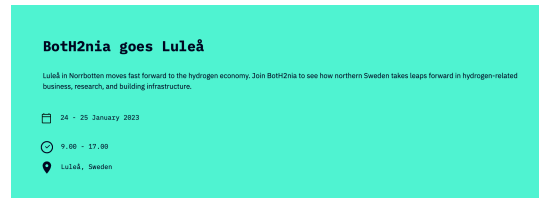
# Appendix 6.

# Appendix 7.

**Observation 1**
(generally at event)



Multi-disciplinary

Equality and respect

Group size

Language and nations

**Inclusivity**

Social interactions

Diversity

Acknowledgement of others

Welcoming

Easy to navigate

**Openness**

Accept idea & build upon

Confidentiality, privacy & governance

Present & open to possibility

Appendix 8.

Part 1: Inclusivity and openness amongst approximately 50 conference actors during a pre-workshop introduction presentation in the main auditorium.

| Equality / respect | Not applicable | Low / None / 0 | Poor / 1 | Marginal / 2 | Acceptable / 3 | Good / 4 | High / Excellent / 5 |
|---|---|---|---|---|---|---|---|
| Special treatment | | ✔ | | | | | |
| Special pass | | ✔ | | | | | |
| Different prices | | ✔ | | | | | |
| **Group size** | | | | | | | |
| Dynamically mixing | | ✔ | | | | | |
| Duo | | ✔ | | | | | |
| Small groups | | ✔ | | | | | |
| Large groups | | | | | | ✔ | |
| Set/clique groups | | ✔ | | | | | |
| **Diversity** | | | | | | | |
| Ages/genders mixing | | | | | | | ✔ |
| Male | | | | | | ✔ | |
| Female | | | | ✔ | | | |
| -17 | | ✔ | | | | | |
| 20-30 | | | ✔ | | | | |
| 30-40 | | | | | | ✔ | |
| 40-50 | | | | | | ✔ | |
| 60+ | | | | | | | ✔ |
| White | | | | | | | ✔ |
| African-American | | | ✔ | | | | |
| Asian | | | ✔ | | | | |
| Other | | | ✔ | | | | |
| **Multidisciplinary** | | | | | | | |
| Expertise mixing | | | | | ✔ | | |
| Organisations mixing | | | | | ✔ | | |
| **Language** | | | | | | | |
| Can hear differences | | | ✔ | | | | |
| Accommodated for | | | | | | ✔ | |
| Social interactions | | | | | | | |
| Coffee, meals | | ✔ | | | | | |
| Formal, serious | | | | | | ✔ | |
| Informal, vibrant | | | ✔ | | | | |

Observation Template V2b_21012023

| Welcoming | Not applicable | Low / None / 0 | Poor / 1 | Marginal / 2 | Acceptable / 3 | Good / 4 | High / Excellent / 5 |
|---|---|---|---|---|---|---|---|
| Free to be oneself | | | | ✔ | | | |
| Approachable | | | ✔ | | | | |
| Fun, happy | | | | ✔ | | | |
| Serious | | | | | | ✔ | |
| **Easy to navigate** | | | | | | | |
| Program | | | | | | | ✔ |
| Information | | | | | | | ✔ |
| Communication | | | | | | | ✔ |
| Location | | | | | | | ✔ |
| **Present & open to possibility** | | | | | | | |
| Flow in moment | | | | ✔ | | | |
| Feels directive | | | | | | | |
| Feels control, structured | | | | | | | ✔ |
| **Acknowledgement of another** | | | | | | | |
| Affirmation nod | | ✔ | | | | | |
| Hand shakes | | ✔ | | | | | |
| Greeting | | | | | | ✔ | |
| Positivity | | | | | | ✔ | |
| **Acceptance of another's idea/offer, commit to build-upon** | | | | | | | |
| Joining exchanges | | | ✔ | | | | |
| Open discussions | | | ✔ | | | | |
| Group chats | | | ✔ | | | | |
| Healthy debate | | | ✔ | | | | |
| Blocking | | ✔ | | | | | |
| **Confidentiality, privacy & governance** | | | | | | | |
| Competitive | | ✔ | | | | | |
| Private | | ✔ | | | | | |
| Patents | | ✔ | | | | | |
| Other | | ✔ | | | | | |
| Code of conduct | | ✔ | | | | | |
| Rules | | | ✔ | | | | |

Observation Template V2b_21012023

Part 2: Inclusivity and openness amongst approximately 50 conference actors during a general participant warm-up.

| Equality / respect | Not applicable | Low / None / 0 | Poor / 1 | Marginal / 2 | Acceptable / 3 | Good / 4 | High / Excellent / 5 |
|---|---|---|---|---|---|---|---|
| Special treatment | | ✔ | | | | | |
| Special pass | | ✔ | | | | | |
| Different prices | | ✔ | | | | | |
| **Group size** | | | | | | | |
| Dynamically mixing | | | | | | | ✔ |
| Duo | | ✔ | | | | | |
| Small groups | | ✔ | | | | | |
| Large groups | | | | | | | ✔ |
| Set/clique groups | | ✔ | | | | | |
| **Diversity** | | | | | | | |
| Ages/genders mixing | | | | | | | ✔ |
| Male | | | | | | ✔ | |
| Female | | | | ✔ | | | |
| -17 | | ✔ | | | | | |
| 20-30 | | | ✔ | | | | |
| 30-40 | | | | | | ✔ | |
| 40-50 | | | | | | ✔ | |
| 60+ | | | | ✔ | | | |
| White | | | | | | | ✔ |
| African-American | | | ✔ | | | | |
| Asian | | | ✔ | | | | |
| Other | | | ✔ | | | | |
| **Multidisciplinary** | | | | | | | |
| Expertise mixing | | | | | | ✔ | |
| Organisations mixing | | | | | | ✔ | |
| **Language** | | | | | | | |
| Can hear differences | | ✔ | | | | | |
| Accommodated for | | | | | | ✔ | |
| **Social interactions** | | | | | | | |
| Coffee, meals | | ✔ | | | | | |
| Formal, serious | | | ✔ | | | | |
| Informal, vibrant | | | | | | | ✔ |

Observation Template V2b_21012023

| Welcoming | Not applicable | Low / None / 0 | Poor / 1 | Marginal / 2 | Acceptable / 3 | Good / 4 | High / Excellent / 5 |
|---|---|---|---|---|---|---|---|
| Free to be oneself | | | | | | | ✔ |
| Approachable | | | | | | ✔ | |
| Fun, happy | | | | | | | ✔ |
| Serious | | | ✔ | | | | |
| **Easy to navigate** | | | | | | | |
| Program | | | | | | ✔ | |
| Information | | | | | | ✔ | |
| Communication | | | | | | ✔ | |
| Location | | | | | ✔ | | |
| **Present & open to possibility** | | | | | | | |
| Flow in moment | | | | | | | ✔ |
| Feels directive | | | | | | ✔ | |
| Feels control, structured | | | | ✔ | | | |
| **Acknowledgement of another** | | | | | | | |
| Affirmation nod | | | | | | ✔ | |
| Hand shakes | | ✔ | | | | | |
| Greeting | | | | | ✔ | | |
| Positivity | | | | | ✔ | | |
| **Acceptance of another's idea/offer, commit to build-upon** | | | | | | | |
| Joining exchanges | | | | | | | ✔ |
| Open discussions | | | | | | | |
| Group chats | | | | | ✔ | | |
| Healthy debate | | | | | ✔ | | |
| Blocking | | ✔ | | | | | |
| **Confidentiality, privacy & governance** | | | | | | | |
| Competitive | | ✔ | | | | | |
| Private | | | ✔ | | | | |
| Patents | | ✔ | | | | | |
| Other | | ✔ | | | | | |
| Code of conduct | | ✔ | | | | | |
| Rules | | | ✔ | | | | |

Observation Template V2b_21012023

Part 3: Inclusivity and openness amongst 12 conference actors during the first small group (3-4 people) workshop activity in a classroom.

| Equality / respect | Not applicable | Low / None / 0 | Poor / 1 | Marginal / 2 | Acceptable / 3 | Good / 4 | High / Excellent / 5 |
|---|---|---|---|---|---|---|---|
| Special treatment | | | | | | ✔ | |
| Special pass | | ✔ | | | | | |
| Different prices | | ✔ | | | | | |
| **Group size** | | | | | | | |
| Dynamically mixing | | | | | | | ✔ |
| Duo | | ✔ | | | | | |
| Small groups | | | | | | | ✔ |
| Large groups | | | | ✔ | | | |
| Set/clique groups | | | | | | | ✔ |
| **Diversity** | | | | | | | |
| Ages/genders mixing | | | | | | | ✔ |
| Male | | | | | | ✔ | |
| Female | | | | | | ✔ | |
| -17 | | ✔ | | | | | |
| 20-30 | | | ✔ | | | | |
| 30-40 | | | | | | ✔ | |
| 40-50 | | | | | | ✔ | |
| 60+ | | | | ✔ | | | |
| White | | | | | | | ✔ |
| African-American | | | ✔ | | | | |
| Asian | | | ✔ | | | | |
| Other | | | ✔ | | | | |
| **Multidisciplinary** | | | | | | | |
| Expertise mixing | | | | | | | ✔ |
| Organisations mixing | | | | | | | ✔ |
| **Language** | | | | | | | |
| Can hear differences | | | | | | ✔ | |
| Accommodated for | | | | | | | ✔ |
| **Social interactions** | | | | | | | |
| Coffee, meals | | ✔ | | | | | |
| Formal, serious | | | | | ✔ | | |
| Informal, vibrant | | | | | | | ✔ |

Observation Template V2b_21012023

| Welcoming | Not applicable | Low / None / 0 | Poor / 1 | Marginal / 2 | Acceptable / 3 | Good / 4 | High / Excellent / 5 |
|---|---|---|---|---|---|---|---|
| Free to be oneself | | | | | | ✔ | |
| Approachable | | | | | | ✔ | |
| Fun, happy | | | | | ✔ | | |
| Serious | | | | ✔ | | | |
| **Easy to navigate** | | | | | | | |
| Program | | | | ✔ | | | |
| Information | | | | | ✔ | | |
| Communication | | | | | | | ✔ |
| Location | | | | | | | ✔ |
| **Present & open to possibility** | | | | | | | |
| Flow in moment | | | | | | | ✔ |
| Feels directive | | | | | ✔ | | |
| Feels control, structured | | | | ✔ | | | |
| **Acknowledgement of another** | | | | | | | |
| Affirmation nod | | | | | | | ✔ |
| Hand shakes | | | ✔ | | | | |
| Greeting | | | | | | | ✔ |
| Positivity | | | | | | ✔ | |
| **Acceptance of another's idea/offer, commit to build-upon** | | | | | | | |
| Joining exchanges | | | | | | | ✔ |
| Open discussions | | | | | | ✔ | |
| Group chats | | | | | | | ✔ |
| Healthy debate | | | | | | ✔ | |
| Blocking | | | | ✔ | | | |
| **Confidentiality, privacy & governance** | | | | | | | |
| Competitive | | | | ✔ | | | |
| Private | | ✔ | | | | | |
| Patents | | ✔ | | | | | |
| Other | | ✔ | | | | | |
| Code of conduct | | ✔ | | | | | |
| Rules | | | ✔ | | | | |

Observation Template V2b_21012023

Part 4: Inclusivity and openness amongst 14 conference actors during the second small group (3-4 people) workshop activity in a classroom.

**Inclusivity**

| Equality / respect | Not applicable | Low / None / 0 | Poor / 1 | Marginal / 2 | Acceptable / 3 | Good / 4 | High / Excellent / 5 |
|---|---|---|---|---|---|---|---|
| Special treatment | | | | ✓ | | | |
| Special pass | | ✓ | | | | | |
| Different prices | | ✓ | | | | | |
| **Group size** | | | | | | | |
| Dynamically mixing | | | | | | | ✓ |
| Duo | | ✓ | | | | | |
| Small groups | | | | | | | ✓ |
| Large groups | | | | ✓ | | | |
| Set/clique groups | | | | | | | ✓ |
| **Diversity** | | | | | | | |
| Ages/genders mixing | | | | | | | ✓ |
| Male | | | | | | ✓ | |
| Female | | | | | | ✓ | |
| -17 | | ✓ | | | | | |
| 20-40 | | | ✓ | | | | |
| 30-40 | | | | | | | ✓ |
| 40-50 | | | | | | | ✓ |
| 60+ | | | | ✓ | | | |
| White | | | | | | | ✓ |
| African-American | | | | ✓ | | | |
| Asian | | | | ✓ | | | |
| Other | | | ✓ | | | | |
| **Multidisciplinary** | | | | | | | |
| Expertise mixing | | | | | | | ✓ |
| Organisations mixing | | | | | | | ✓ |
| **Language** | | | | | | | |
| Can hear differences | | | | | | | ✓ |
| Accommodated for | | | | | | | ✓ |
| **Social interactions** | | | | | | | |
| Coffee, meals | | ✓ | | | | | |
| Formal, serious | | | | | ✓ | | |
| Informal, vibrant | | | | | | | ✓ |

Observation Template V2b_21012023

**Openness**

| Welcoming | Not applicable | Low / None / 0 | Poor / 1 | Marginal / 2 | Acceptable / 3 | Good / 4 | High / Excellent / 5 |
|---|---|---|---|---|---|---|---|
| Free to be oneself | | | | | | ✓ | |
| Approachable | | | | | | ✓ | |
| Fun, happy | | | | | ✓ | | |
| Serious | | | | ✓ | | | |
| **Easy to navigate** | | | | | | | |
| Program | | | | ✓ | | | |
| Information | | | | | ✓ | | |
| Communication | | | | | | ✓ | |
| Location | | | | | | | ✓ |
| **Present & open to possibility** | | | | | | | |
| Flow in moment | | | | | | ✓ | |
| Feels directive | | | | | ✓ | | |
| Feels control, structured | | | | | ✓ | | |
| **Acknowledgement of another** | | | | | | | |
| Affirmation nod | | | | | | | ✓ |
| Hand shakes | | | ✓ | | | | |
| Greeting | | | | | | | ✓ |
| Positivity | | | | | ✓ | | |
| **Acceptance of another's idea/offer, commit to build-upon** | | | | | | | |
| Joining exchanges | | | | | | ✓ | |
| Open discussions | | | | | ✓ | | |
| Group chats | | | | | ✓ | | |
| Healthy debate | | | | ✓ | | | |
| Blocking | | | | ✓ | | | |
| **Confidentiality, privacy & governance** | | | | | | | |
| Competitive | | | ✓ | | | | |
| Private | | ✓ | | | | | |
| Patents | | ✓ | | | | | |
| Other | | ✓ | | | | | |
| Code of conduct | | ✓ | | | | | |
| Rules | | | ✓ | | | | |

Observation Template V2b_21012023

Part 5: Inclusivity and openness amongst approximately 150 conference actors post workshop activities during the closing conclusions in the main auditorium.

**Inclusivity**

| Equality / respect | Not applicable | Low / None / 0 | Poor / 1 | Marginal / 2 | Acceptable / 3 | Good / 4 | High / Excellent / 5 |
|---|---|---|---|---|---|---|---|
| Special treatment | | ✓ | | | | | |
| Special pass | | ✓ | | | | | |
| Different prices | | ✓ | | | | | |
| **Group size** | | | | | | | |
| Dynamically mixing | | ✓ | | | | | |
| Duo | | ✓ | | | | | |
| Small groups | | ✓ | | | | | |
| Large groups | | | | | | | ✓ |
| Set/clique groups | | ✓ | | | | | |
| **Diversity** | | | | | | | |
| Ages/genders mixing | | | | | | | ✓ |
| Male | | | | | | ✓ | |
| Female | | | | | | ✓ | |
| -17 | | ✓ | | | | | |
| 20-40 | | | ✓ | | | | |
| 30-40 | | | | | | | ✓ |
| 40-50 | | | | | | | ✓ |
| 60+ | | | | ✓ | | | |
| White | | | | | | | ✓ |
| African-American | | | | ✓ | | | |
| Asian | | | | ✓ | | | |
| Other | | | ✓ | | | | |
| **Multidisciplinary** | | | | | | | |
| Expertise mixing | | | | | ✓ | | |
| Organisations mixing | | | | | ✓ | | |
| **Language** | | | | | | | |
| Can hear differences | | | ✓ | | | | |
| Accommodated for | | | | | | ✓ | |
| **Social interactions** | | | | | | | |
| Coffee, meals | | ✓ | | | | | |
| Formal, serious | | | | | | ✓ | |
| Informal, vibrant | | | ✓ | | | | |

Observation Template V2b_21012023

**Openness**

| Welcoming | Not applicable | Low / None / 0 | Poor / 1 | Marginal / 2 | Acceptable / 3 | Good / 4 | High / Excellent / 5 |
|---|---|---|---|---|---|---|---|
| Free to be oneself | | | | ✓ | | | |
| Approachable | | | | | | ✓ | |
| Fun, happy | | | | | ✓ | | |
| Serious | | | | | | ✓ | |
| **Easy to navigate** | | | | | | | |
| Program | | | | | | | ✓ |
| Information | | | | | | ✓ | |
| Communication | | | | | | ✓ | |
| Location | | | | | | | ✓ |
| **Present & open to possibility** | | | | | | | |
| Flow in moment | | | | | | ✓ | |
| Feels directive | | | | | | ✓ | |
| Feels control, structured | | | | | ✓ | | |
| **Acknowledgement of another** | | | | | | | |
| Affirmation nod | | ✓ | | | | | |
| Hand shakes | | ✓ | | | | | |
| Greeting | | | | | ✓ | | |
| Positivity | | | | | ✓ | | |
| **Acceptance of another's idea/offer, commit to build-upon** | | | | | | | |
| Joining exchanges | | | ✓ | | | | |
| Open discussions | | | | | ✓ | | |
| Group chats | | ✓ | | | | | |
| Healthy debate | | | | | ✓ | | |
| Blocking | | ✓ | | | | | |
| **Confidentiality, privacy & governance** | | | | | | | |
| Competitive | | ✓ | | | | | |
| Private | | ✓ | | | | | |
| Patents | | ✓ | | | | | |
| Other | | ✓ | | | | | |
| Code of conduct | | ✓ | | | | | |
| Rules | | ✓ | | | | | |

Observation Template V2b_21012023

Appendix 9.

Part 1: Observation analysis of openness theme amongst approximately 50 conference actors during a pre-workshop introduction presentation in the main auditorium.
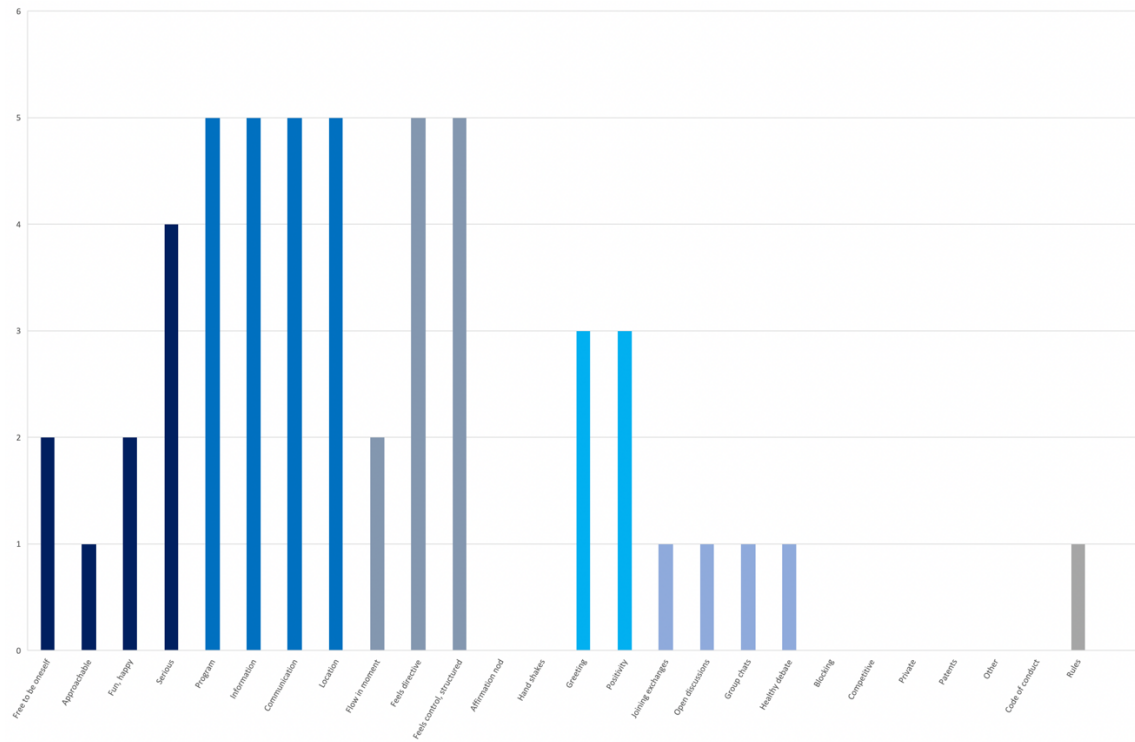


Part 1: Observation analysis of inclusivity theme amongst approximately 50 conference actors during a pre-workshop introduction presentation in the main auditorium.
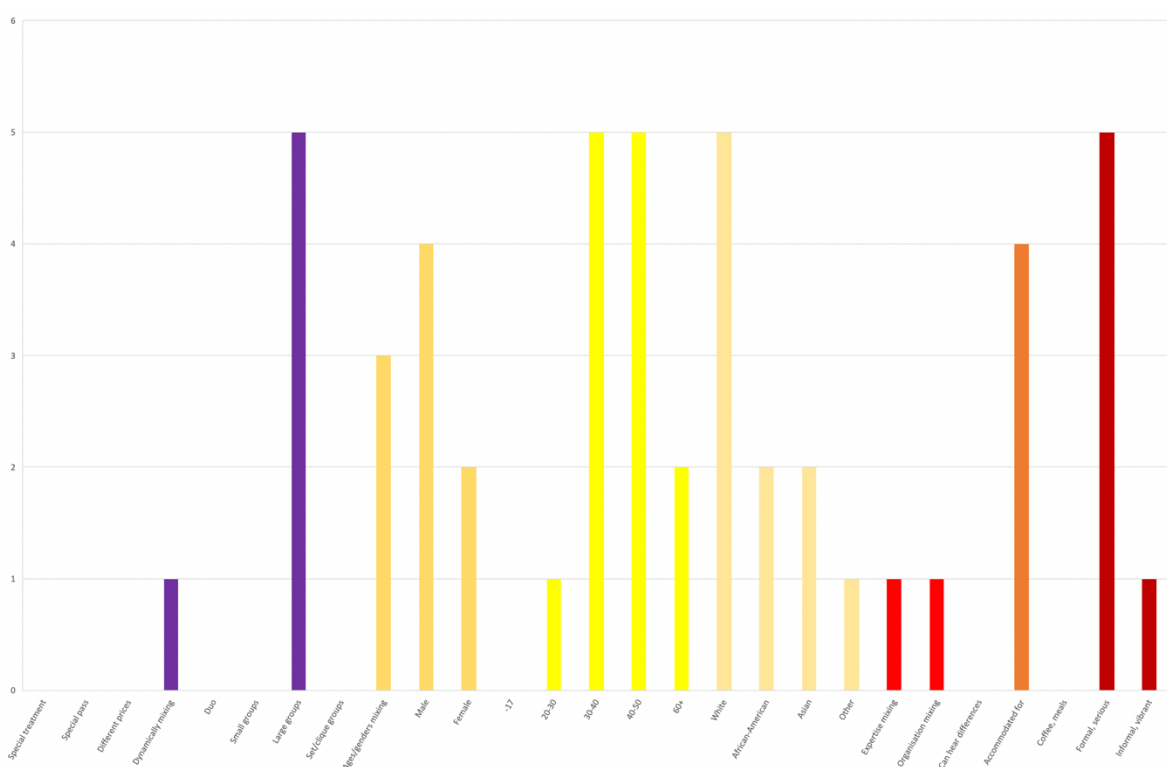
Part 2: Observation analysis of openness theme amongst approximately 50 conference actors during a general participant warm-up.
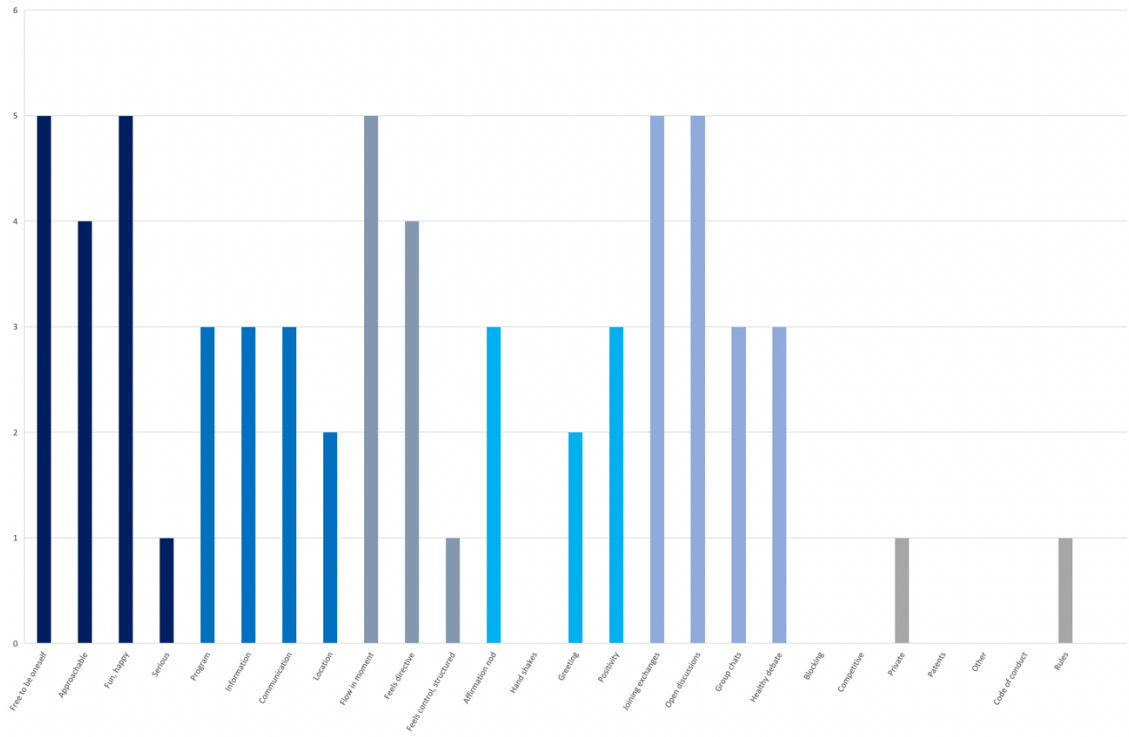


Part 2: Observation analysis of inclusivity theme amongst approximately 50 conference actors during a general participant warm-up.
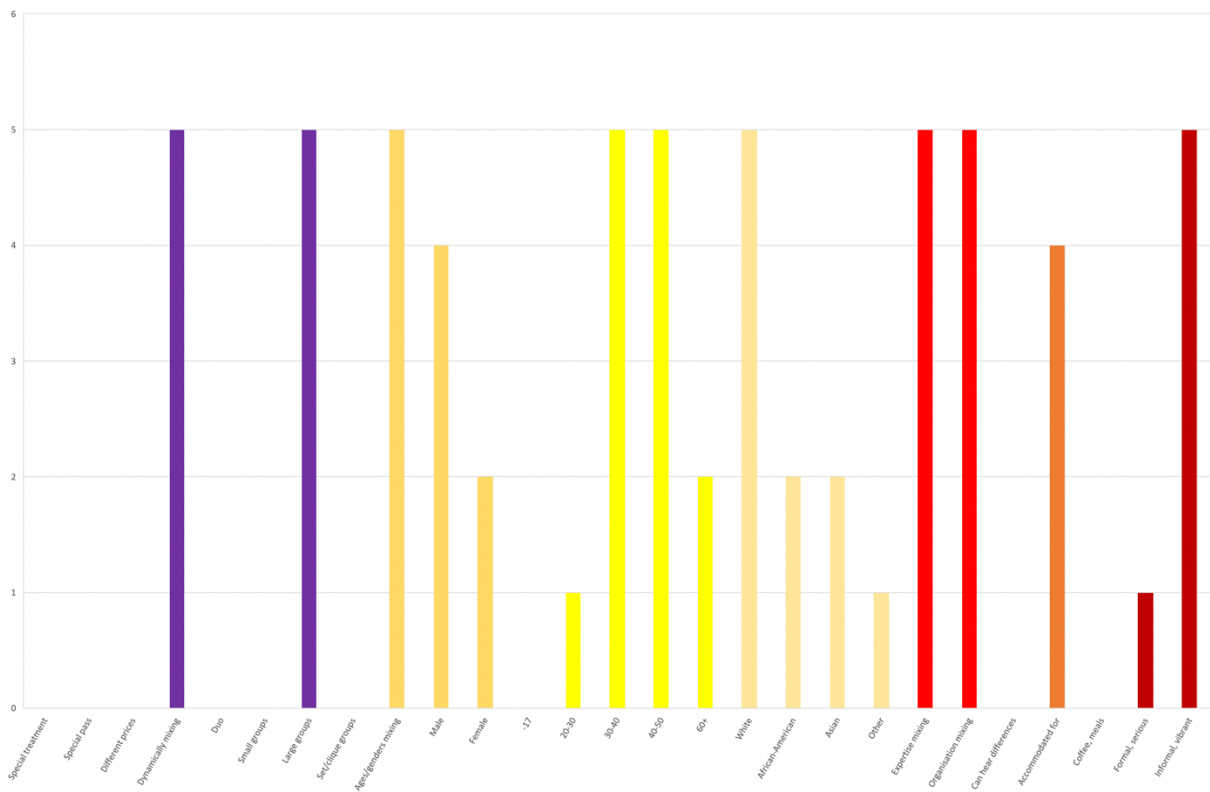
Part 3: Observation analysis of openness theme amongst 12 conference actors during the first small group (3-4 people) workshop activity in a classroom.
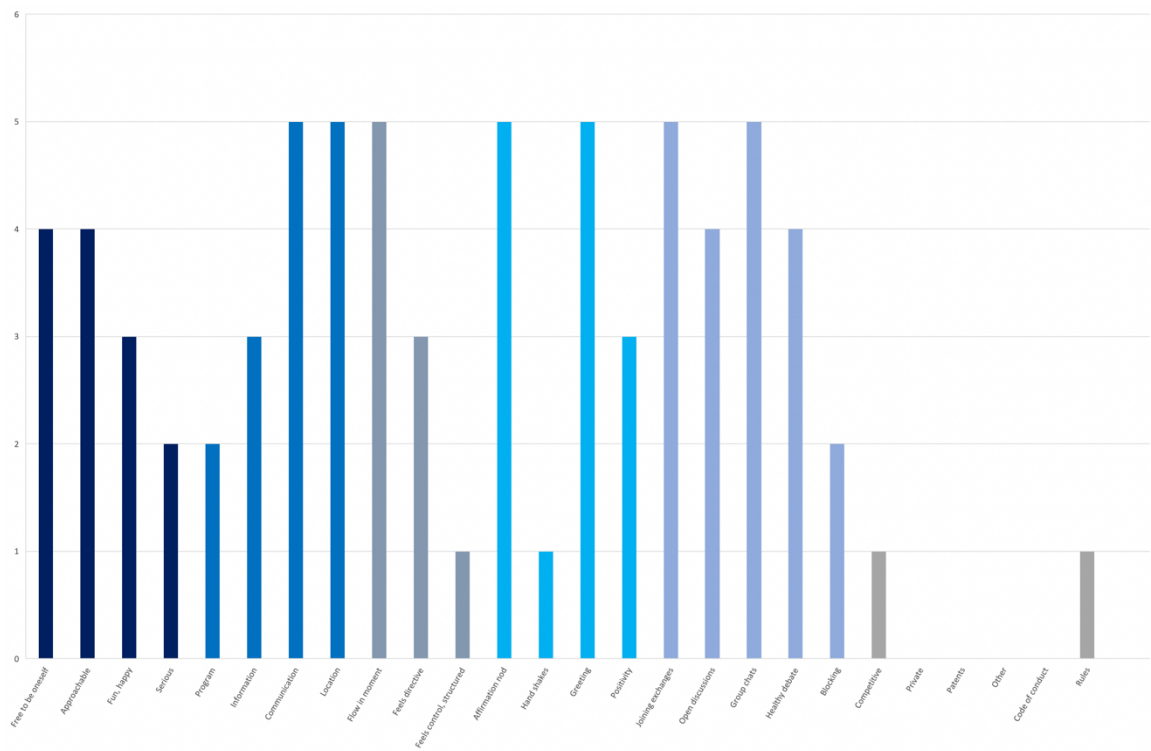


Part 3: Observation analysis of inclusivity theme amongst 12 conference actors during the first small group (3-4 people) workshop activity in a classroom.
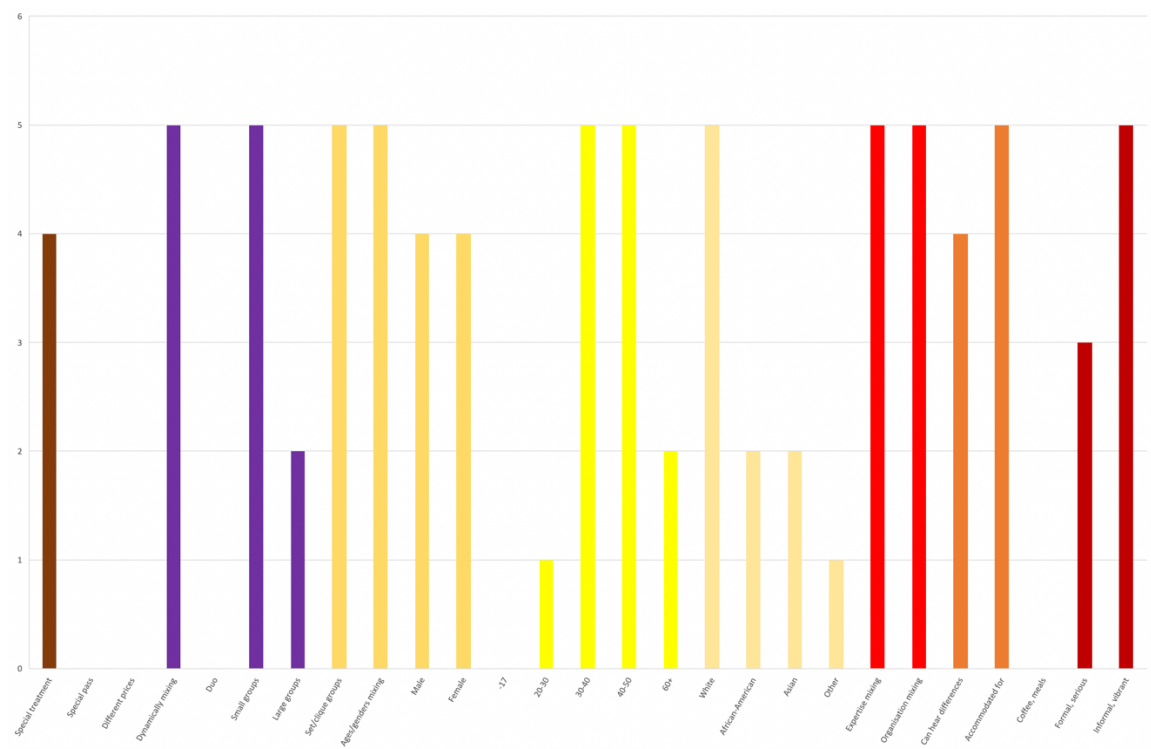
Part 4: Observation analysis of openness theme amongst 14 conference actors during the second small group (3-4 people) workshop activity in a classroom.
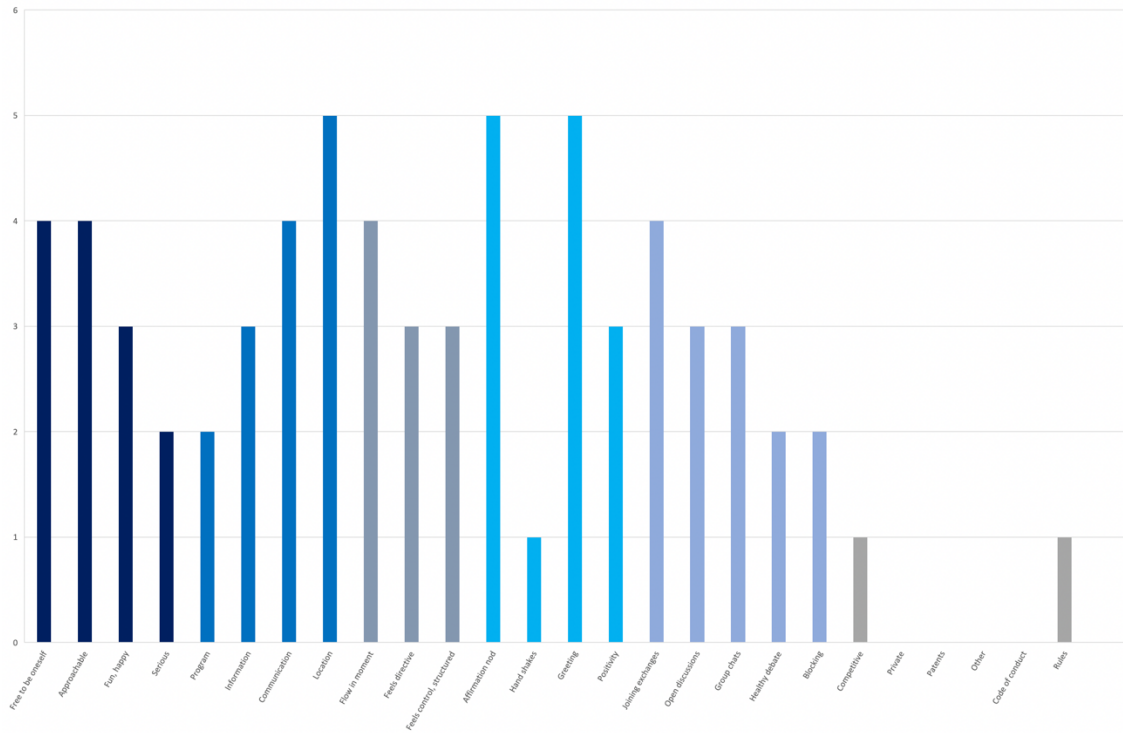


Part 4: Observation analysis of inclusivity theme amongst 14 conference actors during the second small group (3-4 people) workshop activity in a classroom.
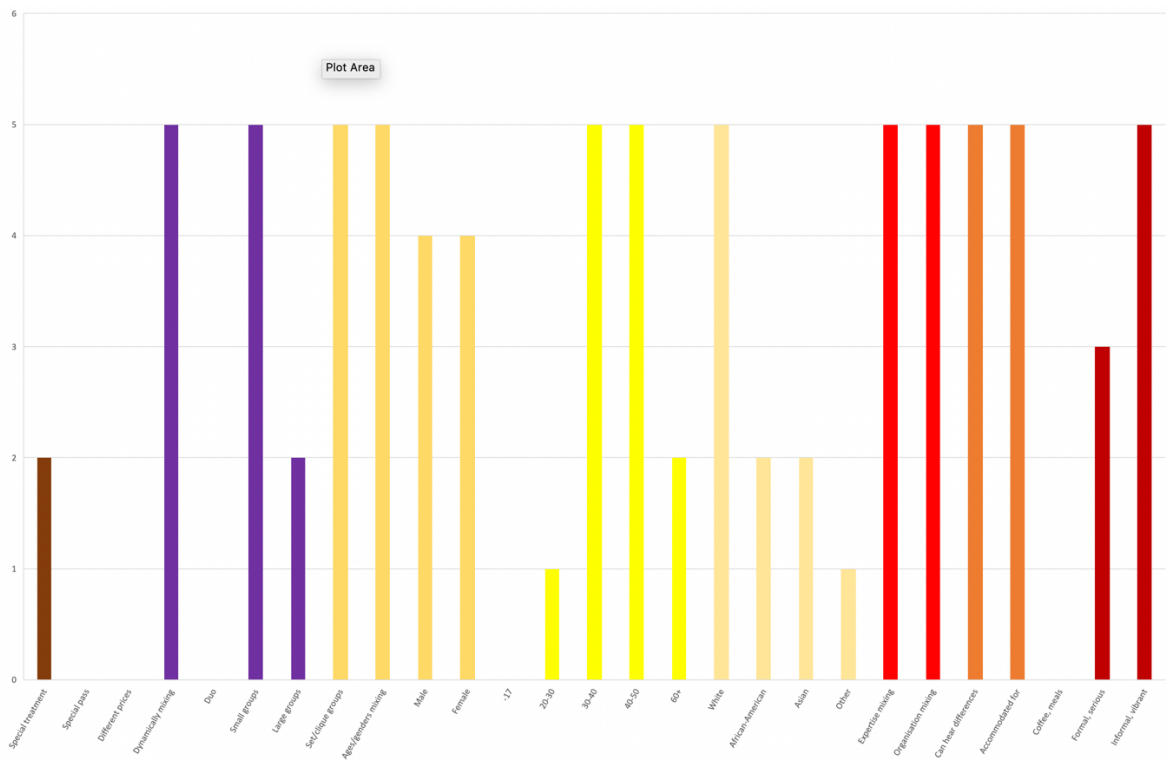
Part 5: Observation analysis of openness theme amongst approximately 150 conference actors post workshop activities during the closing conclusions in the main auditorium



Part 5: Observation analysis of inclusivity theme amongst approximately 150 conference actors post workshop activities during the closing conclusions in the main auditorium.

Appendix 10
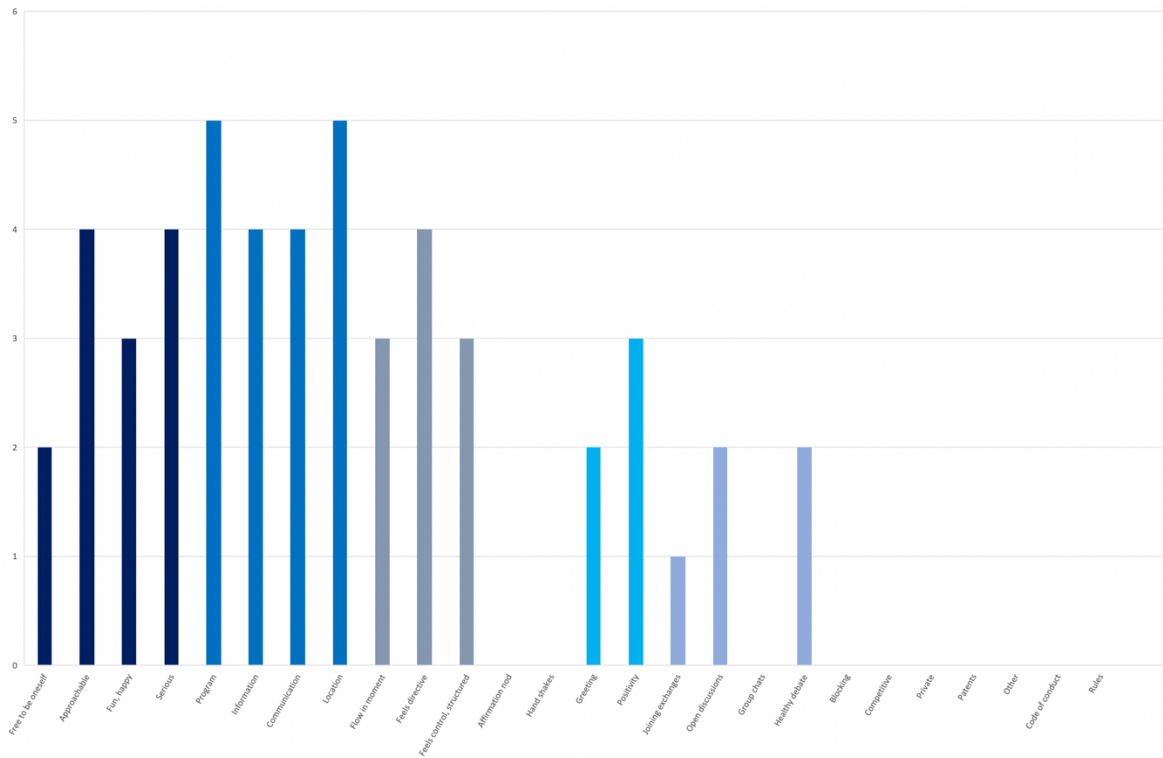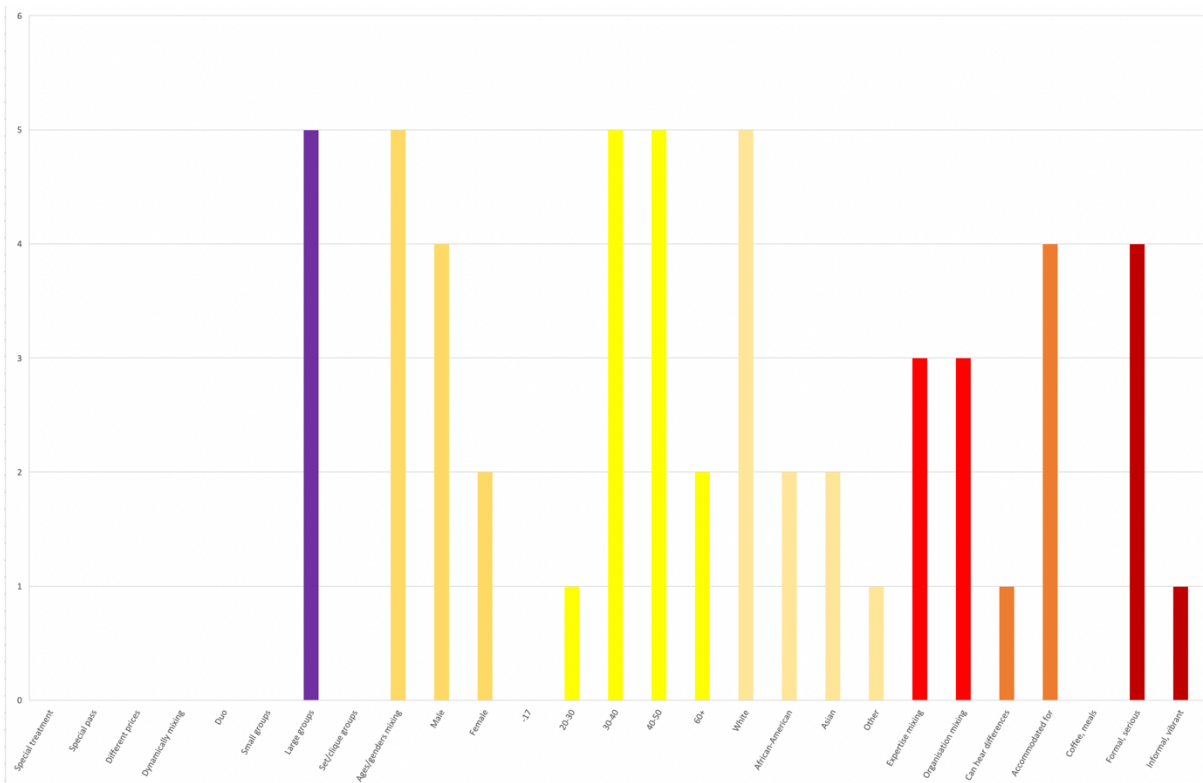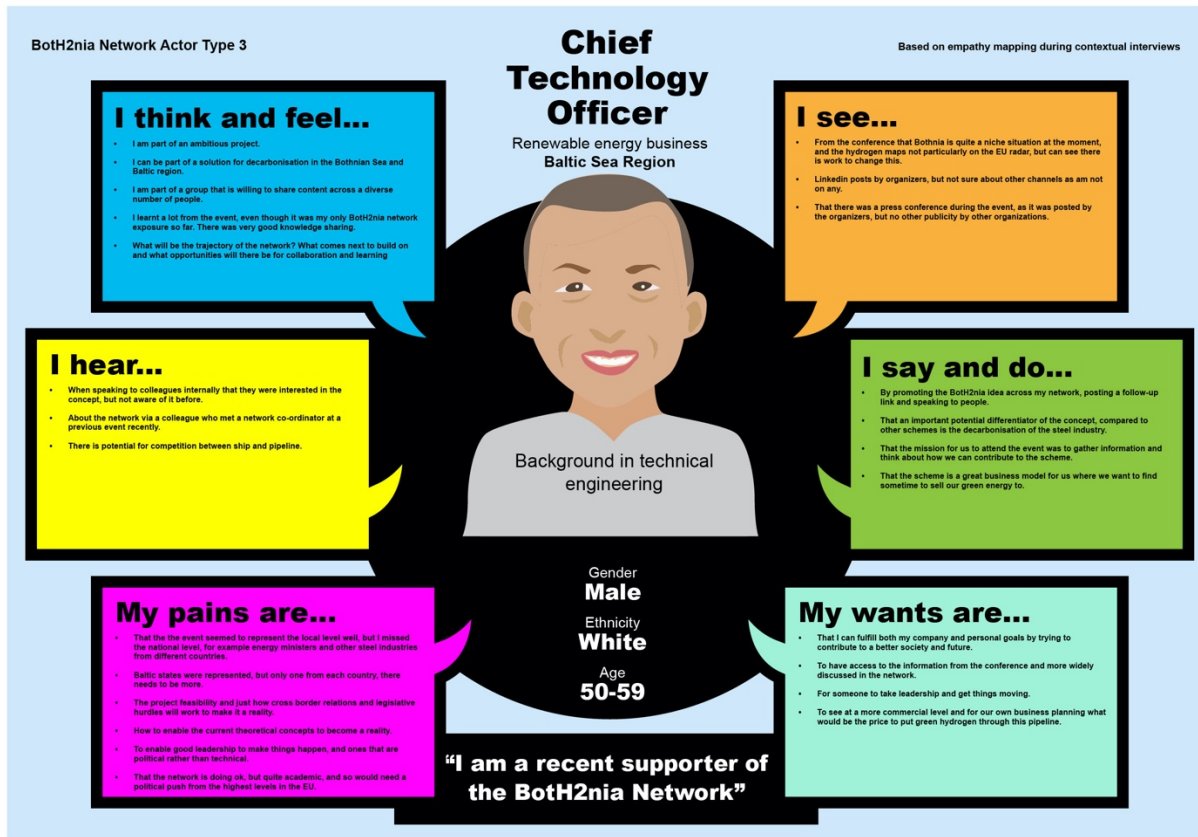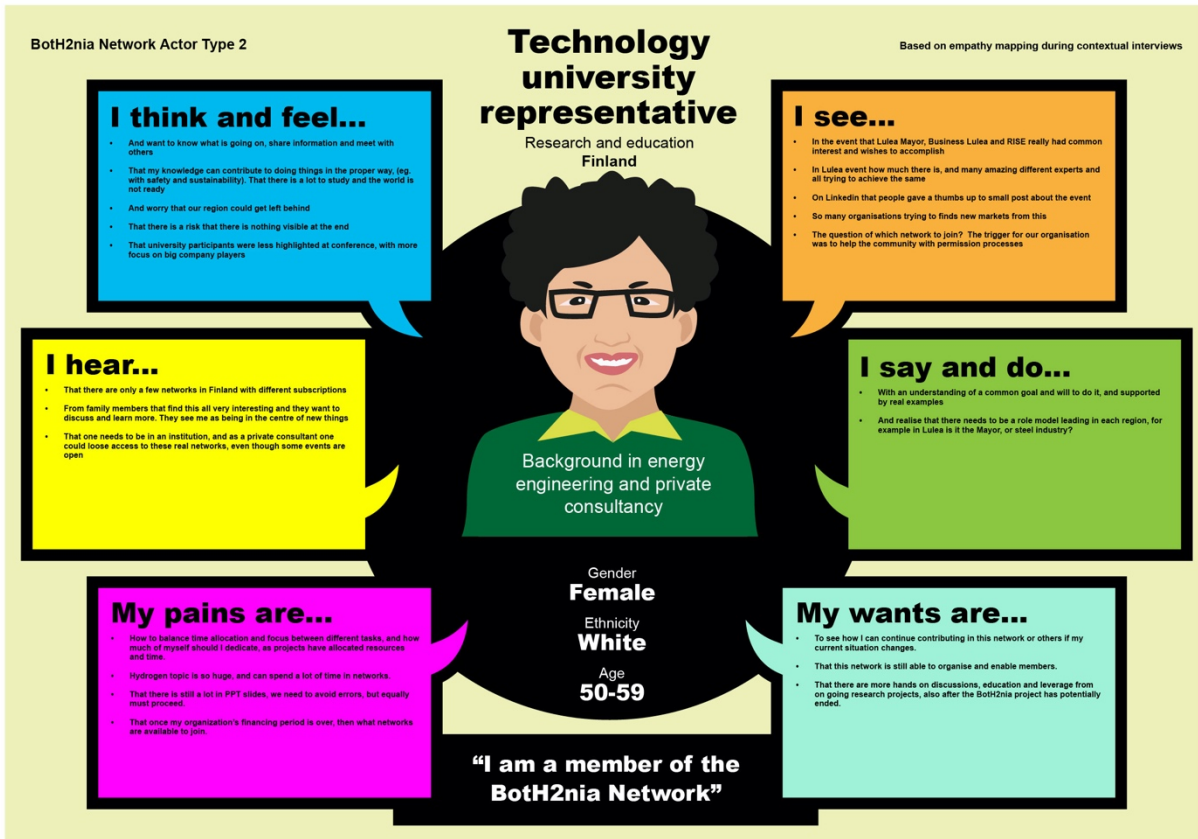
# Managing Director of Business Development

Intergrated engineering corporation
**Rest of Europe / World**

Based on empathy mapping during contextual interviews

## I think and feel...
- That the organizers and presenters are passionate, active and not too serious.
- That the idea of new relationships, creates a good environment.
- To learn more about the culture and way of thinking, as it feels a similar mindset to our country, but with a difference, for example work hard and sympathetic.
- That there are no difficulties, but need to learn more about Finland and Sweden.
- From many different perspectives.
- That in northern Europe there is Santa Claus, culture and Finland and Sweden have a long history, with perhaps the Swedes feeling a little higher status.

## I see...
- On Linkedin that many follow the BotH2nia event which gives more interest.
- Maybe some internet, but no press release or the media.

## I hear...
- Many presenters concerned with how to localise hydrogen and local management, how can we participate in this discussion.
- How to overcome and minimise timeframes and get approvals for the environment, focusing on local first and then global to connect mainland Europe through the pipeline.
- That then first priority is to establish locally and to provide to those sites and then the second priority is to export globally.
- That countries only focus on export or domestic and that Finland and Sweden focus on both, and that international is more for export. I need to understand the local player priorities.

## I say and do...
- That the major purpose to attend the event was to share our activities and technology, and after given the chance to present, many people contacted me.
- In the event to become more open and hear about many companies and communicate to find out good opportunities.
- That this was a friendly event for our first time. It was easy to communicate and had a similar non-aggressive attitude as us which was very helpful.
- That the organiser played a good role to enable this type of environment.

Background in mechanical engineering, consultancy and management

Gender
**Male**

Ethnicity
**Asian**

Age
**50-59**

## My pains are...
- How should we act and continue when considering this region.
- How can the global supply chain contribute and supply this region.
- Seeing that during winter, shipping is quite a challenge, so what is the best solution when the water freezes.

## My wants are...
- To contribute to growing this region successfully as a business together, because if we can achieve such a goal then all parties will be very happy for the future long terms goals.
- To provide technology, especially for the hydrogen space.
- To find a solution based on discussions in this network, which already has the basis of an open minded platform.
- To give the children from this 'birthplace of Santa Claus' region a bright future.

**"I am a new friend of the BotH2nia Network"**

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# Senior Manager Project Econmics and Contracts

Large hydrogen business
**Rest of Europe**

Based on empathy mapping during contextual interviews

## I think and feel...
- That there is great business opportunity, and that there are a lot of industrial parties with similar objective in de-carbonisation.
- It is an open network where people are talking to each other about their projects, and that the mix of people in the network is very good. Talk, talk, talk, its basically about human relationships.
- All projects are at an early phase, but this might change further down the line, as they follow more individual project objectives and perhaps more competitive.
- A lot of projects are depending on other projects, they are of a different nature, but have similar power need.
- That the network has a huge complexity due to so many different projects involved.

## I see...
- That the BotH2nia network is providing a good share in decarbonisation, both globally and from a Swedish government objective.
- The BotH2nia network promoting projects in that region. For the first time that I realise Finnish companies involved.
- An open and great business opportunity, which looks like a good chance to have a profitable project.
- The media reporting positively about decarbonisation projects in the north. This is still more local, but think this will become more international as projects are evolve.
- That this is a regional network and therefore the members are also regional. For international countries that have a regional project, it is not a general network.

## I hear...
- That one is lucky to have a project in Sweden, because it is a nice country and people who are open.
- There seems more bureaucracy in Sweden than Finland, where it is more open.
- My boss saying he is glad that I'm involved in the project due to its complexity.

## I say and do...
- It is important to be open and transparent, and exchange views.
- To align with other member's projects and work together on common objectives.
- To identify with a project it's part of your life.

Background as economist, project commercialisation and partnering

Gender
**Male**

Ethnicity
**White**

Age
**60+**

## My pains are...
- That I worry that this aligned group of industrial partners might later follow individual targets and objectives.
- That a project is not going to fly down to facts, eg. no power available or project economics not good.

## My wants are...
- That the network continues working as is now, perhaps even stronger and more aligned.
- That my company project is realised.
- That working together in the network might lower the risk of time delays.
- To identify other business opportunities, with network members, for example already good potential for similar projects in Finland.

**"I am more a stakeholder of the BotH2nia Network"**

## Actor Type 6

BotH2nia Network Actor Type 6

# International Business Developer
Technology cluster development centre
Finland

Based on empathy mapping during contextual interviews

### I think and feel...
- That it is a really important network to be a part of for the future of sustainable solutions and that we have to be one of the forerunners.
- That the BotH2nia network is special, and from a Finnish perspective its very open and the way it shares the information and invites participants.
- That we have to collaborate and learn much more than realise.
- That I am very fortunate to be part of this network, because otherwise I will be an outsider.
- That we need more respect and understanding towards people and organisations who don't understand the work we do or this BotH2nia network, to win over their fears by open minded dialogues.
- That the centre for this information sharing and participation is all about the leadership and management behind the network, and their attitude towards society and companies, and the public sector.

### I see...
- Alot of different opinions, why and what to do?
- A lot of public confusion, from a regional, national and international level, depending on sources and locations, and whether it is on your doorstep or further away.
- People not wanting it in their backyard, because they have no idea, and don't have overall general knowledge or information.

### I hear...
- That this is a hot topic.
- Friends and family asking if it is really necessary to be involved in and that hydrogen development is a strange thing for our country to be involved in.
- A lot about of our competitors, future plans and it is worrying that we might be too slow.
- That people are worried about environmental outcomes and don't know what hydrogen is and are afraid of it.
- Every week in the daily news about hydrogen, one way or another.

### I say and do...
- Give information about the BotH2nia network and request them to take contact, or provide contacts, whatever is necessary for their work.

Background in production economy and HR

Gender
**Female**

Ethnicity
**White**

Age
**40-49**

### My pains are...
- Being frustrated with the challenge in how to improve overall knowledge in hydrogen. So that we don't only have foreign investors and provide only manpower and land from Finland.
- That we should keep striving to make good research and develop our skills and invest in hydrogen.
- Less about the network if it continues to promote diversity and inclusivity with people from different backgrounds, sectors, gender and languages. But that it recognises its business and social diversity together.
- That our public sector decision makers don't have any or knowledge, or interest about hydrogen, a lot of nice words, but too little real actions.
- That the event audience was very much male dominated, and if we are talking about investors, or decision makers, then unfortunately there is not so much diversity.

### My wants are...
- That this BotH2nia network will grow and have more future outcomes, and the network now should continue, even when the contract has ended.
- That I make small changes, quietly everyday for an impact, and that's the best way to make success in that area.
- That people are needed, that someone is listening and looking on them, they are seen and heard, which is one of the foundational aspects of our human life.
- About the actions through this network, this is what I'm looking forward to, what I see as a result and success out of the work.
- Not just about the size of the network, but its definitely more about the talking in this area and spread of information, but we need also actions to prove what we are talking about.

**"I am a partner of the BotH2nia Network"**

## Actor Type 7

BotH2nia Network Actor Type 7

# Business Development Director
Engineering and logistics for Nordics
Finland

Based on empathy mapping during contextual interviews

### I think and feel...
- That its a good way for networking and finding a new business.
- That this group is doing a very good job based on previous meetings. The network organiser and group arranged everything very professionally.
- I speak Swedish also, its always easier to start conversation. Swedes like both parties to be equal, especially about business and in negotiation.
- I am very motivated with new people, because no one is doing nothing alone. That when you go to a new group, the first time people are a little careful and shy to have discussions, in Lulea event people were talking a lot more than in previous ones.
- That cultural background and knowing different regions helps to start up conversation more easily, as people understand each other both ways.

### I see...
- How much people are ready to do for the environment.
- Opportunities which haven't been recognised by others, and can go to my client to tell them what they really need.
- During the Lulea event different kinds of industry and science in the university. I cannot imagine what research is happening, but now I hear and see for myself.
- Different kinds of working.

### I hear...
- During Teams and Zoom meetings very interesting new things, backgrounds, facts, that are not published yet.
- At these meetings I can find new contacts from other attendees, and find out who I should discuss with.
- train discussions with participants from the science side of things, something you would not know where to look normally.

### I say and do...
- Tell about our company and what we are offering.
- I tell about myself and where I'm coming from.
- I say to my company, imagine if I had to meet these all privately, how long it will take, how much do I have to travel and spent the time. Seminars and exhibitions are worthwhile for getting contacts in one go.
- I'm quite good at finding the subjects to discuss, because I always have a story to tell from each place, always in positive way and give feedback, tell my experience – never tell about my negative experience.
- I'm all the time trying to get the new contacts.

Background in science engineering, industrial management and economics and pedagogy

Gender
**Male**

Ethnicity
**White**

Age
**50-59**

### My pains are...
- A second covid and lockdown, where I can't meet people and can't enjoy their company, these happenings will not happen.

### My wants are...
- That these happenings are still arranged. I know that this BotH2nia project, part 1 has a beginning and an end, so I want to know what is part 2.
- When hydrogen is everyday life, that there is maybe something else, like nuclear?
- That this group also finds new ways to act and that it develops all the time.

**"I am a member of the BotH2nia Network"**

## Business Development Manager

BotH2nia Network Actor Type 8

Based on empathy mapping during contextual interviews

Wind and solar hybrid projects
**Baltic Sea Region**

### I think and feel...
- We should do a lot of things more than just join small group and educate in our own countries.
- That motivations are important, but could be different for each person, and to connect all these countries we must develop economies and investments from other countries.
- It is very easy to reach people because as a business development manager its my speciality.
- I am a more more strategical business developer (not sales), focused on develop the start of projects and finding key partners.
- We should educate my partners, colleagues and authorities, eg. when asked in event to put hands up if we should involve authorities, everyone did.

### I see...
- That usually if people do not know information, then they do not except and say we don't need this type of project. Someone should say its safe and with zero impact on the environment, but this is not happening.
- That there are not many people from the environment at the event, there needs education here.
- That insiders, specialists and experts always say something is the best, but a neutral character who can speak to the public and share information is lacking.
- That specific impacts about future projects and how they affect people living nearby are not communicated.
- How in the Baltic region, how we can do better.

### I hear...
- That other people outside of the network know nothing of it. In my country we do not have so much information, so I must educate that it's a good project. There is no big emotion from Bothnia, sounds like nothing, nobody knows.
- It is such an important task needing billions of EUR, so definitely a network of few hundred people is a nice start, but we should grow this network rapidly if want to achieve the target.
- What kind of added value will this project create, eg money, job places.
- We need leadership, people who can join different sectors. Usually this is politicians, but rather clusters, strong associations, several speakers that can educate people, communities and embassies.
- That each party only sees some parts, but often not the whole picture, if they did then the steps might be bigger?

### I say and do...
- That hydrogen can transform our economise and give future to our kids.
- That incentives are needed to join the network, what will it bring to our country.
- BotH2nia network event really helped potential of partners for us, we are continuing now with those contacts, life is short.
- That the EU is with democratic, countries so the choice is what you want to do.
- That theoretical is nice, but what are the results of projects.
- I am a doer, not a talker, my purpose is to find the results.
- That is good to invest in this project, not just money, but also time.

Background in business management and construction in different countries

### My pains are...
- That people often cannot speak in 1-2 sentences, like Lulea mayor said directly come and live here in a very direct approach.

### My wants are...
- Always to sell the idea of what you are doing, if you develop something new, try to change standards and think how to sell the idea.
- To have a big company from the network to join with me.
- To develop a network to create more projects, develop the pipe infrastructure so it will be installed.
- To investigate all the companies in this network, just pick up list a check them all.
- Not to write huge emails, just say in a few sentences.

Gender **Male**
Ethnicity **White**
Age **30-39**

**"I am a partner/member of the BotH2nia Network"**

---

## Commercial Business Developer

BotH2nia Network Actor Type 9

Based on empathy mapping during contextual interviews

Port authorities
**Rest of Europe**

### I think and feel...
- When I came to the network event, at first I had no clue what to expect, and was curious, bit excited about what will it bring to me. I was ok with it bringing nothing or added value.
- That its European focus motivated us to come there.
- I really wanted to get to know the area, because of the potential that we have heard of, on one hand hydrogen production potential, plus lots of biogenics too.
- I want to be honest and modest in how one presents and point of view.
- There is a bit of an internal struggle, between wanting to export, whilst also attracting local industry.
- Looking at the total event, I felt a struggle within the area about not being on the map of EU in terms of production potential.

### I see...
- That the event was still focused on the people from Finland and Sweden, but what if you want to be on that map, and become known.
- Now I know of BotH2nia network, I do come across it, and have started to notice related projects, it is triggered in one's mind.
- People that are welcoming, so I didn't feel a stranger.
- That if event already brings good satisfaction for organisers, what next? Logically it will be the same numbers again, plus 50% more from other countries.
- It is not specifically related to Bothnia, its more the project specifically, not Bothnia network itself.
- Around 150 people, and it feels like 125 perhaps are from Finland and Sweden, and a few from Germany and Spain.

### I hear...
- People from industry in northwest Europe not talking about Bothnia at all.
- Green steel is the only thing being talked about, because they have done actual green steel production in this area.
- A lot of people are still from the Bothnia area, and minimal from other areas.
- People in the event are very friendly and nothing got lost in translation.
- That one of the event successes is due to the organiser's enthusiasm and wanting to involve everyone. Also for people to learn and be open is a good starting point.

### I say and do...
- I'm was just observing, trying to get to know people as don't know anyone at event.
- I made and shared a report internally of learnings there showing potential for project and projects also in other parts of the world.
- It is important to keep the company size in perspective, so that we can be more approachable and neutral towards others.
- Tell colleagues to contact these new contacts.

Background as business economists

### My pains are...
- The fact that they are focused to getting industry to their sites, it's a fear, for them and for us.
- We need it (Bothnia), and it comes both ways. To make a success they don't need to attract everything to themselves. It needs to attract industry and export combined.
- The challenges that come with the winter in this area.
- To make sure that Bothnia realises how we can add value to them.

### My wants are...
- To turn it all into a success and that there is a connection to create a project.
- I wish that between Lulea, or the supply chain between Bothnia and northwest Europe that it runs through our port.
- Wish that Bothnia turns into a success, because it has great potential.
- To continue to contribute to this visit, or help develop a supply chain in the future and come back to the area to do so.

Gender **Male**
Ethnicity **White**
Age **40-49**

**"I am a friend of the BotH2nia Network"**

# Network Co-ordinator

City region development
**Finland**

## I think and feel...
- That linking the right people matters
- Informing about existing facts and opportunities
- That getting things done matters
- Connecting dots and moving fast
- It is more about thinking big and doing, rather than just being

## I see...
- Presentations given by my immediate network colleagues at conferences, or our journalistic communication
- The welcoming screen image at events that our marketing agency has made
- Reports of events on www.both2nia.com
- Brand PPTs and Teams background picture

## I hear...
- That it is very much needed
- Big ambitions
- A wish to define our position in relations to other organisations
- Interesting commercial project descriptions, and a lot of new research results

## I say and do...
- You're welcome and needed
- I have an idea, what do you say: could we...?
- You mean this, did I understand you right? If yes, what about this?
- There's a lot of existing information you could benefit from, let me send it to you and link you to those people
- We'll find the support you need

## My pains are...
- How to empower people to connect with each other instead of me being the focal point of communications
- That the network is growing too big
- That the is the money will run out before the next funding decisions
- That the criteria for a good project manager in a publicly funded project run by a municipality is being met

## My wants are...
- To be in agile team that is working seamlessly together and where there is a lot of trust to the network and team members
- To respond well to previously unmet needs
- To be provide creative communications, where you can try out new concepts, even making use of previously acquired communication skills
- To have the feeling of doing something important in the middle of a challenging societal situation and transition
- To have fun with clever individuals, whilst doing something useful

Communication professional

Gender
**Female**

Ethnicity
**White**

Age
**50-59**

"I am a steering member of the BotH2nia Network"

Initial personas (top line) plotted on service ecology map_V1_04052023

Appendix 12.

**Technology university representative** — Diversity

- And want to know what is going on, share information and meet with others
- That my knowledge can contribute to doing things in the proper way, (eg. with safety and sustainability). That there is a lot to study and the world is not ready
- And worry that our region could get left behind
- That there is a risk that there is nothing visible at the end
- That university participants were less highlighted at conference, with more focus on big company players
- In the event that Lulea Mayor, Business Lulea and RISE really had common interest and wishes to accomplish
- In Lulea event how much there is, and many amazing different experts all trying to achieve the same
- On ... that people gave a ... about the event
- So many organisations trying to finds new markets from this
- The question of who's remit to join? The trigger for our organisation was to help the community with permission processes
- With an understanding of a common goal and will to do it, and supported by real examples
- And realise that there needs to be a role model leading in each ..., for example in Lulea is it the Mayor, or steel industry?
- That there are only a few networks in Finland with ...
- From ... members that find this all very ... They see me as being in the centre of new things
- That one needs to be in an institution, and as a private consultant one must know access to these real networks, even though some events are open
- How to balance time allocation and focus between different tasks, and how much of myself should I dedicate, as projects have allocated resources and time
- Hydrogen topic is so huge, and can spend a lot of time in networks
- That there is ..., we need to avoid errors, but equally must proceed
- That once my organization's financing period is over, then ...
- To see how I can continue contributing in this network or others if my current situation changes
- That this network is ... and ... members
- That there are more hands on discussions, education and leverage from on going research projects, also after the ... has ...

| Codes | Category | Count |
|---|---|---|
| Knowledge / Multidisciplinary / Processes/projects | Expertise | 14 |
| Stay up to date / Readiness | Relevance | 3 |
| Share information / Contribute knowledge | Share | 7 |
| Meet-up | Interaction time/place | 4 |
| Complexity / Time allocation | Scale & time | 6 |
| Action / Result / Concept | Actualisation | 5 |
| Network / Community / Members | Group | 9 |
| Common interest / Dedication | Common goal | 5 |
| Organisation / Publicity / Enable | Communication | 8 |
| Role model / Leadership | Guiding/TaoStation | 1 |
| Region / BotH2nia Project | Geography & association | 2 |

**Chief technology officer** — Cross border leg/relations

- I am part of an ambitious project.
- I can be part of a solution for decarbonisation in the ...
- I am part of a project that is willing to share content across a diverse number of people.
- I learnt a lot from the event, even though it was my only ... There was very good knowledge sharing.
- What will be the trajectory of the network? What comes next is ... and what opportunities will there be for collaboration and learning
- From the conference that ... is quite a niche situation at the moment, and the ...
- That there was a ... during the event, as it was ...
- By ... across my network, ... and ... relative to people.
- That an important point in ... is the decarbonisation of the steel industry.
- That the mission for us to attend the event was to gather information and think about how we can contribute to the scheme.
- That the scheme is a great business model for us where we want to find sometime to sell our green energy to.
- When speaking to colleagues internally that they were interested in the concept, ...
- About the ... who was a network ... at a previous event recently.
- There is potential for competition between ship and pipeline.
- That the the event seemed to ... but I ..., for example energy ministers and other steel industries from different countries.
- The project feasibility and just how cross border relations and legislative hurdles will work to make it a reality.
- How to enable the current theoretical concepts to become a ...
- To enable good leadership to make things happen, and ones that are political rather than technical.
- That the network is doing ..., but quite academic, and so would need a political push ...
- That I can fulfill both my company and personal goals by trying to contribute to a better society and future.
- To have access to the information from the conference and more ...
- For someone to take leadership and get things moving
- To see at a more commercial level and for our own business planning what would be the price to put green hydrogen through this pipeline

| Codes | Category | Count |
|---|---|---|
| Knowledge/academic / Multidisciplinary / Processes/projects / Business model | Diverse expertise | 13 |
| Stay up to date / Readiness / Competition | Relevance | 0 |
| Share information / Contribute knowledge / Learn alot / Opportunities | Collaboration | 7 |
| Meet-up/event / Social interaction / Environment | Human interaction / Interactional moment | 8 |
| Complexity / At the moment | Scale & time | 2 |
| Need action / Show result / Innovate / Theory, feasibility | Concretise progress/worth | 7 |
| Network / Community / Members | Group format | 7 |
| Common interest / Dedication / Better society & future | Common goal | 3 |
| Network organisation / Publicity of / Enable | Communication | 10 |
| Role model / Network leadership / Political, not tech | Guiding, facilitation | 3 |
| Region / BotH2nia Project / Not on EU radar / BotH2nia as differentiator / Missed more national&international / Comparing countries | Geography & association | 8 |

**Managing director of business development**

- That the organizers and presenters are passionate, active and not too serious.
- That the idea of new relationships, creates a good environment.
- To learn more about the culture and way of thinking, as it feels a similar mindset to my own country, but with a difference, for example work hard and sympathetic.
- That there are no difficulties, but need to learn more about ...
- From many different perspectives.
- That in northern Europe there is same colour, culture and history ... perhaps have a long history, with perhaps the Swedes having a higher status.
- I'm unsure... more about the BotH2nia event ...
- That the major purpose to attend the event was to share our activities and technology, and after given the chance to present, many people contacted me.
- In the event to become more open and hear about many companies and communicate to find out good opportunities.
- That this was a friendly event for our first time. It was easy to communicate and had a similar non-aggressive attitude as ... which was very helpful.
- That the ... is ... this type of environment.
- Many presenters ... how can we participate in this discussion.
- How to overcome and minimise timeframes and get approvals for the environment, ... through the pipeline.
- That then ... escalation ... and ... provide ... and then the second priority is to export globally.
- That ... with early focus on export or domestic and that I ... whether focus on both, and to at international scale I need to understand the local power ...
- How should we act and continue when considering this region, how can the global supply chain contribute and supply this region, seeing that going wider, shipping is quite ... then to a ... with the value chain.
- To ... as a business together, because if we can achieve such a goal then all parties will be very happy for the future long terms goals.
- To provide technology, especially for the hydrogen space.
- To find a solution based on discussions in this network, which ... to give the producers from this ... technical ... report in the future.

| Category | Count |
|---|---|
| Diverse expertise | 7 |
| Relevance | 0 |
| Collaboration | 13 |
| Interactional moment | 6 |
| Scale & time | 1 |
| Concretise progress | 0 |
| Group | 0 |
| Common goal | 4 |
| Communication | 5 |
| Guiding, facilitation | 1 |
| Geography & association | 18 |

**Senior Manager Project Economics and Contracts** — Cross border leg/relations

- That there is great business opportunity, and that there are a lot of industrial parties with similar objective in de-carbonisation.
- It is an open ... where people are talking to each other about their projects, and that the mix of people in the network is very good. Talk, talk, talk, its basically about human relationships.
- All projects are at an early phase, but this might change further down the line, as they follow more individual project objectives and perhaps more competitive.
- A lot of projects are depending on other projects, they are of a different nature, but have similar power need.
- That the network has a huge complexity due to so many different projects involved.
- That the ... network is providing a good ... for ..., with globally and from a Swedish perspective.
- The ... is ...
- An open and great business opportunity, which looks like a good chance to have a profitable project.
- The ... is already about decarbonisation projects ... This is still more need, but think this ...
- That this is a regional network and therefore the members are also regional. For international countries that have a regional aspect, it is not a general network.
- It is important to be open and transparent, and exchange views.
- To align with other member's projects and work together on common objectives.
- To identify with a project it's part of your life.
- That one is ... do not have a clear ... or someone who are open ...
- There ... more individual ...
- My boss saying he is glad that I'm involved in the project due to its complexity.
- That I worry that this aligned group of industrial partners might later follow individual targets and objectives.
- That a project is not going to fly down ... eg. no power available or project economics not good
- That the network continues working as is now, perhaps even stronger and more aligned.
- That my company project is realised.
- That working together in the network might lower the risk of time delays.
- To identify other business opportunities, with network members, for example already good potential for ... projects in ...

| Codes | Category | Count |
|---|---|---|
| Knowledge/academic / Multidisciplinary / Processes/projects / Business model | Diverse expertise | 11 |
| Stay up to date / Readiness / Competition, follow indiv paths | Relevance / Identity personally | 3 |
| Share information / Contribute knowledge / Learn alot / Opportunities | Collaboration / Be open and transparent | 7 |
| Meet-up/Event / Social interaction / Environment | Human interaction / Interactional moment | 2 |
| Complexity / At the moment / Lower time delays risk | Scale & time | 4 |
| Need action / Show result / Innovate / Project feasibility | Concretise progress/worth | 1 |
| Network / Community / Members / Project | Group format | 3 |
| Common interest / Dedication / Better society & future / More aligned stronger | Common goal | 4 |
| Network organisation / Publicity of / Enable | Communication | 2 |
| Role model / network leadership / Political, not tech | Guiding, facilitation | 3 |
| Regional / BotH2nia Project / Not on EU radar / BotH2nia as differentiator / Missed more national&international / Missed national as projects involve / Comparing countries | Geography & association | 9 |

95

**International Business Developer**

Cross border leg/relation

Develop skills
Knowledge/academic
Multidisciplinary
Processes/projects
Business model

| | Diverse expertise | | 8 |

- That it is a really important network to be a part of for the future or sustainable solutions and that we have to be one of the forerunners.
- That the BotH2nia network is special, and from a Finnish perspective its very open and the way it shares the information and invites participants.
- That we have to collaborate and learn much more than realise.
- That I am very fortunate to be part of this network, because otherwise I will be an outsider.
- That we need more respect and understanding towards people and organisations, on an environmental, forward looking and dedicated society, to win over their fears by open minded dialogues.
- That the centre for this information sharing and participation is all about the leadership and management behind the network, and their attitude towards society and companies, and the public sector.

- Alot of different opinions, why and what to do?
- A lot of public confusion, from a regional, national and international level, depending on sources and locations, and depending on your beliefs and what you want to see.
- People not wanting it in their backyard, because they have no idea, and don't have overall general knowledge or information.

- That I consider always the best for everyone and request them to take contact, or provide contacts, whatever is necessary for their work.

- That this is a hot topic.
- Friends and family asking if it is really necessary to be involved in and that hydrogen development is a strange thing for our country to be involved in.
- A lot about of our competitors, future plans and it is worrying that we might be too slow.
- That people are worried about environmental outcome and don't know what hydrogen is and are afraid of it.
- Every week in the daily news about hydrogen, one way or another.

- Being frustrated with the challenge in how to improve overall knowledge in hydrogen. So that we don't only have it in our universities and conferences or expo events and kind from Finland.
- That we should keep striving to make good research and develop our skills and invest in hydrogen.
- Less about the network if it recognises progressive diversity and inclusivity with people from different backgrounds, sectors, gender and languages. But that it recognises its business and social diversity together.
- That our public sector decision makers don't have any of knowledge, or interest about hydrogen, a lot of nice words, but too little real actions.
- That the event audience was very much male dominated, and if we are talking about investors, or decision makers, then unfortunately there is not so much diversity.

- That this BotH2nia network will grow and have more future outcomes, and the network now should continue, even when the contract has ended.
- That I make small changes, quietly everyday for an impact, and that's the best way to make success in that area.

Knowledge/academic
Multidisciplinary
Processes/projects
Business model

| Part of, not outsider | |
| Readiness | Relevance | 6 |
| Competitive, follow indie paths | Identify personally | |

+/- Shared information
Contribute knowledge

| Learn alot | Collaboration | 9 |
| Opportunities | Be open and transparent | |

Meet up/Event

| Social interaction | Human interaction | 2 |
| Environment | Interactional moment | |

Complexity

| At the moment | Scale & time | 1 |
| Lower time delays risk | Contract ending | |

Need action / proof of

| Show results | Concrete progress/worth | 9 |
| Awareness | Network should continue to grow | |
| Project Feasibility | | |

Network

| Community | Group format | 2 |
| Members | | |
| Project | | |

Common interest

| Dedication | Common good | 2 |
| Better society & future | Afraid, fight it | |
| More aligned/stronger | | |

Network organisation

| Publicity +/- | Communication | 3 |
| Enable | Don't understand what | |

Role model

| Network leadership | Guiding, facilitation | 3 |
| Political, not tech | | |

Regional
BotH2nia Project
Not on EU radar

| BotH2nia as differentiator | Geography & association | 2 |

Missed more national/international
More international as projects involve
Comparing countries

---

**Business Development Director**

Cross border leg/relation

Develop skills
Knowledge/academic
Multidisciplinary
Processes/projects
Business model

| | Diverse expertise | | 11 |

- That its a good way for networking and finding a new business.
- That this BotH2nia is being a very good job based on previous meetings. The network organiser and group arranged everything very professionally.
- I speak Swedish also, its always easier to start conversation. Swedes like both parties to be equal, especially about business and in negotiation.
- I am very motivated with new people, because no one is doing nothing alone. That when you go to a new group, the first time people are a little careful and shy to have discussions, in Lulea event people were talking a lot more than in previous ones.
- That talking to people and sharing different matters helps to start up conversation more easily, as people understand each other both ways.

- How much people are ready to do for the environment.
- Opportunities which haven't been recognised by others, and can go to my client to tell them what they really need.
- During the Lulea event different kinds of industry and science in the university. I cannot imagine what research is happening, but now I hear and see for myself.
- Different kinds of working.

- Tell about our company and what we are offering.
- I tell about myself and where I'm coming from.
- I say to my company, imagine if I had to meet these all privately, how long it will take, how much do I have to travel and spent the time. Seminars and exhibitions are worthwhile for getting contacts in one go.
- I'm quite good at finding the subjects to discuss, because I know I'm welcome to tell from each other, always in positive way and give feedback, tell my experience – never tell about my negative experience.
- I'm all the time trying to get the new contacts.

- During events and meetings very interesting new things, backgrounds, facts, that are not published yet.
- At these meetings I can find new contacts from other attendees, and find out who I should discuss with.
- Train discussions with participants from the science side of things, something you would not know where to look normally.

- A second covid and lockdown, where I can't meet people and can't enjoy their company, these happenings will not happen.

- That these happenings are still arranged. I know that this BotH2nia project part 1 has a beginning and an end, so I want to know what happens.
- When hydrogen is everyday life, that there is maybe something else, like nuclear?
- That the group also finds new ways to act and that it develops at the time.

Knowledge/academic
Multidisciplinary
Processes/projects
Business model

| Part of, not outsider | |
| Readiness | Relevance | 1 |
| Competitive, follow indie paths | Identify personally | |

+/- Shared information
Contribute knowledge

| Learn alot | Collaboration | 10 |
| Opportunities | Be open and transparent | |

Meet up/Event

| Social interaction | Keep arranging | |
| Environment | Human interaction | 12 |
| | Interactional moment | |

Complexity

| At the moment | Scale & time | 3 |
| Lower time delays risk | Contract ending | |

Need action / proof of

| Show results | Concrete progress/worth | 2 |
| Awareness | Network should continue to grow | |
| Project Feasibility | Network trajectory | |

Network

| Community | Group format | 2 |
| Members | | |
| Project | | |

Common interest

| Dedication | Common good | 3 |
| Better society & future | Afraid, fight it | |
| More aligned/stronger | | |

Network organisation

| Publicity +/- | Communication | 0 |
| Enable | Don't understand what | |

Role model

| Network leadership | Guiding, facilitation | 1 |
| Political, not tech | | |

Regional
BotH2nia Project
Not on EU radar

| BotH2nia as differentiator | Geography & association | 2 |

Missed more national/international
More international as projects involve
Comparing countries

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**Business Development Manager**

Cross border leg/relation

Develop skills
Knowledge/academic
Multidisciplinary
Processes/projects
Business model

| | Diverse expertise | | 11 |

- We should do a lot of things more than just one small group and our countries.
- That motivations are important, but could be different for each person, and sometimes of these countries we must depend on some others knowledge and experience.
- It is very easy to reach people because as a business development manager its my speciality.
- I am a more a more strategical business developer (not sales), focused on develop the start of projects and finding key partners.
- We should educate my partners, colleagues and authorities, eg. when asked to put hands up if we should involve authorities, everyone did.

- That usually if people do not know information, then they do not accept and say we don't need this type of project. Someone somewhere needs to influence and demonstrate what we can achieve.
- That there are not many people from the environment at the event, there needs education here.
- That insiders, specialists and experts always say something is the best, but a neutral character who is not in the field has to be convinced of the reality.
- That it can be unsafe, and can be dangerous, if we don't manage, educate and inform people correctly.
- How in the public sector, how can we do this?

- That hydrogen can transform our economise and give future to our kids.
- That incentives are needed to join the network, what will it bring to countries.
- BotH2nia network event really helped potential of partners for us, we are continuing now with those contacts, life is short.
- That the network is experienced professional so the choice is what you want to do.
- That theoretical is nice, but what are the results of projects.
- I am a doer, not a talker, my purpose is to find the results.
- That is good to invest in this project, not just money, but also time.

- That hydrogen can transform our economise. In my country we do not have so much information, so I hope they see this is a good project. There is no big emotion from here.
- It is such an important task needing billions of EUR, so definitely a network of free hundred people in a nice state but we should grow this network rapidly if want to achieve the target.
- What kind of added value will this project create, eg money, job places.
- We need leadership, people who can join different sectors. Usually this is politicians, but rather academic, strong scientists, several speakers that can educate people, communities and embassies.
- That each party only sees some parts, but often not the whole picture, is they do then the steps might be bigger.

- That people often cannot speak in 1-2 sentences, like you expect from everyone, in a very direct approach.

- Always to understand others country, if you develop something new, try to change standards and think how to sell the product.
- To have a big company from the network to join with me.

Knowledge/academic
Multidisciplinary
Processes/projects
Business model

| Part of, not outsider | |
| Readiness | Relevance | 4 |
| Competitive, follow indie paths | Identify personally | |
| | When added value project | |

+/- Shared information
Contribute knowledge

| Learn alot | Collaboration | 6 |
| Opportunities | Be open and transparent | |

Meet up/Event

| Social interaction | Keep arranging | |
| Environment | Human interaction | 3 |
| | Interactional moment | |

Complexity

| At the moment | See some parts, need whole picture | |
| Lower time delays risk | Scale & time | 2 |
| | Contract ending | |

Need action / proof of

| Show results | Concrete progress/worth | 7 |
| Awareness | Network should continue to grow | |
| Project Feasibility | Network trajectory | |

Network

| Community | Group format | 4 |
| Members | Incentives to join? | |
| Project | | |

Common interest

| Dedication | Common good | 1 |
| Better society & future | Afraid, fight it | |
| More aligned/stronger | | |

Network organisation

| Publicity +/- | Communication | 9 |
| Enable | Don't understand what | |

Role model

| Network leadership | Guiding, facilitation | 3 |
| Political, not tech | | |

Regional
BotH2nia Project
Not on EU radar

| BotH2nia as differentiator | Geography & association | 7 |

Missed more national/international
More international as projects involve
Comparing countries

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**[Top right section]**

- That people are needed, that someone is listening and looking on them, they are seen and heard, which is one of the foundational aspects of our human life.
- That the actions through this network, this is what I'm looking forward to, what I see as a result and consequence of the work. We care about the size of our network, but its definitely more about the talking in this area and spread of information, but we need our actions to prove what we are talking about.

- To develop a network to create more projects, develop the pipe infrastructure so it will be installed.
- To investigate all the companies in this network, just pick up list a check them all.
- Not to write huge emails, just say in a few sentences.

Commercial Business Developer

Cross border leg/relations

- When I came to the network event, at first I had no clue what to expect, and was curious, bit excited about what will it bring to me. I was ok with it bringing nothing or added value.
- That its European focus motivated us to come there.
- I really wanted to get to know the area, because of the potential that we have heard of, on one hand hydrogen production potential, plus lots of biogenics too.
- I want to be honest and modest in how one presents and point of view.
- There is a bit of an internal struggle, between wanting to export, whilst also attracting local industry.
- Looking at the total event, I felt a struggle within the area about not being on the map of EU in terms of production potential.

- That the event was still focused on the people from Finland and Sweden, but what if you want to be on that map, and become known.
- Now I know of BotH2nia network, I do come across it, and have started to notice related projects, it is triggered in one's mind.
- People that are welcoming, so I didn't feel a stranger.
- That if event already brings good satisfaction for organisers, what next? Logically it will be the same numbers again, plus 50% more from other countries.
- It is not specifically related to Bothnia, its more the project specifically, not Bothnia network itself.
- Around 150 people, and it feels like 125 perhaps are from Finland and Sweden, and a few from Germany and Spain.

- I'm was just observing, trying to get to know people as don't' know anyone at event.
- I made and shared a report internally of learnings there showing potential for project and projects also in other parts of the world.
- It is important to keep the company size in perspective, so that we can be more approachable and neutral towards others.
- Tell colleagues to contact these new contacts.

- People from industry in northwest Europe not talking about Bothnia at all.
- Green steel is the only thing being talked about, because they have done actual green steel production in this area.
- A lot of people are still from the Bothnia area, and minimal from other areas.
- People in the event are very friendly and nothing got lost in translation.
- That one of the event successes is due to the organiser's enthusiasm and wanting to involve everyone. Also for people to learn and be open is a good starting point.

- The fact that they are focused to getting industry to their sites, it's a fear, for them and for us.
- We need it (Bothnia), and it comes both ways. To make a success they don't need to attract everything to themselves. It needs to attract industry and export combined.
- The challenges that come with the winter in this area.
- To make sure that Bothnia realises how we can add value to them.

- To turn it all into a success and that there is a connection to create a project.
- I wish that between Lulea, or the supply chain between Bothnia and northwest Europe that it runs through our port.
- Wish that Bothnia turns into a success, because it has great potential.


Develop skills
Knowledge/academic
Multidisciplinary
Diverse expertise
9
Processes/projects
Business model
Stay up to date
Part of, not outsider
Relevance
2
Readiness
Competitive, follow indiv paths
Identify personally
What added value project
+/- Shared information
Contribute knowledge
Collaboration
6
Learn alot
Opportunities
Be open and transparent
Meet-up/Event
Keep arranging
Human interaction
3
Social interaction
Environment
Interactional moment
Complexity
See some parts, need whole picture
At the moment
Scale & time
2
Lower time delays risk
Contract ending
Need action / proof of
Show results
Concrete progress/north
7
Innovate
Network should continue to grow
Project feasibility
Network trajectory
Network
Group format
2
Community
Incentives to join?
Members
Project
Common interest
Dedication
Common goal
2
Better society & future
Afraid, fight it
More aligned=stronger
Network organisation
Not known outside
Publicity +/-
Communication
6
Enable
Don't understand what
Role model
Network leadership
Guiding, facilitation
2
Political, not tech
Regional
BotH2nia Project
Not on EU radar
BotH2nia as differentiator
Geography & association
15
Missed more national/international
Moreinternational as projects involve
Comparing countries

- To continue to contribute to this visit, or help develop a supply chain in the future and come back to the area to do so.
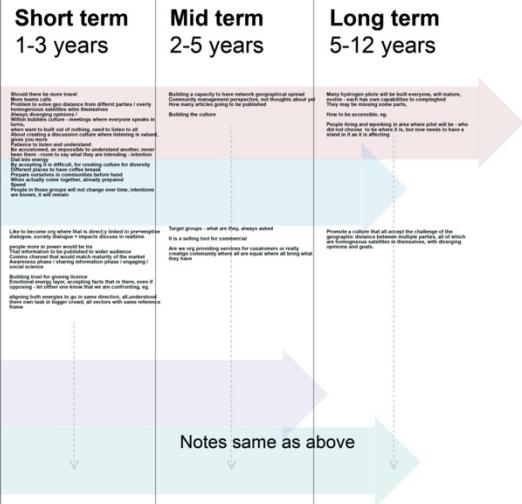
Appendix 13.

*Yes, And* in use (current > potential)
Based on Commissioner interview and from BotH2nia network perspective

Yes, And

Yes, But

No

Consequences for main 4 categories that are not *Yes, And*
Improvement discussions

| | Low/None 0 | Poor 1 | Marginal 2 | Acceptable 3 | Good 4 | High 5 | Excellent 6 |
|---|---|---|---|---|---|---|---|

**Diverse expertise**
Cross border legislation/relations
Develop skills
Knowledge/academic
Processes/projects
Business model

**Collaboration**
<- Shared information
Contribute knowledge
Learn alot
Opportunities
Be open and transparent

**Geography & association**
Regional / BotH2nia Project
Not on EU radar
BotH2nia as differentiator
Missed more national / international
More international as projects evolve
Comparing countries

**Communication**
Network organisation
Publicity +/-
Enabling
Not known outside
Don't understand what we do

**Human interaction**
Meet-up/Event
Social interaction
Environment
Keep arranging
Interactional moment

**Progress**
Need action / proof of talk / show results
Innovate
Project feasibility
Network should continue to grow
Network trajectory, north star

**Group**
Network
Community
Members
Project
Incentives to join?

**Common goal**
Common interest
Dedication
Better society and future
More aligned = stronger
Afraid, fight it

**Scale and time**
Complexity
In the moment
Lower time delays risk
See some parts, need whole picture
Contract ending

**Relevance**
Stay up to date
Readiness
Competitive, follow indiv paths
Part of, not outsider
Identify personally

**Guiding and facilitation**
Role model
Passionate network leader-ship
Political, not tech

**Short term**
1-3 years

**Mid term**
2-5 years

**Long term**
5-12 years

Notes same as above