



ORCHESTRATION

JAZZ IT UP

Team

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Thanks to

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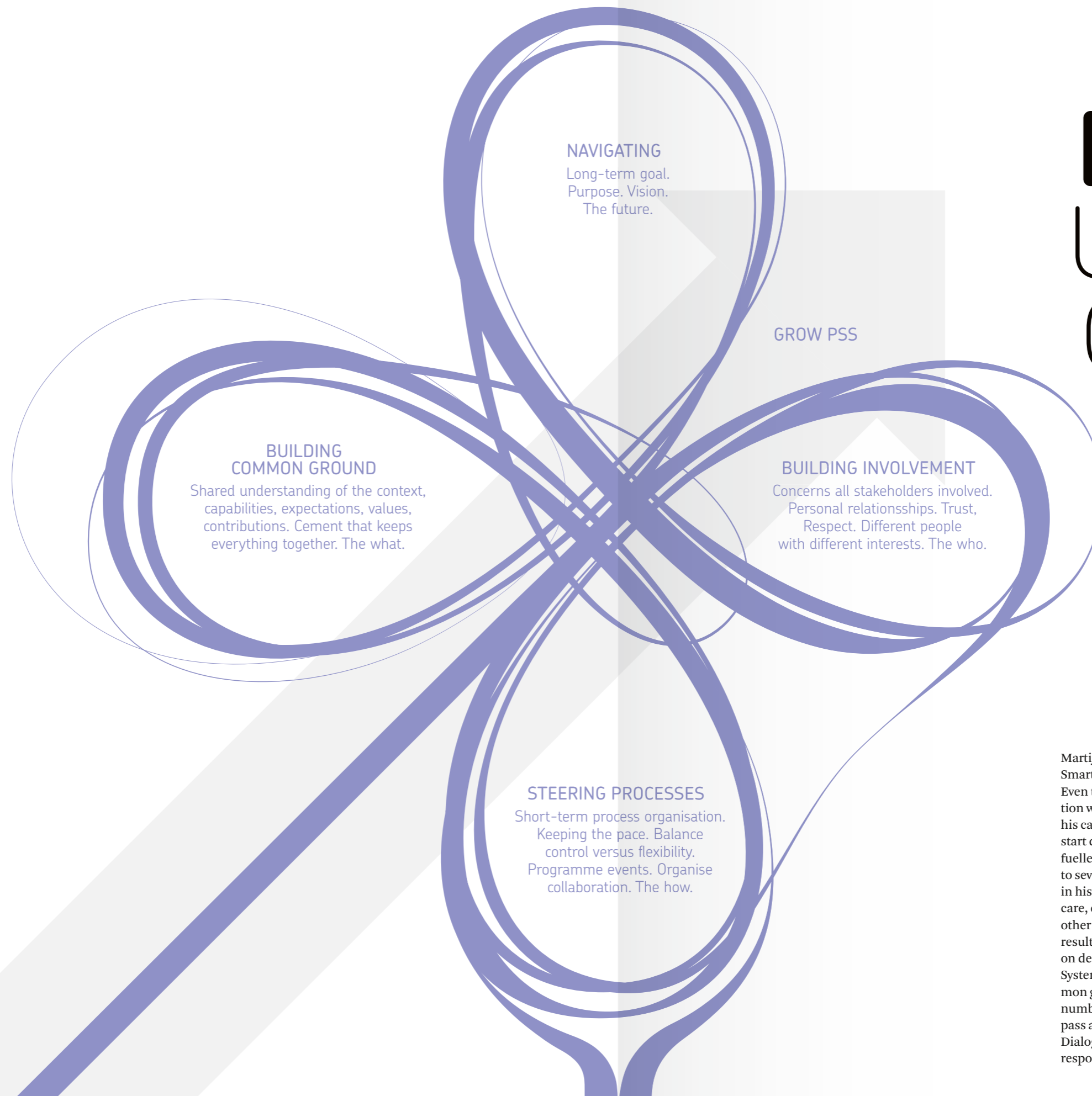
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KEEP ON JAMMING!

ONE DESIGN UNDER A GROOVE



So many
you can't get around it
So complex
you can't get under it
So diverse
you can't get over it
This is a chance
To orchestrate your way
Out of your constrictions

Martijn ten Bhömer worked on Smart Textile Services in CRISP. Even though the field of application was a known, it was care in his case, it was still difficult to start designing a service. Martijn fuelled his imagination by talking to several stakeholders involved in his project from the fields of care, design, engineering, and other relevant areas. The insights resulting from project meetings on designing a Product Service System (PSS) helped create common ground, and Martijn made a number of prototypes to encompass all these insights. "Tactile Dialogues" for instance is a responsive pillow with embedded

electronics. He used the pillow as input for a workshop where the prototype became much more pivotal to the meeting than he had anticipated. The prototype generated many new insights into the possible directions to take with the PSS they were developing. Seeing and touching the prototype motivated the partners in the project to invest their resources much more actively in the project, and through the prototype they were better able to convey the value for their own organisation. What did Martijn do that achieved these great results? →

In another CRISP project, the partners also struggled to get started. A large meeting was organised with partners from academia and practice (at the time many were still strangers) to run through all the tasks and responsibilities, but this failed to set things in motion, although the drinks afterwards helped to make some new connections. It was only when some partners began organising workshops where everyone worked and explored together that involvement was created and things began to roll. Why was this start so difficult?

These stories are not unique in CRISP, and probably not outside it either. The sheer complexity of designing Product Service Systems (PSSs) with collaboration across disciplines, across organisations, and across products, services, and systems can be overwhelming. Yet this complexity is not uncommon. Today's PSS designers often find themselves in these complex situations; there is even a typical design word for it: wicked problems. Embracing complexity and wickedness is then more fruitful than denying it or trying to simplify it, as we have learned in CRISP and as argued in one of the other themes of this magazine. This section is about the function of orchestration in PSS development, as networks evolve over time with ever changing participants and goals.

Orchestration

Orchestration has become a term for the CRISP community, one that helps us understand which activities take place in the PSS design process to align collaborators, to achieve and maintain harmony between them, and to sustain this 'while the music plays', responding to whatever happens in the orchestra or the world around it.

To better understand Orchestration as an activity crucial to PSS design in networked collaborations, we harvested knowledge from the CRISP projects, and several patterns emerged from the collection of stories.

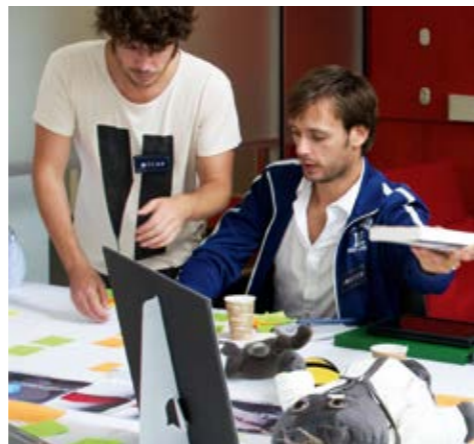
Beyond design process and discipline

Two things became clear early on while we harvested knowledge, and they did not make the task of understanding Orchestration any easier. Firstly, the nature of the activities that, together, constitute Orchestration prohibit us from describing it as a design process in itself. Design processes are models of how designers proceed towards results. Models do exist for diverging and converging design iterations, for instance for parts of PSS development, but not for the entire activity. →

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EMBRACING COMPLEXITY

Simplification is not an option in orchestration, instead you should embrace its complexity.



EXAMPLE

NOTHIN' CAN STOP US NOW

Oscar Tomico, project leader for Smart Textiles Services (STS), had to bring twelve partners from industry, academia, and the cultural sector together, more than thirty people in all. Early on in the project, he organised a meeting to *steer processes*, where participants had to present themselves and their interests in STS as a way of getting to know each other. He assisted the participants when presenting themselves in the best way possible, because he wanted to bring everybody to the same level. Everybody got their say, nobody could lean back or hide in a corner, and as a result, people started to connect (*building involvement*), and understood each other's contributions and expectations much better (*building common ground*).

LIKE THE INFINITY SIGN, ORCHESTRATION IS A BALANCED RELATIONSHIP, A CONTINUOUS MOVEMENT

There is nothing that describes how a network of collaborators comes together and stays together. In that sense, the activity of Orchestration is beyond the design process as we know it.

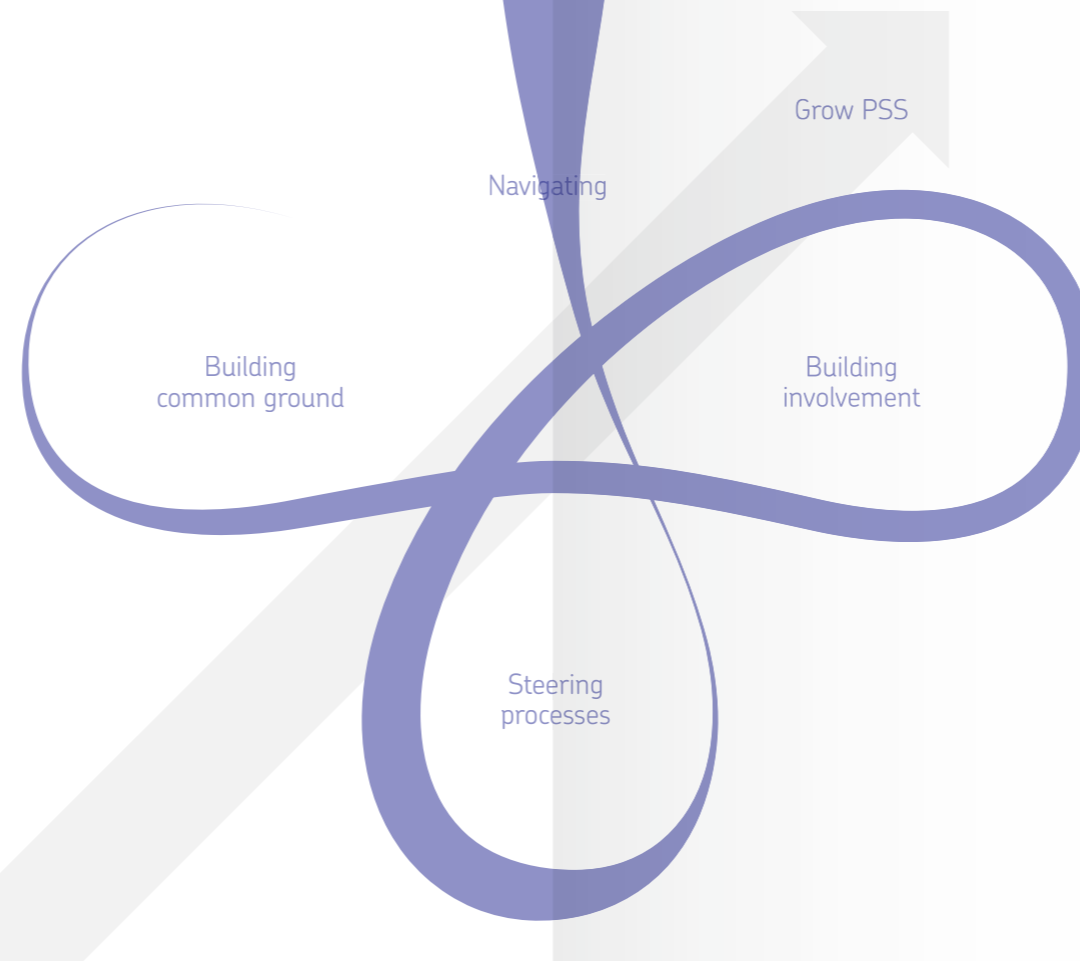
Early on, we also found that Orchestration is not a discipline, like design, nor is it a sub-discipline like interaction design. As an activity, it can be done by people from different backgrounds, and different disciplines can contribute to successful Orchestration, as we shall see. As such, Orchestration lives between disciplines, rather than being part of a single discipline. Orchestration is as much beyond a discipline as it is beyond process.

The flow of four principles

Four connected principles of Orchestration emerged from the CRISP experiences and stories about PSS development: Building common ground, Building involvement, Steering process, and Navigating. These are all activities in themselves and Orchestration is the activity that keeps these other four moving, connected, and in balance. Orchestration is a perpetual movement in PSS development that progresses towards the result, a PSS that is delivered and used, and even beyond, because a PSS is never finished and evolves over time. This can be visualised as a continuous movement that makes the PSS grow; it can make it fly. →

Building involvement

A crucial Orchestration activity is building involvement among the participants in PSS development. The people involved often represent larger organisations, and each individual typically plays an important role. Successful collaboration relies on personal relationships and on the trust between them. Where no such relationship exists, Orchestration can help build these relationships and get the stakeholders that are needed for the PSS on board. "Good orchestration," according to Dirk Snelders and Evelien van de Garde-Perik of the GRIP project, "helps to create trust and keep it, and thus creates self-confidence with and between participants." They mention that two levels of trust must exist; level 1 between the individual participants in the network and, level 2 between each participant and their organisation, that after all has to deliver on the promises of their representative in the collaborative network. This is not to suggest that everyone stays on board from start to end. We observed some stakeholders leave the PSS development halfway, or individual representatives from organisations being replaced. If there is no alignment of values, contribution, or expectations, people quite naturally drift apart. New people might also enter halfway because new skills or resources are needed to develop the PSS. These new participants then need to be involved as they become new collaborators and are much more than 'mere suppliers'. →



FOR ALL FOUR PRINCIPLES, DESIGN SKILLS CAN PLAY A VITAL ROLE

“Each change in the orchestra requires a new orchestration, building new relationships and trust for each new member,” noted Dirk Snelders and Evelien van de Garde-Perik. Thus, building involvement continues over time. It is not a one-off activity performed only at the start of PSS development.

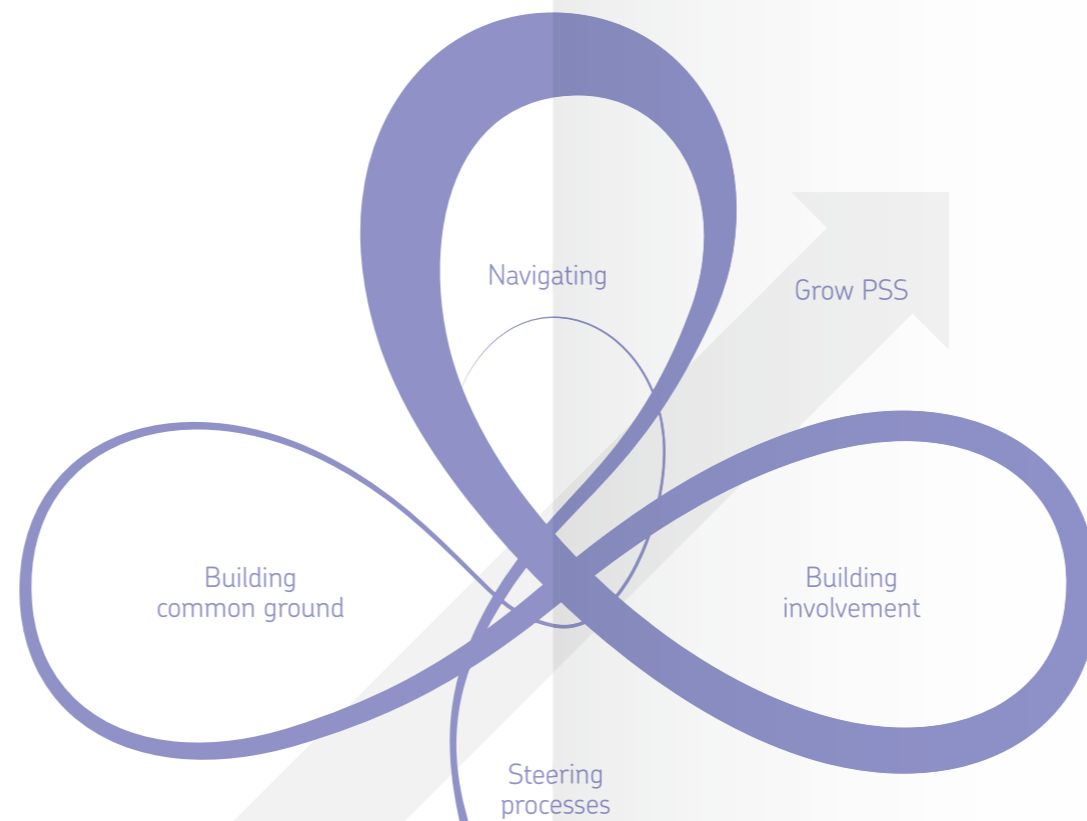
Building common ground

Building common ground is a similar Orchestration activity, but focuses on content rather than people. This activity is often overlooked or hurried through. When results are due and there is still a lot of development work left to do, it seems a waste of resources to spend time and energy on building common ground between the participants in the network. Aligning all stakeholders through sharing customer insights or discussing brand identity helps to establish common ground as the basis for fruitful collaboration, and this remains valuable throughout the project. Domain knowledge needs to be built, and everyone’s values, contributions, and expectations need to be made explicit. This all starts with understanding the situation, as Lu Yuan of the Grey But Mobile project learned, “You need to provide a solid base first by exploring the field, by gathering insights.” Gerda Gemser and Bram Kuijken of the CASD project noted in CRISP magazine #2 that it is essential that everyone adheres to

the same set of goals. As not every partner has the same goals, creating common goals from different network perspectives, like users’ motivation or business goals, helps building common ground. Orchestration needs to ensure that this basis is created, that relevant goals are created for every partner, and that both are shared in the network of collaborators in the project.

Steering

As stated at the start of this article, Orchestration goes beyond the design process, at least in PSS development, through networked collaboration. This does not mean that Orchestration activities are without processes on another level, for instance, when organising a workshop or doing field research. The steering of these kinds of processes is needed to achieve short-term PSS development goals, but the steering is a lot less useful for achieving long-term goals, as the network and the circumstances or context are often too complex and unpredictable to have a clear view of what lies so far ahead. Short-term goals are however more manageable, for instance when the aim is to create a bit more common ground by investigating a certain issue together. “Doing, not talking, is especially valuable during these activities,” says Marie de Vos of the PSS101 project, and what is ‘done’ is often carefully prepared. Still, steering doesn’t always mean taking the lead. Oscar Tomico remarks, “Let people feel responsible; they will take it up. The less I do, the better.” →



EXAMPLE

FROM BUILDING TO STEERING

In the PSS101 and CASD projects, Karianne Rygh and students of Design Academy Eindhoven worked together with Océ – A Canon Company, to demonstrate the possibilities of the elevated printing technology. This technology makes it possible to add an extra dimension to designs by printing multiple layers of ink up to 5 millimetres thick onto a surface. Karianne mastered and explored the elevated



printing technology and several possible applications in the field of architecture, discussing with Océ experts along the way (*creating common ground on the possibilities*). This resulted in the PSS concept ‘Super Maker’ which allows Océ to offer elevated printing as a service that can be used by architects and designers to develop their own applications rather than ordering predefined products (*first navigating activity resulting in building involvement*). Students from Design Academy Eindhoven acted as early Super Maker users who experimented for five days, and presented their outcomes at the DAE Graduation show during the 2014 Dutch Design Week. They exhibited new directions for actual use of the technology (*navigating*). The way they learned to use the technology and how they came up with their ideas is now input for defining the way that actual customers can understand and apply the technology (*steering the process*).



YOU NEED TO MOVE WITH THE PROCESS, HELPING IT IN THE DIRECTION IT NEEDS TO GO

This, of course, creates a growing shared ownership in the project with the different participants, and leads to building involvement as well, something that is necessary to keep networks stable. The steering by Behzad Rezaei of PSS101 leverages existing ownership, “Support more initiatives for self-organisation and connection among citizens. Do not take initiative away from citizens.” This shows that several types of steering are possible, and perhaps even needed. Steering can range from facilitating to directing, depending on the partners involved, the initiatives they have taken already, and how far they have progressed in the project, for instance. To achieve the longer term and more complex goals of PSS, something else is needed however, and that is the fourth and last Orchestration activity.

Navigating

Giving direction is very difficult in networked, collaborative PSS development. After all, there is no central overview, nor is there clear network leadership. Insights can be gained over time, and shared goals can be set by building involvement and common ground, but how to get there is another matter. This is where navigating becomes important. In an ever-changing and complex environment, navigation is a crucial activity to get to that dot on the horizon that is the shared goal of a network developing a PSS. “Envisioning is a great skill to have when navigating,” says Giulia Calabretta, project leader of CASD. “Designers bring to the

table the envisioning way of working, and activate that capability in other people. (...) Business and technology people also have this capability but they don’t use it at the moment of joint discussions or workshops.” This kind of envisioning is not just limited to products, or to the content of a project. Navigating can also refer to which kind of activities could contribute to the project, what will be done in workshops, for instance, or what changes could be aimed for with the project. Jeroen van Erp, Executive Board member of CRISP and creative director of design agency Fabrique, also recognises this skill of designers, “Designers are able to imagine the needed changes, creating trust and alignment of people. (...) Imagination by word and visuals plays a huge role while orchestrating during the conceptual phase where creativity acts.” But he has also spotted a weakness in designers when it comes to exerting control over the design process, “The mentality of designers has to change; they must not want the last say on the details, but they must set the direction — they must let go!” This is a good illustration of the nature of navigating as an activity within Orchestration. Envisioning, imagining, prototyping, and making, are all part of it, but these together do not create a final PSS. As Monique Kemmer of PSS 101 says, “You need a visual representation to communicate the proposals to all stakeholders, otherwise people are not easily convinced.” →

ORCHESTRATION IS A BALANCING ACT RATHER THAN A PROCESS

But it remains a representation. The prototype developed by Martijn ten Bhömer described in the opening paragraph of this article is not the real thing. It is an experiential demonstrator for the different participants in the network; If they had simply stood back in awe, the prototype would have failed. Bringing appealing prototypes and making them central to meetings is a great way of navigating with a network. Afterwards, participants can take a prototype with them and use it in their organisation to discuss the understanding that has been achieved and the issues that have arisen, using their own organisational language, as well as the shared language of the prototype. That is the power of dropping something (physical or not) on the table.

The four activities mentioned above came together in many different ways in CRISP PSS projects. There is no specific order of Orchestration activities; it depends on what is needed in the design process at that moment in time.

Many stories illustrate how these activities made an impact. These stories can be understood as movements of the propeller that represents the continuous flow of Orchestration in PSS development.

Orchestration is a balancing activity

Orchestration has proven to be a very fruitful term to use when we try to understand the networked collaborative PSS development that is so important in many CRISP projects. This is also true for the complex opportunities and wicked problems that our economies and societies are faced with today. But it is not an easy term to use. It is not a clear process that can be explained in a diagram — Orchestration is an activity that consists of several other, related activities that together make PSS development flow and fly along a non-predefined path.

Yet, design has a role to contribute to Orchestration. PSS development can only be achieved by many disciplines working together, and design has a distinctive, strategic value to offer in this mix. Creating harmony and aligning people in networks are elements of Orchestration that happen more easily and with better results when design skills like storytelling, visualising, and prototyping are used to build common ground and involvement. Typical design activities such as creative workshops clearly help to navigate towards successful PSSs. The next theme, Strategic Value, expands on these typical design qualities and their value in PSS development.

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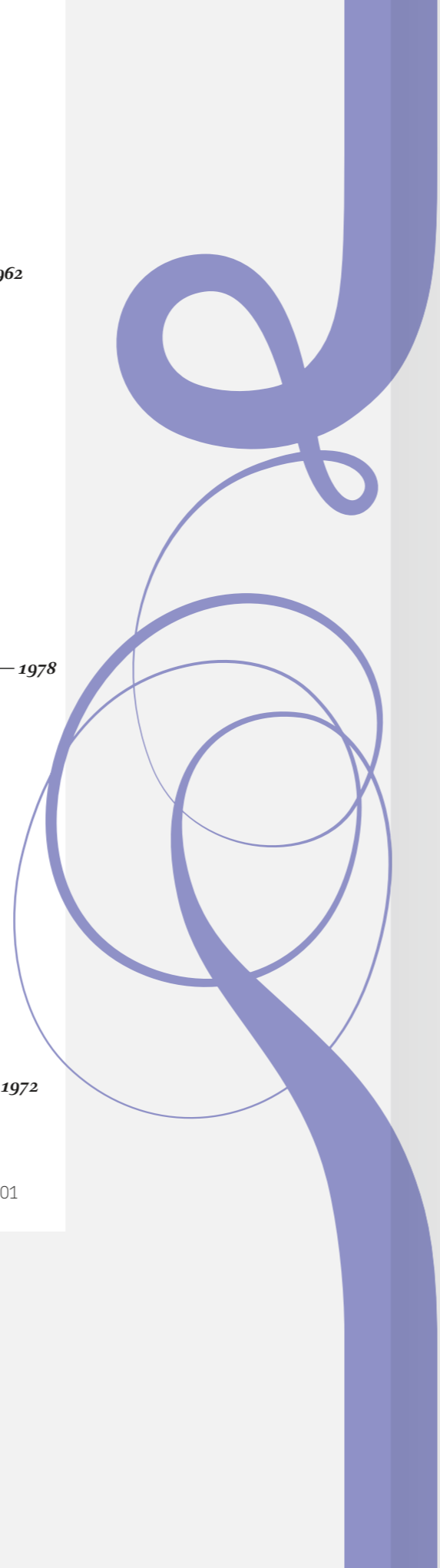
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DESIGN VISION — CRISP Magazine #5

Orchestration as an activity, without the name, has been recognised quite a while by Professor Robert Young of Northumbria University, involved in the International Scientific Advisory Board of CRISP. He gives his view on what must be the basic components of what it is to orchestrate.

BEYOND STRATEGY

Prof. Dr. Robert Young

The next great challenge for design is to reconceptualise the professional role of the designer in the context of PSSs. Design's ambition within orchestration must lie beyond strategy, in policy. The concept of orchestration can prove a valuable aid towards achieving this.

If we break down what needs to be done in order to orchestrate, the basic components are creating respect and building trust. In the same way, to draw an analogy with the traditional role of the designer in the past, the kinds of fundamental skills that we as designers need in order to explore, understand, and create meaning at a deeper level are our abilities to sketch, represent, prototype, and make things tangible.

If you compare this to the problem of how to orchestrate teams to interact effectively at a fundamental level, it's about how first to establish trust and then encourage respect between and across team members. It's therefore about how this can build the reputation of designers and the design process as the medium of orchestration in the context of projects. If design manages to achieve this, it will enhance the power and influence of design as an inter-discipline which acts on behalf of the project and its stakeholders. Without this, permission to act will not be given, at an individual level, within communities, and certainly not at a corporate or organisational level. Therefore, designers must address these fundamental elements

of orchestration for them to increase their sphere of influence and power, and to address the great challenges presented by PSS projects.

Until design can actually build trust, gain respect, and demonstrate effectiveness when handling the practical levels of orchestration, it won't be able to work at a strategic level on PSS projects, let alone move up even further to engagement at a policy level. If, in the orchestration of PSS, we are looking at ambition within design, it must not perform simply as a functionary discipline at an operational level, it must, at the very least, play a strategic role, but ideally the role of design is to help form the policy that decides which projects should be entered into and how these projects should be gone about — 'orchestrated'.

This necessitates a transformative level of design acting at the policy level, rather than attending to the operational elements within the system, and certainly not simply tending to the configuration of aspects around the product.



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Eva Deckers and Paul Gardien of Philips, also involved in CRISP, present their view on orchestration, based on their paper, *Innovating Innovation—deliver meaningful experiences in ecosystems*, presented at last year's DMI conference in London. They eloquently detail how a large corporation like Philips brings people and organisations together to truly innovate.

EXPERIENCE DOMAINS FOR COMMON GROUND

Eva Deckers & Paul Gardien

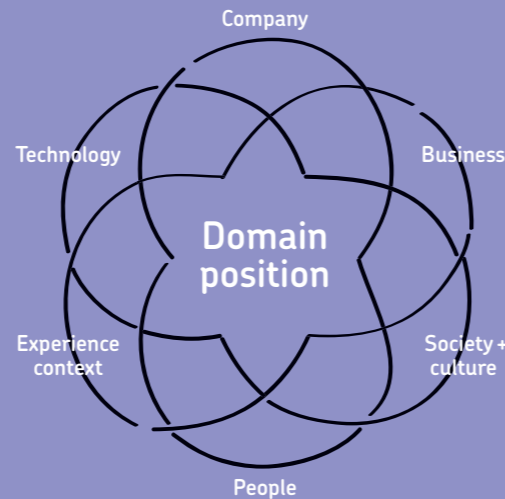
For a company to deliver meaningful experiences in an ecosystem, it has to understand what drives end-users and their experiences in this ecosystem. In other words, we need a clear story for innovation in which our offering plays a part; a story that is relevant and applicable in society. We need a clear positioning on what we want to deliver and why. At Philips, in answer to this need, we introduced so-called 'experience domains'.

An experience domain is a thematic, strategic area in which design, research, and business activities are organised and initiated. An experience domain revolves around a specific user group or experience. It provides a platform where people can collaborate, integrate, and build on each other's skills. This dynamic aspect is vital, as an ecosystem cannot be designed from the outset; it needs to evolve. Based on the knowledge paradigm, we take a dynamic approach: experience domains develop over time and provide direction and opportunities.

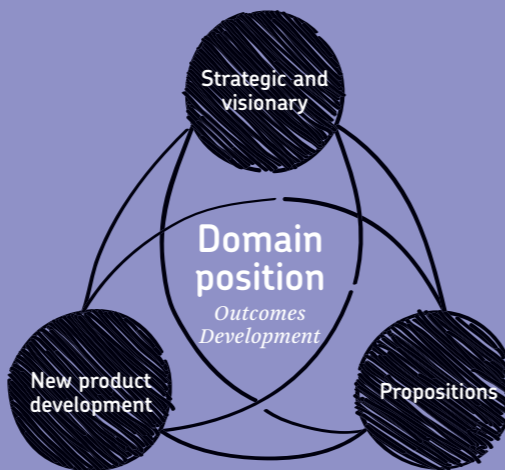
An example of an experience domain is the research project we are currently conducting which supports women during labour and delivery. Our proposed solution consists of an app that serves as a breathing coach and an interactive visual animation projected on the wall of the delivery room. You could consider this as being a stand-alone idea, but in the wider ecosystem of mother-and-child products and services, it links to the existing Philips ultrasound equipment as well as to the baby care products parents use when the newborn comes home.

The experience domain thus needs to demonstrate balance and find synergy between projects that are more strategic or visionary in nature, projects that aim to put forward realistic product and business propositions, and projects on new product developments that are on their way to market. This includes a balance between open and closed innovation projects, or cycles within projects. Finally, a balance needs to be found between short-term, highly structured processes, such as a one-week hackathon, and a much more flexible approach to the overall development.

The 'Orchestration' activities discovered in CRISP are similar to this, and help designers maintain that balance. Getting to grips with this complexity means that designers have a new role to play. Rather than providing creative direction at every touch point, they will have to champion and facilitate balance and synergy between projects within the different innovation horizons, shaping and framing a story of the ecosystem that will immediately make sense to end-users and to the company's other departments.



Six perspectives influence the domain position.



Different types of projects are connected. The projects integrate and feed back to the experience domain position.



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KEEP ON JAMMING!

Bas Raijmakers, Janneke Vervloed,
& Klaas Jan Wierda

CRISP has begun to reveal this potential, but there is clearly much more yet to discover. Recent interviews with CRISP partners alerted us to three promising directions for further exploration.

Over the past years, it has become clear that CRISP projects have created new and relevant PSS design knowledge around what we now call Orchestration. Our experience with these projects has enabled us to identify and describe four principles of Orchestration.

Understanding what Orchestration is and can be offers us an exciting opportunity to think about design in a new way that goes beyond design processes and design disciplines as distinct, predictable entities. Focusing on Orchestration as an activity helps us understand how and why design can contribute to addressing the complex opportunities and wicked problems that are so typical of the world today.

Orchestration principles

In the PSS101 project, Marie de Vos recognised the importance of good Orchestration, but wondered, "how should I 'do' Orchestration in practice?" She was not alone. There is a clear need for more knowledge on Orchestration principles which leads to practical guidelines on how to perform Orchestration activities in and between projects, for example, building trust in networks as noted by Robert Young in the previous article. Orchestration also requires that we look ahead to provide direction to complex PSS development. Process management is well understood in the short-term, but developing a direction for the future can form a greater challenge. Which guidelines can be developed?

Orchestration styles

In music, it is common to have many styles of orchestration. In PSS development, we have already seen examples of different styles of orchestration. Oscar Tomico of the Smart Textile Services project phrased it as follows: "Two projects in the smart textiles context] were orchestrated in a completely different style. In the end, though, both projects delivered equally relevant and valid outcomes."

Different approaches to orchestration in PSS development may be as personal as musical preference. How can we recognise and benefit from these different styles of Orchestration? How can we develop a style that fits a person or organisation?

Scaling up Orchestration

As a PSS grows, increasing numbers of people become involved. This scaling up also requires Orchestration, and may lead to more than just a PSS. As Behzad Rezaei of PSS101 says: "Organisations will become more and more a part of a network, a network that also includes customer-clusters." Robert Young even spoke of "a transformative level of design acting at the policy level." What is the societal impact of Orchestration on a larger scale or at a higher level? How can we scale up Orchestration beyond development of a single PSS, and what opportunities does this create for designers?

In the last four years, CRISP has created a considerable amount of new and relevant knowledge about Orchestration that is now available and actionable for the Creative Industries, their partners, and clients. At the same time, we are just at the start of understanding how Orchestration can help us as designers to play a more strategic role in industry and society: let's jam on!



STRATEGIC VALUE

"Future directions of Orchestration also relate to the opportunities that design professionals want to take, designers as facilitators versus makers, discussed in the Strategic Value article "What does the designer want".

