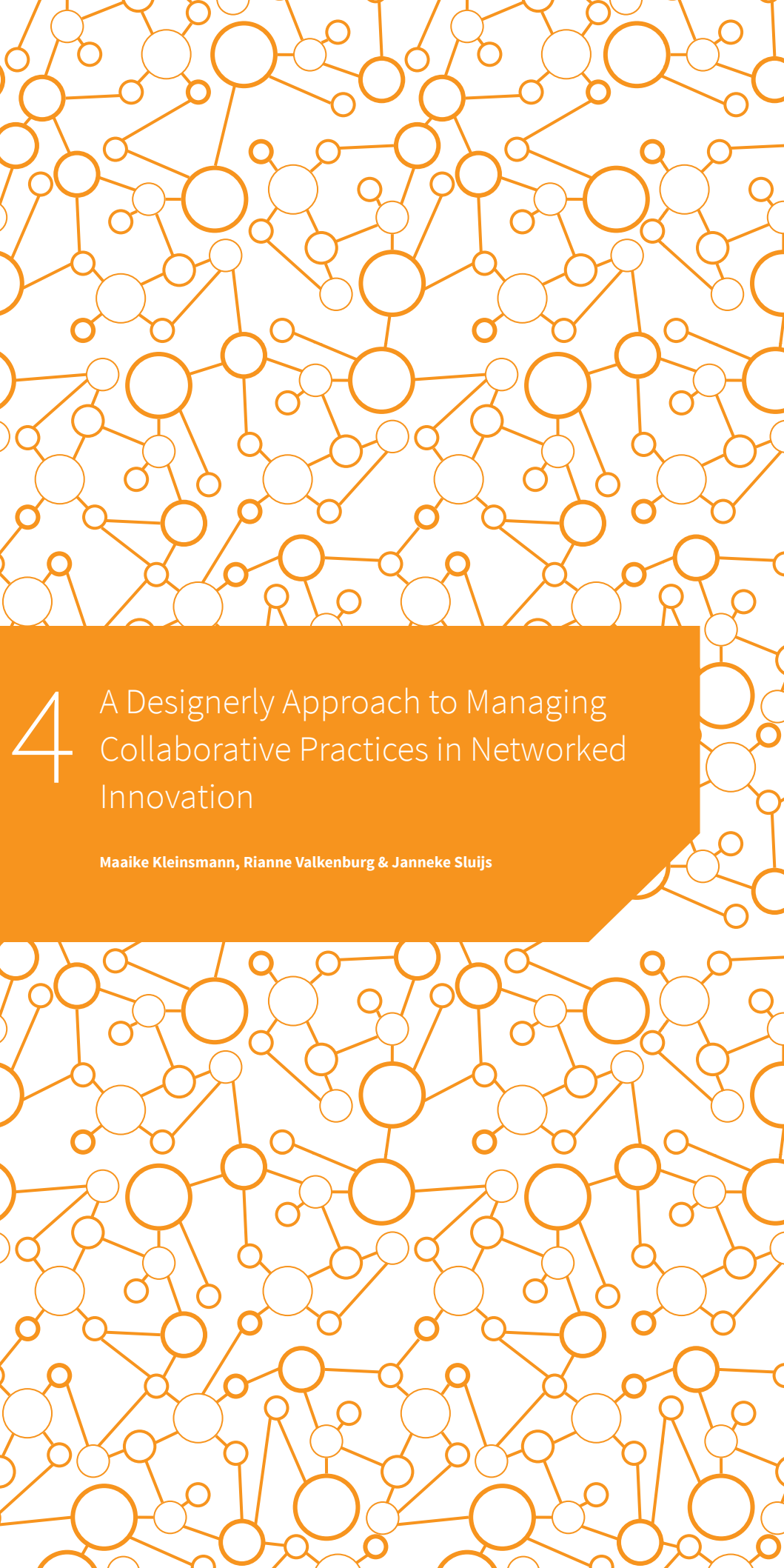

4 A Designerly Approach to Managing Collaborative Practices in Networked Innovation

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A Designerly Approach to Managing Collaborative Practices in Networked Innovation

Today's innovations often require combinations of advanced technical and market knowledge that cannot be found in one company. Therefore, companies have started to work together intensively. Although innovation networks yield clear strategic advantages, they also pose many challenges. For example, the goals of the partners might not necessarily be aligned and the roles and responsibilities of the stakeholders are often not clear upfront. Such challenges put pressure on collaboration within the network and it is therefore very important for the stakeholders in the network to make a concerted effort to work towards shared objectives.

At many companies, it is the task of the manager responsible for product planning, strategic innovation or R&D to deal with such challenges and to manage the collaborations between the different stakeholders. Scholars have recognised that a designerly approach can help the manager to enhance collaborations in the network (see e.g. Van der Duin, Kleinsmann and Valkenburg, 2013). For instance, a designerly approach can facilitate rich conversations that support the alignment of the goals of the individual stakeholders. A designerly approach could also make ambiguous aspects tangible, thereby clarifying the roles and responsibilities of the stakeholders.

Drawing on more than forty interviews with practitioners who either work in networked innovation or have an ambition to do so, this chapter describes the collaborative practices of practitioners using a designerly approach in networked innovations. These best practices can guide other managers in ensuring the effectiveness of collaborative practices in networked innovation. The three different types of collaborative practices are:

1. Collaborations within the network that will realise the innovation. Within this practice, the manager collaborates with stakeholders from different organisations.
2. Collaborations with the top management of the manager's organisation. Within this practice, the manager seeks to gain support for the networked innovation project from the top management.
3. Collaborations with stakeholders within the manager's own organisation, where stakeholders from different disciplines and from different departments collaborate on the realisation of the innovation within their own business.

The chapter provides multiple tools and sample cases that illustrate how practitioners applied a designerly approach to their collaboration with different types of stakeholders within the three collaborative practices. The next three sections will each introduce a collaborative practice in networked innovation. Each will outline the different characteristics of collaboration and describe a challenge that needs to be overcome in this practice. The designerly approach used to tackle this challenge is then described. How this works in practice will be exemplified by cases from the interviews. Section 4 summarises the three collaborative practices.

Content

1. Collaboration within the innovation network

This collaborative practice involves collaborations between stakeholders representing different organisations. The main task of the manager in this collaborative practice is to ensure that the right stakeholders are involved in those aspects of the innovation process where they can really contribute.

The manager has to get the right stakeholders involved. It is difficult up front to know who to involve and what the roles of the partners are. For example, when innovating the care process for children diagnosed with cancer, innovation teams start out by exploring what poses the biggest hurdle for a good care process. If the main problem is related to the distribution of information, the manager needs different kinds of partners in the team to continue the project than when the biggest problem is related to the intake of medicines. What the stakeholders could or should contribute is closely related to the

project content and therefore determines the level of involvement of each stakeholder. For example, if the problem to be tackled is the distribution of information, the role of medical doctors will be less prominent than when medical knowledge is needed about medicine intake. Within the network, it is important to actively address the roles, responsibilities and relations and to acknowledge the fact that the network is a living organism that grows and changes over time, evolving alongside the decisions on the content of the innovation.

The stakeholders within the innovation network can be quite diverse and will have complementary knowledge that comprises the main resource for breakthrough innovations. Yet, the differences between the stakeholders also form a substantial barrier for innovation (Carlile, 2004). This is because it is difficult for the stakeholders to create a shared understanding about the content of the innovation project. For example, if a networked innovation team is working on personal transportation, one stakeholder could think about creating solutions for faster transportation, while another stakeholder thinks about solutions that make commuting redundant.

Based on a shared understanding between the stakeholders about the project content, the innovation team has to develop a common goal. They have to define what the project will be about. A common goal for the personal transportation team could for example be to reduce the travel time of a particular user group by one hour. Creating this common goal is a first step. Yet, exploring together what this explicit goal means for all stakeholders and to really converge on and define a specific common goal that is supported by, and creates value for, the entire team is a more difficult task. This is because sharing each other's values requires a certain level of understanding about each other's competences, processes and tasks. Innovation teams that succeed in creating a shared goal find a delicate balance between diversity and common ground.

In addition to this, it is impossible for the manager to inform the stakeholders upfront about whom they will have to collaborate with during the project and how intense these collaborations will be. This type of uncertainty may result in a lack of commitment and frustrations about unclear expectations. To ensure that these negative emotions will not lead to a lack of commitment, it is important that the manager regularly shows to each stakeholder how his or her contribution fits in the whole process. A manager could use diagrams and schemes to explain the contributions of the stakeholders, but prototypes or scale models are also useful tools for explanation.

Designerly approach | Nurturing

The previous section also showed the following four core tasks for the manager within this collaborative practice:

1. *S/he has to find the right stakeholders*
2. *S/he has to develop a common ground that reflects the value for each stakeholder*
3. *S/he has to create a common goal for the project*
4. *S/he needs to get/keep them engaged during the project.*

We characterised the application of a designerly approach for this collaborative practice by using the term nurturing. Nurturing means that the manager has to engage in creative endeavours and find rich methods to communicate with different stakeholders about the uncertain nature of the innovation process in order to succeed in the breakthrough innovation process. This section discusses effective nurturing practices.

1.1. Value flow models as a tool for finding the right stakeholders

Value Flow Modelling (Den Ouden, 2012) focuses on how to design business models in social open innovation. These projects typically involve a dynamic network of stakeholders. The challenge is to find the right partners and engage them to establish a sustainable network. This not only involves defining the needs of the various stakeholders beyond the direct product attributes – that is, the values – but also requires combining these various types of values into one overview so that the longer-term feasibility and attractiveness of the value model can be checked. By explicitly stating all the value flows of stakeholders (financial as well as other needs and opportunities) and relating them in the network, several scenarios can be created to design a mode of cooperation in which all the parties feel comfortable in their role.

An example of a project in which Value Flow Modelling is used is the Savera project (Den Ouden and Valkenburg, 2010), which addresses the mortality problem in rural India. The majority of India's population, 730 million people, resides in rural areas and depends on government health workers in primary health centres. Women in rural India live in significantly unhealthy conditions, even though the government has invested considerable human and financial resources to alleviate this problem. The mortality rates of babies and pregnant women are a significant problem in rural India.

First, the project's network created a value proposition (Figure 1) aiming to implement a knowledge-based service solution to advise pregnant women on location and detect potential dangers in order to proactively overcome them. The value of the proposition is strongly based upon improving the information exchange mechanism between medical experts, health workers and rural women. Continuous interaction between all these stakeholders will generate a database that will offer dynamic content and be useful to government and aid organisations in reducing the mortality rates of both women and babies.

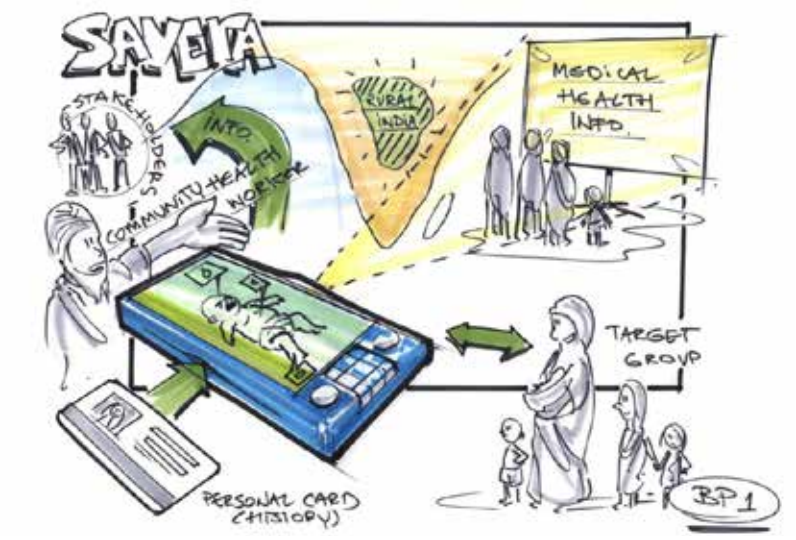


Figure 1: The value proposition of the Savera project

The network partners developing the value proposition include Dutch companies, Dutch knowledge institutes, local Indian government and an NGO. From the initial value proposition, a value flow model (Figure 2) was designed to create an overview of all the stakeholders and the

value flows between them. The value flow model results in:

- The inclusion of a complex and dynamic network of a variety of different types of organisations and individuals
- The inclusion of different types of value (tangible and intangible).

The model thereby provides each partner with insight on his or her contribution and value.

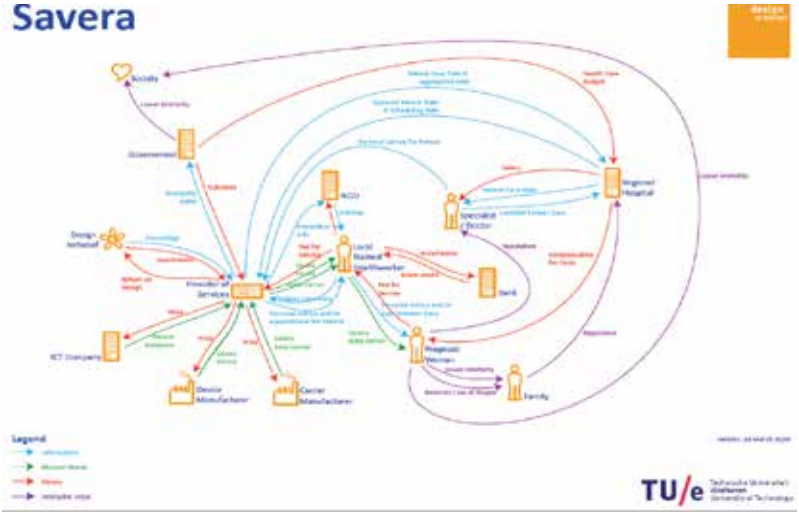


Figure 2: The value flow model for the Savera ecosystem.

1.2. Future Telling as a tool for creating common ground

Creative endeavours with all stakeholders are needed to provide the manager with the information s/he needs to take the innovation process in a direction that is tangible for and understood by all stakeholders. Especially in the beginning of networked innovation, it can be challenging to imagine the direction and possible results. A designerly approach to facilitating the discussion on future directions is Future Telling 2050 (for further explanation, see De Bruin and Valkenburg, 2014, a and b). Future Telling 2050 consists of a deck of 51 cards (see Figure 3), each with a statement and picture concerning a future possible trend. Discussion about the cards helps the team to set the scope and focus for the project.

Managers use these cards to facilitate workshops in which the first step is to identify the main drivers for change. In this first step the manager can use the cards to find answers to questions such as: what areas are in the eyes of the stakeholders the most important to address and what action should the team undertake to implement ideas? Answers to these explorative questions will lead to a shared scope and common ground to enable future-proof decision-making. The second step of the workshop is to identify the most important drivers for change for each individual stakeholder. This step identifies the added value for each of the stakeholders and what the stakeholder needs to develop to implement the ideas generated by the team.

Figure 3: The Future Telling 2050 card set.

1.3a. Prototyping the shared vision as a tool to create a common goal

To come up with a design that all stakeholders support, managers applying a designerly approach engage with the stakeholders in the same way as they would engage with the user of the innovation. During conversations with the stakeholders, managers encourage them to explicitly think about their innovation challenge. They make the ideas explicit by asking 'what if' questions about the topic they are working on. They listen very carefully to the answers all the stakeholders give and know how to combine these answers into a coherent whole, represented by a tangible prototype or sketch. As a practitioner told us:

"I think design is fascinated by a blank page. I think it's also fascinated by bits that it then brings to synthesis. The challenge is to synthesise many different elements into a whole. Design is about whole-making rather than part-making. So that whole process of listening to stakeholders and users, having engagements themselves, pulling out the necessary information, but then integrating it into some form of whole is part of this."

This practitioner also said that in addition to being great listeners, designers can also be provocateurs:

"Designers with all of their skills can provoke a conversation through creating some alternative visions or visions of the future upon which you then can start a dialogue with different stakeholders. In order to stimulate people to places where they have never dreamt to go."

These provocations are necessary to bridge the gap between the current situation and the desired stage. Even in the early (often called fuzzy) stages of innovation, prototypes – in the form of visuals or animations, for instance – can be very helpful in providing the stakeholders with a shared understanding about the current state, ambition or desired scenario. Figure 4 presents an example of a desired future scenario for the city of Eindhoven (Den Ouden and Valkenburg 2012). A vision of the city was created and visualised in order to captivate people with a dream of what the city could look like in the future, using new technologies to create a smart lighting grid in public spaces. In this vision, we see a liveable city where urbanites use public spaces as a living environment instead of just someplace to pass through. The vision makes use of future technology such as projections and smart traffic systems.

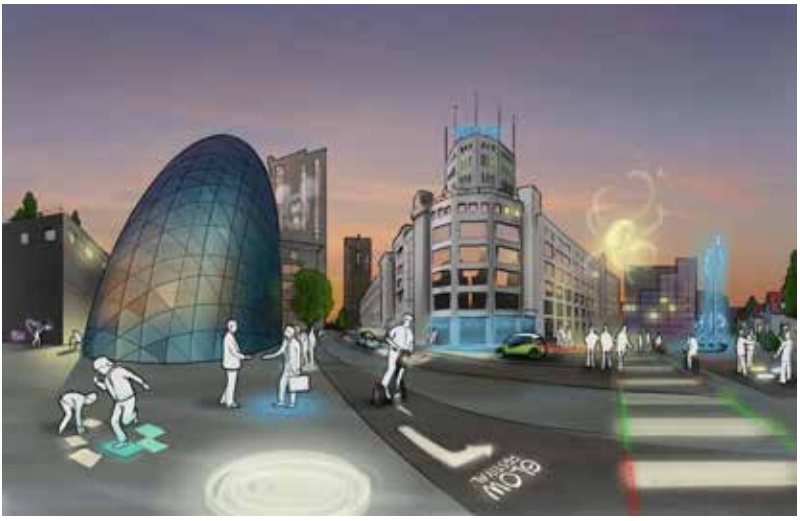


Figure 4: An example of a future vision (Den Ouden and Valkenburg 2012).

The visualisation helps in the creation of shared understanding in two ways. Firstly, the images are presented in a way that makes stakeholders happy (by showing them what they want) and engages them in participation. Secondly, an image creates a visual statement for the entire innovation project – something that people can relate to and position their own activities within.

1.3b. User research and design briefs as tools for creating a common goal

To deal with the uncertainty of the innovation problem and to get a better grip on the problem and its possible solutions, user research (leading to customer insights) is needed. If the stakeholders execute this user research together, they will create a common ground that is understood by all of the parties. Well-conducted user research develops empathy, enabling the testing of certain ideas and how they will resonate with your end user and with their world. One practitioner explains:

"To do good user research, you need to have an understanding of where people come from, what their issues are, seeing them, watching them. Also listen to people's complaints and be interested in a curious way. When an idea comes it sort of rebounds off something deep inside that says: this will also give meaning to other people. If this excites me, it will excite other people as well. This gives energy and passion. This is why empathy is so important."

During the innovation project, user research will support the manager while facilitating conversations about possible innovation directions with the stakeholders and let them create a shared understanding about the project by referring to particular use situations that they analyse together.

The following example follows from a first-year project carried out in 2011 by students of the open Innovator Programme at the Hague University of Applied Sciences in collaboration with Philips Design (Valkenburg and Sluijs, 2012). The starting point for this project was a consumer trend. The aim was to elicit starting points for innovation by conducting qualitative research and empathising with a target group. The gained consumer insights had to be specified in a design brief. In the next half of the semester these design briefs served as input for a design project.

Figures 5 and 6 show the outcomes of one of the projects. The team that created these outcomes chose a target group of children aged ten to twelve years old, as their habits are still being formed and can be influenced. With this target group, their research objective was to gain a better understanding of children and

their experiences with oral health. The researchers connected with four different respondent groups using four different research methods, collecting data from 26 children through questionnaires, 28 ex-children through interviews and online questionnaires, three parents through a focus group session, and 10 dentists through questionnaires and by conducting a focus group session with children, ex-children and parents. Based on these interviews, the team created a user experience flow (see Figure 5) for illustrating and visualising all activities leading up to and following a visit to a dentist. It contains a list of actions, feelings and expectations, which helped identify opportunities for improvement.

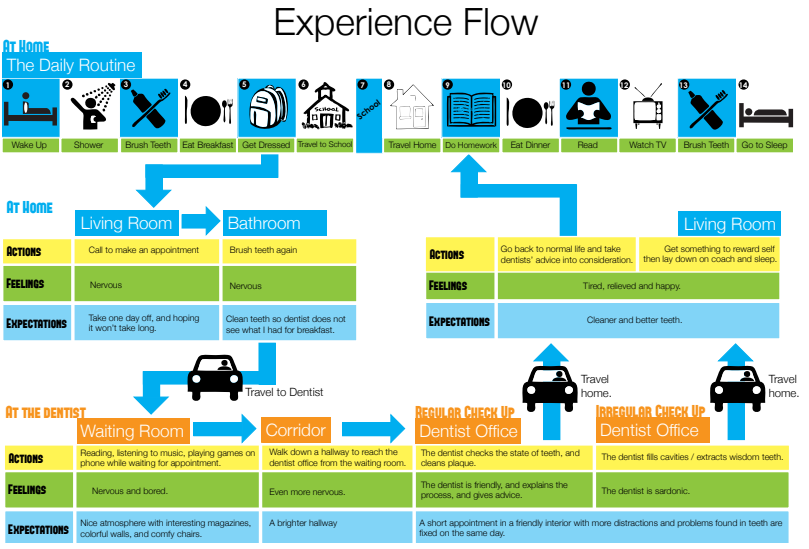


Figure 5: Experience Flow (Valkenburg and Sluijs, 2012).

In addition to the experience flow, the team used tables, charts, personas, written summaries, and an infographic to make sense of all the data and communicate its findings effectively. An infographic (see Figure 6) was created to summarise the statistics gathered from the numerous data collection methods in an inspiring way. This appealing visual served as an accessible interface for the otherwise complicated statistics. The advantage of using such visual forms (in addition to reporting) of representing the data is that this allows the team to engage with the user in multiple ways. This approach creates a shared understanding about the user and its context, enabling the team to approach the problem in a user-centred way.

The research concluded in two design briefs. These can be used by future designers to develop new products or services to help bridge the gap between the current situation and the aspired situation, which are based on the actual unmet needs of real people reached during this project (Valkenburg & Sluijs, 2012).

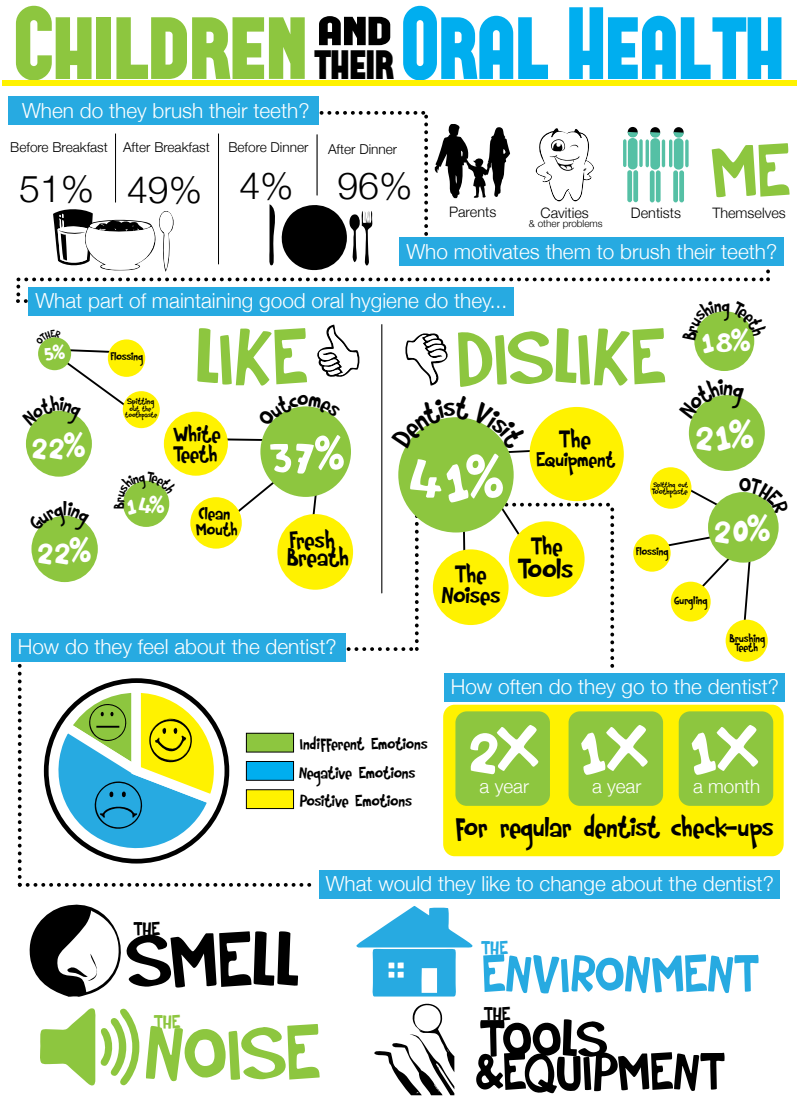


Figure 6: Poster infographic (Valkenburg and Sluijs, 2012)

1.4. All of the above as tools for engagement

The different tools and techniques described above all seek to elicit the involvement of different stakeholders. By involving them in different parts of the process and by explicating the value streams and describing the common goals, stakeholders will be engaged.

2. Collaboration with top management

This collaborative practice involves collaborations between the manager and the top management of the organisation s/he is working for. The main task of the manager is to ensure that the top management believe in the innovation project.

Managers involved in networked innovation projects face the problem of how to advance and realise the innovation project within their organisational context and how to communicate its value to the top management. The project's inherent ambiguity and undefined status often make it challenging for them to get the top management to share their belief in it. This is amplified by the fact that the intended innovation outcome extends the boundaries of the current core business. Furthermore, as in most innovation projects, the involvement of the top management is rather low at the beginning. The board only tends to become involved during major decisions. Therefore, meetings with the top management are not frequent and no other mutual dependencies exist. Getting the board engaged with the innovation project is therefore challenging.

The top management participates in meetings in which they have to decide on allocating resources to the project. For managers it is thus also important to convince the top management about the value of the project. Managers have to create common ground between them and the top management about the innovation project. As the board and the manager have common knowledge about the organisational culture and strategy, a manager using the designerly approach will use this as a starting point.

Last but not least, it is the task of the manager to keep the top management updated about the progress of the innovation project. The iterative nature of the networked innovation process forms a hurdle for keeping the top management in the loop. Iterations are normal in innovation projects, but occur more frequently in networked innovation projects. Additionally, they can result in quite radical changes due to the involvement of many stakeholders, each of which has a stake in the innovation process. These iterations could therefore even change the initial project vision and focus.

Designerly approach | Taking Along

The previous section showed the following three core tasks for the manager to convince the top management:

1. *S/he needs to ensure that the top management believe in the innovation project.*
2. *S/he has to convince the top management to allocate resources.*
3. *S/he has to keep the top management up to speed at all times.*

We characterised the application of a designerly approach for this collaborative practice by using the term taking along. Taking along means that the manager has to keep the top management updated about the content of the innovation project.

2.1. The managers' passion as a tool to convince the top management to believe in the project

An important way to convince the top management is through passion and personal belief. Managers applying the designerly approach are often very passionate about their project. The project is often close to their personal beliefs and values, as one manager explains in reference to how innovation is driven in his company:

"The main reason I started this whole thing is that I like doing it, not because I earn my money with it. That's more of a side effect.

Money, to me, is the same as what blood is to your body. Your goal in life is not to have blood, but you need blood in order to live. The boundary between my private and working life is fading. The aspects of interior design that have to do with health and cradle-to-cradle are all aspects of my own environment, of my own life. I try to live healthily through the food I eat and by practicing sports, so I incorporate this approach in my private life as well."

These managers are authentic and their work is congruent with how they live their lives. Thanks to this attitude, their drive and enthusiasm are contagious. They exhibit a personal and strong belief and take responsibility for determining where the company should go. The previous manager continues to explain:

"When I become enthusiastic about a certain thing, such as making the second-skin story around you with our partitions, it is based on my intuition, my feelings, and my experience in this field of products. The initial decision to do this is mine, so it's a bottom-up initiative. However, we do have a board of directors, of course, who have to get behind this idea as well and who define the top-down strategy. This is not something you do instantly: you have to grow towards it, both the company and me as well. It's crucial to be able to look behind the day-to-day business and create things. That too involves trust and you have to have the intuitive understanding that we can earn money with these kinds of solutions."

When good decisions lead to solutions that the company can earn money with, trust is built. The top management learns to trust the manager and his capability to drive decisions by authenticity and intuition.

2.2. Customer Journeys as a tool to convince the top management to believe in the project

The manager has to create belief in the vision of the project. To do so, s/he has to be able to explain the vision to the top management. One way to do that is to engage in customer journeys about the current portfolio and show that the customer is not wholly satisfied with the current product portfolio and accompanying service. Using the common ground about the current situation and by showing how the new innovation project could contribute to improving overall customer satisfaction is one way to convince the top management to believe in the project.

Figures 7, 8 and 9 show a sample case from Deutsche Telecom. Deutsche Telecom's management assigned its design department the assignment of developing a new modem. Instead of only looking at the technical specifications, they also created a customer journey about installing and using the modem (see Figure 7). The customer journey provided them with many insights that they transformed into a desirable design for the modem. The insights gained from the customer journey enabled them to design both the hardware and the service to make it much easier for the customer to install and use the modem. The visual representations of the customer journeys and the mappings of the current product related to this journey convinced the top management about the need to continue the project (see Figures 7 and 8). Figure 9 shows the old situation on the left and the new situation on the right. The simplicity of the hardware also reflects the simplicity of the use of the product.

Figure 7: The customer journey.

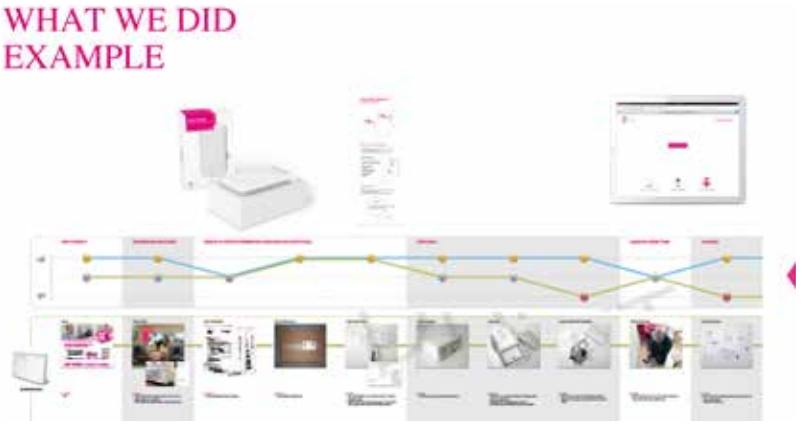


Figure 8: Mapping the new and current product on the customer journey.

Figure 9: The old situation (left) and the new design (right).

2.3. Test beds as a tool to convince the top management to believe in the project

This practitioner addressed the need to create belief with the following quote:

"As discussed, first and foremost I think it's about creating belief by imagining the future, because you have to sell the project internally. Whatever you do in the future, you have to sell it. Selling is not easy because there are always priorities, budgets are constrained, there is not enough capacity, and time is limited. So before you find a sufficient basis for working, you have to make others in the company share your beliefs that it is a necessity to start projects."

The most convincing way to present the innovation to the top management is with the use of test beds. Test beds are platforms for experimentation in which prototypes put in their (simulated) context of use play a big role. Test beds allow testing and verifying assumptions and ideas throughout the innovation process. Test beds are also a powerful tool for communicating the project content and status. Most test beds consist of high-fidelity prototypes that engage all senses and therefore deliver an instant wow factor. Tangible prototypes allow conversations with the top management on different levels of abstraction – a conversation about a particular functionality could also trigger conversations about the company's vision for the customer journey in 2025.

To get the most value out of test beds, they should be readily comprehensible to top management, enabling executives to become aware of the (radical) changes ushered in by the project. Showing test beds that represent the current content of the innovation project to the top management on a regular basis and in a playful manner will lead to easier decision-making processes during formal meetings. This is because the test beds allow the top management to start seeing the real value of the innovation project. This will dramatically increase the chances of them giving the green light to the continuation of the innovation project. Figure 10 shows an example of a 3D customer journey made by Deutsche Telecom.

Figure 10: An example of the 3D customer journey of Deutsche Telecom

2.4. The right visuals for convincing the top management about the resources needed

During meetings, it is important to provide the top management with the right (re) presentations of the status of the innovation project. What the right representation is depends on the goal of the meeting. Finding the right way of presenting the innovation project in order to convince the top management is often an iterative process. Different kinds of representations trigger different kinds of discussions with the top management, as explained by this practitioner:

"Everything has a different level of representation, depending on the stakeholders. So there is a moment in which it is enough to represent it in such a sketchy way. Depending on to whom you have to communicate. And probably to communicate to a much broader audience perhaps you should even make a movie that is so realistic, that it shows life when life is not there."

It is important that the chosen representations trigger discussions with the top management that increase their estimation of the value of the innovation project. Presenting perfect renderings of the solution will for example lead to 'yes-no' discussions, while a 'sketchier' drawing will lead to negotiations about the innovation direction to follow and what resources are needed for the different options available.

Figure 11 shows four types of sketches that Stompff (2012) distinguished. Stompff claimed that the effectiveness of the visualisation is dependent on the situational context. The vertical axis refers to 'sensemaking', which is about creating a dialogue, and to 'reflection-in-action', which is about proposing frames and arguments. The horizontal axis refers to the 'as-is' system, which shows the current state, and to the 'intended' system, which refers to the desired state. The four examples in the four quadrants show effective types of visualisations in each of the quadrants. While discussing an innovation project with the top management, it is important to use the visuals in the higher part of the matrix because you want to create a dialogue with them. If you want to make sense of the 'as-is' system it is important to ensure that the visuals stay very close to reality. The visuals need to be rich and should consist of many cues that could lead to a possible problem to tackle during the innovation project. If you want to make sense of the 'intended' system you need abstract representations of the non-existent project. These visuals do not need many details, because the lack of clarity about details will provoke discussions that will lead to sense making (Stompff, 2012, p. 264-265).

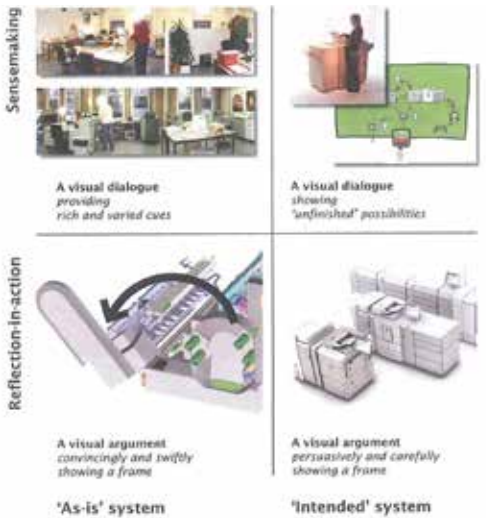
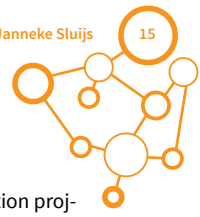


Figure 11 Four different types of sketches (Stompff 2012, p. 263, Figure 11.2).



2.5. Updated visuals and the prototypes to show the current situation to the top management

The designerly way to keep the top management updated about the innovation project is to ensure that the customer journey and the test bed are aligned with the current status of the innovation project. The manager should also be capable of explaining the role of the outcome of the innovation process in the (new) business. This highlights the importance of knowledge about the organisational strategy and culture.

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3. Collaboration with different disciplines

This collaborative practice involves collaborations between internal stakeholders who are responsible for creating the aspect of the innovation for which the manager of the organisation is responsible. The main task of the manager in this collaborative practice is to create an internal team with people from different backgrounds who each have their own knowledge and role in the team. The manager has to assist this team in combining their knowledge and dealing with the ambiguous nature of the networked innovation process.

These internal teams often lack an overall picture of the innovation process. This is a risk for the manager, because the team members could change the project content in a way that does not fit the project scope. To avoid this risk, it is necessary to hold frequent meetings in which the manager presents an overview of the project. During these meetings it is important to present the innovation projects on multiple levels of abstraction. However, as these projects are complex, such project overviews covering different levels of abstraction are often not explicitly available in a form that these team members will understand. Therefore, it is important to organise workshops to make the views of the different team members explicit. In these workshops, the manager has to show the current status of the entire project as well as that of the work of the project team. For example, in the case of a team working on a high-speed train project, it was important for the manager to show the whole track and the tunnels. Furthermore s/he had to show how the tunnel technical installations fit within these tunnels, as the internal team was responsible for the installation. Besides explaining the current status it is also important to show the different tasks executed by the external stakeholders and the relations between the activities of these stakeholders and the internal team. In addition to this, it is also very important that the manager understands how the team members see the project, as this will explain how they act in this project.

A manager has to find crosslinks between the team members and has to connect them with the common project goal. Finding connections between the team members' knowledge and expertise and this project goal is an explorative process with diverging and converging cycles. Diverging has two functions. The first function is creating crosslinks between team members. The second function is explicating all possible solutions that are present in the minds of the team members. The practitioners explained that they have no difficulties with the diverging part. However, they find converging hard, as it limits their possibilities and degrees of freedom. They furthermore explained that timing the moment when the converging should start is of major importance in ensuring the success of the innovation project. They explained that this moment cannot be determined upfront. Instead, during the process they 'feel' when they have explored enough and that it is time

to converge, as the following practitioner describes in response to an interviewer's question:

"[Interviewer] you say: going from diverging to converging is sometimes a bit hard. [Practitioner]: Yes, to make the right choices. It can generate quite some discussion between Marketing and Packaging or anyone else. Especially with packaging I think everyone has an opinion about it because everyone thinks: I like it. Or: I don't like it. So it is quite difficult to stay neutral and say: this is what we want to achieve. How are we going to make the choice? Especially with packaging, everyone always has an opinion. For instance, in the case of the formula, most of the marketeers are no chemists so they believe what the formula guy is saying and they say: I guess so. With packaging it is: I don't like this or I don't like that. It is always the same. It is logical because it is something you see and it is visualised and you like it or you don't like it. So normally you get quite a discussion. It is really different from formula development."

This practitioner showed that while converging it is important to connect the generated ideas to the project scope. She also explained that this is hard because people have to set aside their personal preferences. This is especially hard when the project scope is somewhat disconnected from the team members, which is often the case in networked innovation.

Furthermore, the manager has to create a shared understanding about the part of the project the team members are working on. They need a shared understanding about the project content and the process that is to be followed. It a challenge for managers to create this shared understanding because the internal team is heterogeneous in nature and the team has to work closely together within the complex context of the whole network. For managers, it is important to create a shared understanding about both the content and the process, as it will directly influence the project outcome. The (design) decisions of one team member greatly influence the decisions made by other team members. This means that collaboration within this practice is intensive; or, as a practitioner puts it:

"I think it makes a project stronger when you have people from different disciplines and with different views. It creates conflict as well, but only if you have designers who can't finish a project. The same if you have engineers, you can probably build something, but in a lot of cases it will not be appealing. And if you have a project manager, you can talk a lot about it, but yeah, it won't happen."

To ensure that the activities of all team members are aligned, it is necessary to hold frequent meetings between these team members to go over the details of the innovation project. It is important to set up a meeting structure that allows team members with dependent tasks to communicate and explore possibilities with each other.

Every team member has his or her own language. It is the task of the manager to bridge these languages in a rich manner, so s/he is sure that all team members understand the message. Words are often not enough to explain the complex issues of the project, as a practitioner explained clearly:

"For me it is important to visualise things because you can put two sentences on paper and everybody says 'yes', but when you can put your thoughts in a drawing and everyone is committed, then I have more trust. Why? The sketches enable them to really understand what I mean."

Sketches are a way to elicit commitment from people and clearly define the project scope and accompanying design tasks and activities. Furthermore, sketches also serve as a powerful inspirational tool, as this practitioner explains:

"Visualisation is essential internally because you have to inspire both the product development engineer and the purchasing guy and the representative of the supplier. In an early stage you try to come to that shared understanding of what we try to achieve by using those drawings … You

try to get a number of decision makers on the same line of thinking because you can have a lot of different interpretations of the words, but as soon as you make it visual, you can have a better discussion on the subject."

Designerly approach | Merging

The previous section showed the following three core tasks for the manager to facilitate the internal team:

1. *Understanding the bigger picture*
2. *Create crosslinks between the team members and connect these with the common goal*
3. *Let the team create a shared understanding about the content of their part of the innovation project.*

We characterised the application of a designerly approach for this collaborative practice by using the term merging. Merging means that the expertise and knowledge of the different people working on the project slowly merge into a coherent whole in the project.

3.1. Organisational mapping to create an understanding about the bigger picture

In complex projects it is important to make the project tasks clear to all team members. This clarity not only shows them what tasks the team needs to accomplish, but also indicates the relationships between their individual task and the other tasks.

Most often a project structure is presented orally to the team members. Yet, a more designerly way to do this is to let people construct their own project structure based upon possible project tasks that they get on cards. By using the cards, the people 'play' with the connectivity of the different project tasks, which will allow them to think about the logic behind the connectedness of the different tasks. It will also allow them to remember the underlying task structure much better. We called this tool organisational mapping.

Figure 12 shows an example of a workshop in which the team members did organisational mapping. The internal team was divided into three sub-teams. Each of these teams had to do the first three steps of the workshop. The first step was to select the tasks included in the project. In the second step they had to distribute these tasks among the different stakeholders and create an overall project structure. In the third step they had to explain their choices to the manager(s) and the other sub-teams. The fourth step was a plenary discussion about the different choices made by the sub-teams. The manager(s) used this discussion to collaboratively create the 'real' project structure. Thanks to this workshop the team members had a much better understanding of the project they were involved in. It appeared to be a powerful tool for creating a better understanding about why certain tasks had to be done and why particular tasks had priority.

Figure 12: An example of a designerly meeting to explicate the project overview.

3.2. Cycles of diverging, selecting and converging to enable the team to deal with the complexity and ambiguity of the innovation project

Practitioners showed us that they find it hard to make the switch from the diverging phase to the converging phase, because the diverging phase requires an explorative mindset while the converging phase requires an exploitative mindset. A solution for overcoming the difficult transition between diverging and converging is to add an explicit 'clustering/categorising' phase to the process of diverging and converging; Tassoul and Buijs (2007) added this step to build a phase in which the participants can switch mindsets. The clustering/categorising phase will force individuals to make their preferences explicit. Furthermore, it will provide the manager with the opportunity to select the ideas that fit into the project scope. Based on these two different selection processes, the team could select the ideas that fit both processes and continue working from these ideas in a new cycle of diverging, selecting and converging. Figure 13 shows the creative diamond with a clustering/selection phase.

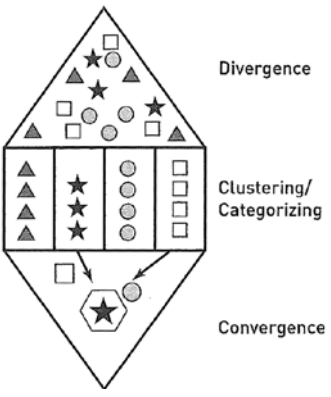

Figure 13: Creative diamond with a clustering/selection phase (Buijs and Van der Meer, 2013, p. 13).

3.3. Different types of sketches to create a shared understanding about the project content

In order to get everyone inspired and committed, it is often not enough to present only one type of drawing. In many cases, multiple types of drawings are necessary, as this practitioner explains:

"For instance you can talk about a piece of hydraulics and in other projects I have translated a piece of hydraulics to electrical components to make sure that my colleague who was not able to understand what hydraulics are but who was more or less an E-guy can step in and contribute to solving the problem …. We have said: this is the way we put it on paper, this is the way we code them so that everyone has a common language which is something you use with everything else."

A manager should be aware of the content presented on the drawing and how it inspires different team members and how it creates a better understanding. S/he has to be capable of producing sketches during meetings to ensure that the issues discussed during the meeting are thoroughly understood. Often two or more sketches are necessary to make all team members understand the aspect discussed. It is important that the manager has the skills to draw these different sketches and that s/he is absolutely certain that the content of the different types of sketches represents the aspect in question.

3.4. Project stories to create a shared understanding about the project content

Product stories are another way to create a shared understanding about the project content at the very beginning of an innovation process. A product story is a narrative that is illustrated with pictures and/or a movie, explaining what the product or service is and what is special about it. Or as Stompff explains:

"A product story frames the NPD project from the client and user perspective. It explores both who the client and the user are and what is expected of the product "(Stompff, 2012, p.260).

The starting point for these product stories is a workshop with multiple stakeholders that are involved in the project. The aim of the workshop is to make sense of the essence of the innovation project based on the knowledge of all the disciplines involved. To make this essence explicit, it is necessary to make use of very rich communication methods such as prototyping and role-plays. Via these rich methods, the people involved are asked to 'see' the new innovation through the eyes of the intended client and user. Based upon the insights from these workshops, a product story will be created. Creating the product story is also an iterative and intensive process. In Stompff's cases, the communication department wrote the story in close collaboration with the other people involved. The communication department combines the information derived from the workshops and visualises it with the use of pictures and/or an animation. These tangible narratives will serve as shared practices throughout the entire innovation project. All stakeholders can understand the narrative within their own world, with their own language. You can find an example of a product story developed by Stompff and his colleagues at: https://www.youtube.com/watch?v=Y8_vSaXrrgo.

4. Conclusions and discussion

When engaging in networked innovation, the scope of the innovation expands beyond the horizon of one company. The roles of different stakeholders are not predetermined and change over time. Collaborating in networked innovation is complex and consists of multiple dimensions. In this chapter we have introduced three collaborative practices that the manager has to deal with in networked innovation. Each of the practices ushers in challenges in collaboration. The chapter provides guidelines on how to manage collaboration in a designerly way.

In terms of collaborative practices, we learned that the biggest challenge involved in collaboration within the innovation network is to create a network of partners that can and are willing to contribute to the innovation project despite the uncertainty about what the project will actually be. We could characterise the purpose of applying design expertise in this practice by using the term nurturing, because design expertise is used to increase value for every stakeholder that becomes part of the innovation network.

In collaboration with top management, the biggest challenge is to advance and realise the innovation project within the organisational context despite its ambiguity in terms of its ill-defined and intangible aspects. We could characterise the purpose of applying design expertise in this practice by using the term taking along, since different people are invited to contribute or help establish possible futures.

In collaboration with different disciplines the challenge is to make useful crosslinks between disciplines and create a common goal by converging at the right moments. To characterise the purpose of applying design expertise in this practice we could use the term merging since the expertise and knowledge of the different people working on the project slowly merge into a coherent whole in the project.

We have described how a designerly approach could facilitate these three collaborative practices. Table 1 provides an overview of the designerly approaches within the three collaborative practices and is meant as a starting point to take on a designerly approach to manage your collaborative practices during your networked innovation project.

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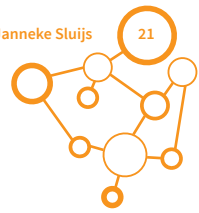

Table 1 Overview of collaborative practices and the effective designerly approach

	Collaborative practices		
Type	Collaboration within the innovation network	Collaboration with top management	Collaboration with different disciplines
Main task	To get the stakeholders involved in the parts of the innovation process where they can really contribute	To convince the top management to believe in the innovation project	To assemble an internal team with people from different backgrounds who each have their own knowledge and role in the team
Main stakeholders	External partner organisations	Top management	Other departments within the own organisation
Designerly approach	**Nurturing:** Engage in creative endeavours and find rich methods to communicate with different stakeholders about the uncertain nature of the innovation process in order to succeed in the breakthrough innovation process.	**Taking along:** Keep the top management updated about the content of the innovation project.	**Merging:** Slowly merge the expertise and knowledge of the different people working on the project into a coherent whole in the project.
Tools	• Value flow models for finding the right stakeholders • Future Telling for creating common ground • Prototyping the shared vision for creating a common goal • User research and design briefs for creating a common goal	• Using the managers' passion to convince the top management to believe in the project • Customer Journeys to convince the top management to believe in the project • Test beds to convince the top management to believe in the project • The right visuals for convincing the top management about the resources needed • Updated visuals and prototypes to show the current state	• Organisational mapping to create an understanding about the bigger picture • Cycles of diverging, selecting and converging to let the team deal with the complexity and ambiguity of the innovation project • Different types of sketches to create a shared understanding about the project content • Project stories to create a shared understanding about the project content

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