Process Design: an Explorer's Guide

Nature-Based Solutions

Connecting Nature

Genk

OS///OS NETWORK

ABOUT THIS GUIDE

This guide is the fruit of the Connecting Nature project, a five-year European funded innovation-action research project (2017-2022). Material included in this document has been adapted or developed in part by Osmos within the project and applied to the ten partner cities (Genk, Glasgow, Poznan, A Coruña, Burgas, Ioannina, Malaga, Nicosia, Pavlos Melas, Sarajevo) and with Nature-based Enterprises as part of a mentoring programme. The tools and methodology were developed or tested in part through the Connecting Nature Enterprise Mentoring Programme, running between 2021-2022 and involving businesses in Brazil, the Caucasus (Armenia and Georgia) and across Europe. Some material has been developed by Osmos outside of the project, or inspired by established tools or methodologies and where possible references have been made to original known sources. This guide focuses on the Stiemer Valley in Genk, which has been the focus of the City of Genk's role in the Connecting Nature project.

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Foreword

Connecting nature, knowledge and place

The environment is the 21st century's biggest systemic crisis and cities are particularly vulnerable. Fortunately, there are a great deal of opportunities to address the environmental crisis. One of these is called Nature-Based Solutions (NBS), concerning "actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits." (as defined by the UNEA resolution on Nature-Based Solutions UNEP/EA.5/L9/REV1). A vast amount of technical knowledge has been accumulated through decades of environmental research and planning to deal with issues like stormwater management, environmental ecosystems, heat-stress, resource management, sustainable local food production, public space management and so on.

As cities become more exposed to flooding, are more aware of the impacts of air quality or are looking for low-cost treatment of mental health issues, NBS is looking increasingly attractive. While the benefits of NBS are clear and can directly address many urban-re- lated environmental challenges, development and implementation has been slow, in conflict with other pressing priorities (such as affordable housing) and, in many cases, solutions require new forms of think- ing and working. Implementation issues like collabo- ration, social cohesion, knowledge management and value capturing are confronted when developing more robust cities.

This guide presents a selection of results from the Connecting Nature project, a five year European innovation action project, funded during the Horizon 2020 period which focuses on Nature-Based Solutions. The project has explored and pioneered multi-disciplinary methods for collaborative design to create resilient, greener, healthier and more sustainable cities. The project looked at NBS particularly through a partnership with ten European urban areas including: Genk, Glasgow, Poznan, A Coruña, Burgas, Ioannina, Malaga, Nicosia and the municipality of Pavlos Melas.

Connecting Nature a framework consisting of seven elements or building blocks (technical solutions, governance, financing and business models, nature-based enterprises, co-production, impact assessment and reflexive monitoring) which can be applied to planning, delivery and stewardship of NBS.

This guide complements the framework by presenting a design process oriented at enterprises (for-profit and non-for-profit) who are playing a role in design, development and caring for NBS projects and services. Tools and examples found in this guide have been developed or tested within the Connecting Nature project. The guide presents a simple but accessible process to support Nature-based Enterprises in rolling out NBS projects.

Siobhan McQuaid
Connecting Nature project coordinator,
Trinity College Dublin

Transitions to Nature--based Solutions

Genk is a city that has evolved rapidly and radically over the last century. A prized destination for Flemish landscape painters with its once picturesque rural landscapes and villages, the city embraced the industrial age and urbanised rapidly to house now one of Belgium's most ethnically diverse populations. The 21st century is at the eve of new evolution for Genk, this time returning to our ecological roots by reviving the integrity of the Stiemer Valley. This environmental area and creek system had been largely forgotten during the last century. But at the end of the last century, the process of turning it into a nature reserve started. Many of Genk's citizens were unaware of its existence, despite it bisecting the city. Yet there was plenty of potential with considerable amounts of vegetation located on public and private land. In 2002 large parts of the Stiemer Valley became a nature reserve.

The City of Genk aimed to turn the Stiemer Valley into a green-blue recreation corridor. The City initially considered the problem to be an issue of public amenity, therefore a landscape masterplan was commissioned to provide a vision for the green areas aligning the Stiemer Creek.

After initial exploration, the development of the masterplan became interlinked with a yet more complex problem, the water quality within the Stiemer Creek. The under-dimensioned sewer pipes, that carry both sewage and rainwater, overflow regularly after the increasingly intense rainfall events. Initial plans involved looking for funding to increase the capacity of these pipes. Early calculations far exceeded the City's available budget and no public financing could be found. This meant that the masterplan project would be stalled.

Consequently, the City was forced to review the future of the project. Was this just an infrastructure and landscape project or was it a much larger problem? Was this a project from the City, or a project involving a wide range of stakeholders and facilitated by the City? In 2017, Genk was invited to join a successful European project, Connecting Nature. This provided the framework for the City to consider the problem from the perspective of Nature-based Solutions.

Upon gaining a better understanding of the complexity of the project, the City decided to shift focus and to consider a much broader and long-term strategy. Four key objectives were embraced to connect: 1) Nature with Nature, 2) Nature with People, 3) People and People and 4) Nature and entrepreneurship. This allowed the team to look for opportunities where they appeared, both small and large, each that could help transition the Stiemer Valley into the City's green-blue artery. The result is now a multitude of initiatives and interventions, some led by the CIty, some involving the City and others run independently.

Through this experience, the City has gained confidence in facilitating transition processes. As we have seen with recent projects such as SUDS&SODA and the StiemerHUB, focusing on the process rather than the outcome can strengthen partnerships and collaboration in projects where the results remain unclear. This guide presents a useful process and tools that have been applied in Genk and can be applied elsewhere.

Wim Dries
Mayor of the City of Genk

1. Introduction

Solving complex problems with innovative solutions isn't easy, and just like an explorer embarking on a new journey, one should depart prepared with the right equipment. The main purpose of this guide is to equip readers with basic process management skills and ultimately to become more confident in thinking about the means and ends of a project.

What is process design?

As described in this guide, process design, or design processes, refers to the use of an approach to structure engagement, interactions and the steps leading to design outcomes. The concepts and knowledge in this guide are therefore intended for both formal designers and project managers, or anyone associated with designing goods, environments or services. Process design and process management are indispensable for dealing with complex, multi-actor projects in which you may know where you start, but not where you're going to end.

Design outcomes through design processes

Design can sometimes appear elite or even mysterious. Graphic design, architecture, urbanism, industrial design, animation and film involves specific language and coding, production knowledge, technical skills and visual expression that can take years of training. Due to this prerequisite skill and experience, these forms of design turn the designer into a technical facilitator between the end-user or client and the project. In many cases, these forms of design delegate much of the creative process to the designer, who through skill or intuition arrives at a finished good or product to fit the client's needs.

Since the emergence of computing, a parallel stream of design has emerged. With the shift away from manual agriculture and industrial work in the 20th century, and the increasing movement towards digital activities, services have become a major part of the economy. Services now occupy almost every aspect of modern life. From government services, to purchasing goods, using one's computer or phone

FIGURE 1.1 - LAUNCHING THE STIEMERHUB IN GENK, 2021 - OSMOS

FIGURE 1.2 - THE STIEMER CREEK, 2021 - OSMOS

FIGURE 1.3 - STIEMERDEAL MET ESSERS, 2021 - WWW.STIEMERVALLEI.BE

- almost any interaction can be viewed through the prism of providing, receiving or engaging with a service. Services are rarely a final static product: they are often intangible and often evolving as the service is practiced. Yet they can be designed. Designing a service has opened up a very different facet of designing, one which is much more concerned with how knowledge and ideas are generated, with less focus on the outcome. This shows that the concept of the 'designer' is much broader than the classically trained expert. The process of design can (or perhaps should) embrace people without a design or solutions-oriented mindset.

In 2004, the UK's Design Council explored how to synthesise the design process. The result is the Double Diamond process (Bell 2019), which has been embraced particularly in its capacity to guide multi-disciplinary design teams through the process of developing purposeful solutions. Increasingly, this process is being embraced by other sectors. It can be useful for dealing with stakeholder based complexity as participation and collaboration can be embedded into the design process to allow for active exchange and dialogue. The Double Diamond, as will be presented in Chapter 4, places a strong emphasis on working closely with the client and end-users to ensure that the solution is fit for purpose. In this way, considerable investment of time in understanding the problem can help moving quickly to finding appropriate solutions.

The Double Diamond is helping to bring two streams of design to become accessible to non-trained designers as capacities are focused on facilitation and participation rather than on technical skills and knowledge. It is the map that explorers use on their journey.

Special focus of this guide

This guide focuses on Nature-based Solutions (NBS), a movement offers great opportunities to counter environmental pressures that humans, and particularly urban areas, exert on the planet. There are plenty of technical opportunities for NBS, but they are often limited by three issues: complexity, collaboration and community. Furthermore, NBS can involve a range of expertise and knowledge, mixing natural sciences, human sciences, economics and finance with a focus broadly on policy, project development and down to technical detail. This renders NBS projects challenging by default. The Double Diamond process is seen as an excellent approach for addressing this complexity through collaboration and engagement, founded on community building in order to implement NBS.

This guide is the result of developing and testing the Double Diamond approach with enterprises and entrepreneurs across the world through the EU funded Connecting Nature project (2017-2022). It brings together an adapted version of the Double Diamond process and tools that have been applied to develop NBS projects across Europe and beyond. NBS is an excellent example of the versatility of the Double Diamond process and how useful it is for dealing with complex, stakeholder oriented projects.

How to use this guide

This guide introduces the City of Genk and their Stiemer Valley project as a case study to present concrete examples of process design. **Chapter 2** provides the reader with an insight into why focusing on the process became a critical aspect to aid Genk's development of the Stiemer Valley. This chapter is useful for consultants or public authorities that are managing complex, multi-actor infrastructure projects.

Chapter 3 briefly dissects the anatomy of designing processes and considers how this can lead to better outcomes. This chapter may be useful for readers trained in traditional forms of design and who are interested in designing services. It is also useful for public authorities, interested in dimensions of addressing complex stakeholder oriented projects.

A process referred to as the Double Diamond is presented in **Chapter 4**, which is used regularly in service design and is beginning to be applied to spatial and environmental projects. The guide offers advice on how to approach each of the six steps and includes suggestions for possible tools that could support the process. The project in Genk has been used to provide tangible examples of actions or interventions within a complex landscape NBS project. This chapter may be useful for designers new to process design, but it could also be interesting for designers familiar with the Double Diamond process, and interested in comparing approaches. This chapter might also inspire civil servants that are interested in commissioning teams in following the Double Diamond process.

The design process can often feel like a bumpy ride in many cases due to collaboration. There are many ways to collaborate and it is useful to understand which form is relevant to the project or the problem at hand. **Chapter 5** therefore looks at five types of collaboration and the interaction between project partners or actors. Many designers take collaboration as a given and often overlook the objectives of the collaboration process when dealing with complex problems where the outcome is unclear.

Chapter 6 presents a selection of tools that can be used across various steps of the design process. This chapter has been written for design teams that are particularly involved in multi-actor projects.

The guide ends in **Chapter 7** with a reflection of scenarios where tensions arise in multi-actor projects and a review of useful literature in **Chapter 8**.

This guide is aimed to be accessible and useful for practitioners, but the reader should adapt the tools and process to fit their own circumstances. Managing and designing processes can be challenging and requires special skill. The guide may not solve problems immediately and practitioners are encouraged to explore new tools in a safe environment before using it under pressure.

FIGURE 1.4- SITE VISIT ALONG THE THE STIEMER VALLEY, 2017 - OSMOS

FIGURE 2.1 – ISIDORE VERHEYDEN – MOULIN À EAU, OIL ON CANVAS, COLLECTION: EMILE VAN DORENMUSEUM GENK

2. The Stiemer Valley: from a forgotten morass to the city's green artery

The Stiemer Valley is a backwater in the highly urbanised area of Genk and presents a complex challenge. What started as a landscape masterplan has evolved into a rich and dynamic Nature-based Solutions project. The Stiemer valley is now regarded as a laboratory for new relationships between people and nature to be examined and developed.

Genk, a city of contrasts

At the turn of the 19th century, the city comprised a patchwork of rural settlements on the marshy landscape on the tributaries to the Demer River. The bucolic rural atmosphere was one of the most sought out destinations for Flemish painters between the 1840's and 1940's. In contrast, the discovery of coal deposits and the opening of the Albert Canal in the 1940's drove intense redevelopment. The rural landscape was quickly transformed with infrastructure, housing, industrial zones and the tailings from the mining activity.

Genk's growth from the early 20th century attracted migration, initially from

FIGURE 2.2 - JOSEPH COOSEMANS - PRINTEMPS À GENCK, OIL ON CANVAS, COLLECTION EMILE VAN DORENMUSEUM GENK

across Belgium and the Netherlands and later from as far as Spain, Italy, Greece, Turkey, Morocco and beyond. Many of these workers considered themselves, and were treated by the authorities, as 'visiting workers', but found themselves decades later anchored in the city. Strong social and cultural movements emerged, which helped to bind the inhabitants to language groups and heritage. In the 1980's, the mining operations began to decline, followed by the closure of one of the city's largest employers, the Ford car factory.

The City of Genk is now one of the most ethnically diverse, one of the greenest and most industrialised cities in Flanders. It has a rich diversity of landscapes and unique infrastructure, but there is a noticeable lack of resources for redevelopment. The city's administration has successfully facilitated the financing and redevelopment of two ambitious mine sites projects that attract visitors and businesses from across the region. Despite this, unemployment levels remain higher than average for the Flemish Region, with considerable income disparity between neighbourhoods. Genk has established innovative community engagement and social cohesion projects, led by neighbourhood 'managers' that form a link between inhabitants, businesses and the City. Yet social engagement is challenging, particularly for residents that remain sceptical of government motives. Despite Genk's drive and ambition, large portions of land are neither owned or controlled by the City, which can make it particularly challenging to implement infrastructure or landscape projects regardless of the vision and ambition.

Genk's contrasts and contradictions in some ways appear unique to the city. Yet in other ways it represents many social, environmental and economic challenges characteristic of Nature-based Solutions projects. For example, the social value of environmental space is not fully appreciated by members of the community, which can come at a heavy political cost if the project is slow or complex. The resources for developing and maintaining land and public infrastructure, are spread out across various agencies and organisations, rendering it challenging to mobilise them. The socio-economic opportunities of green spaces have not been appreciated by local enterprises and organisations, therefore the project remains the responsibility of the local public authority. The following pages of this chapter will briefly describe some of the complexity of rolling out a large NBS project and will present examples of how the City of Genk is addressing the challenge.

The Stiemer Valley, back to the future

The Stiemer Valley bisects the city of Genk from north to south with many of the districts located within the water catchment. Housing has been developed largely on the higher parts of the valley while the lower areas have escaped development due to the swampy terrain. This has left much of the lower areas, aligning the Stiemer Creek, with considerable vegetation cover. In the 1980's the then meandering stream became straightened and canalised, allowing sewers to run parallel to the creek at the lowest part of the valley. The calley aligning the Stiemer Creek is now owned by a mix of public institutions and private owners. The length of the valley is also intersected by roads and infrastructure, and there is no publicly accessible pathway that connects the length of the valley, making it easily overlooked.

Unique to this place is the contrast between two realities: nature and culture. The "natural" of the original Stiemer Valley clashes with its current urbanised state. Nature and culture are not necessarily mutually exclusive factors and can bring about surprising synergies. However, these two dimensions have often confronted each other in Genk. Space for work versus the environment. Food production versus housing. A football terrain versus a wildlife corridor.

The valley has long been considered to have great potential to become a blue-green axis, connecting the city through slow mobility links. A master plan competition launched in 2015 was aimed at clarifying the future of an area distributed along some 5 kilometers of the Stiemer Valley.

FIGURE 2.3 - STIEMERVALLEI MASTERPLAN 2019 - STAD GENK

A masterplan to many plans of action

In 2015, the City of Genk launched a call for proposals via the Flemish Chief Architect (*Vlaamse Bouwmeester*) for a master plan of the Stiemer Valley, selecting a team consisting of Tractebel, Atelier Descombes Rampini, Georges Descombes and IMDC. The ambition of the master plan was to transform the fragmented urban landscape into a meaningful blue-green backbone, improve the value of the landscape for the community and help link the disconnected sections.

The master plan was initially viewed through the lens of a spatial project to improve accessibility,

FIGURE 2.4 - SEGMENT OF THE STIEMERVALLEI MASTERPLAN 2019 - STAD GENK

amenity, recreation and the link with the Stiemer Creek. However, an issue soon emerged that could derail the landscape project: water. The water quality of the Stiemer Creek was regularly contaminated when sewage pipes overflowed into the creek system during heavy rainfall events, particularly aggravated by the increasing amount of short and intense storms. Genk's pipe system was built between the 1910's and the late 20th century, combining sewage and stormwater. The gradual growth of housing over a century and the sealing of permeable surfaces had resulted in far larger amounts of water entering into the sewage system and draining into the lowest part of the catchment aligning the Creek.

The water quality was known as a problem when the masterplan was launched, but it was assumed to be largely an infrastructure problem, whereby increasing the dimensions of the sewage pipes would suffice. An estimation was made for the cost of the upgrade of the pipe system, the sum eclipsing the City's available budget for the landscape works, forcing it to look for further funds. The City spoke with the two public water management agencies responsible for managing sewage across the city. Infrax, a provincial organisation, was responsible for water on the municipal sewers. Aquafin, a regional agency, was responsible for the trunk drainage and water treatment. Financing for long-term maintenance and upkeep was foreseen, but an advanced payment could not be made, even for innovative ideas that could reduce long-term costs. Furthermore, as both Infrax and Aquafin would be under pressure from plans from the European Urban Waste Water Treatment Directive to separate waste water from stormwater across their respective networks, huge costs were anticipated for their own long-term budgets and they too were looking for innovative ways to reduce costs. Considering the low-density and highly urbanised character of Flanders, one of the most urbanised regions in Europe, both organisations were interested in following the outcomes of the project. Further exploration for financing did not immediately bear fruit and throwing Genk's own budget on the line could have huge repercussions against the backdrop of other more politically visible priorities.

The lack of financing did not spell the end of the masterplan, rather it shifted the focus. What was originally a landscape masterplan project, now opened up new opportunities to confront the water quality issues as a societal problem and could help bring the community together around a common challenge. Furthermore, the widened scope presented three equally complementary pillars: the spatial transformation strategy, a socio-economic transformation strategy and a communication and participation strategy. The City of Genk embraced the complexity of the project, despite broadening the focus and responsibility of the process. This also meant that the City would need to change its role as engineer and developer, to one as a leader, facilitator, negotiator and even partner.

Genk typifies three dimensions of NBS which can benefit from planning the design process: complexity, community and collaboration. Firstly, the complexity of the project may not have been understood at

FIGURE 2.5 - CRÈME LE LIS STIEMERDEAL - WWW.STIEMERVALLEI.BE

FIGURE 2.6 - COMMUNITY VOLUNTEER - WWW.STIEMERVALLEI.BE

an early stage. Once the scope of the Stiemer Valley project had been appreciated and reframed, the complexity added richness and depth to it. Secondly, the landscape masterplan presented an entirely new recreation precinct, in an area that was poorly appreciated by many local inhabitants. Therefore, the aspect of community building, ultimately providing the local ambassadors and long-term caretakers, was seen as crucial to be activated in parallel with developing the landscape masterplan and to build grassroots momentum. Finally, once the scope of the project was understood, it was seen that collaboration between public institutions and other stakeholders (NGOs, community organisations, businesses, schools etc...), was a crucial asset to the explorative process.

Pilot Projects

The masterplan was published in 2019 and consequently the 2020-2025 city legislature prioritised the implementation of this plan. Out of this masterplan emerged various Nature-based Solutions projects to create value added on an ecological, social and economic level. The following are examples of the types of projects foreseen.

SUDS&SODA / Waterrijk Waterschei

Instead of rebuilding a parallel sewer system for sewage and stormwater, an alternative solution is to avoid rainwater from entering into the sewer system in the first place. Sustainable Urban Drainage Solutions (SUDS) is about looking for onsite water treatment. The pilot project site is an old mining subdivision, referred to as a *cité*, an area where housing contains sizable yard space and the carriageways are broad, allowing for a range of possible landscape interventions. The project focuses on extensive engagement of the residents and private owners to share the effort to retain or detain stormwater flows. As the water from the entire housing district flows into one collector pipe, its quality and quantity can be studied. Therefore the project will involve extensive data analysis and testing, which will be shared with the local inhabitants. This project focuses heavily on process design to ensure the local actors remain actively engaged throughout and beyond the life of the project.

FIGURE 2.7 - NATURE MANAGEMENT (DAC DE START) - WWW.STIEMERVALLEI.BE

Stiemerdeals
In order to capture opportunities for socio-economic development, the City has launched a social innovation initiative to test and promote new grass-roots ideas. The Stiemerdeals programme provides a launching board for projects that present a win-win for the Stiemer Valley. The City helps communicate the projects, with a small start-up subsidy offered to help get the projects off the ground. This is an excellent example of ideation and prototyping.

Friends of the Stiemer
This initiative explores social cohesion, support and behavioural change through a communication and participation strategy. The Friends of the Stiemer is a citizen panel that is involved in supporting the development process by providing feedback and support the narrative around water and Nature-based Solutions. This project is prototyping a new governance structure and community engagement approach for empowering local residents to become ambassadors and caretakers of the Stiemer Valley.

StiemerHUB
The StiemerHUB is a three year pilot project based in a vacant house at the top of the Stiemer catchment area to explore local community engagement and activation of projects associated with the Stiemer Valley. The space is exploring a new community based governance model where the City is a partner, but not the lead facilitator. The space will contain a range of 'resident' organisations that will be actively involved in the building, while also hosting events and activities that can use the HUB building as a launching point. The HUB also aims to support grass-roots communication of the Stiemer Valley programme. This is an example of prototyping and implementation.

The Waterschei gardens
Waterschei gardens (Tuinen van Waterschei) is a conventional landscape masterplan. The area forms a laboratory space for new relations between city and nature, between nature experience and nature development. Spatially, the area will connect Waterschei-South with Oud-Waterschei and Thor Park. For the residents of both districts and the employees in Thor Park, the Waterschei Gardens form both a space for passage and a place to stay and meet. In the valley 'Linear Gardens' will be developed, linked to the Stiemer. The Waterschei Gardens is the implementation of a project with direct links to the StiemerHUB, SUDS&SODA and the Friends of the Stiemer.

3. Design in theory

Design may appear impulsive and mysterious, but good design is highly structured and well calculated. Exploring concepts and terminology is an important exercise to give the process meaning, enable dialogue and align interests. This chapter considers some variables and concepts that may be faced during the design process.

The anatomy of a problem

Before launching into the design process, it is useful to consider the type of project or problem being addressed. The 'Stacey's Matrix' (see Figure 3.1), based on Ralph Stacey's opus on strategic management and innovation, *Strategic Management & Organisational Dynamics* (1996), is a discussion and storytelling tool to prepare teams and concerned actors. The matrix is based on two key variables: firstly, the level of certainty of a problem and secondly, the alignment of opinions. From these two variables, five dimensions of decision making emerge:

1. **Technically rational decision-making.** These are considered to be simple problems, where experience and prior knowledge render them manageable. These problems account for the majority of day-to-day administrative procedures for businesses and public administrations.
2. **Political decision-making and control.** When there is no clear course of action, decision-making may focus on ethics or strategy. For example, building a park versus developing social housing.

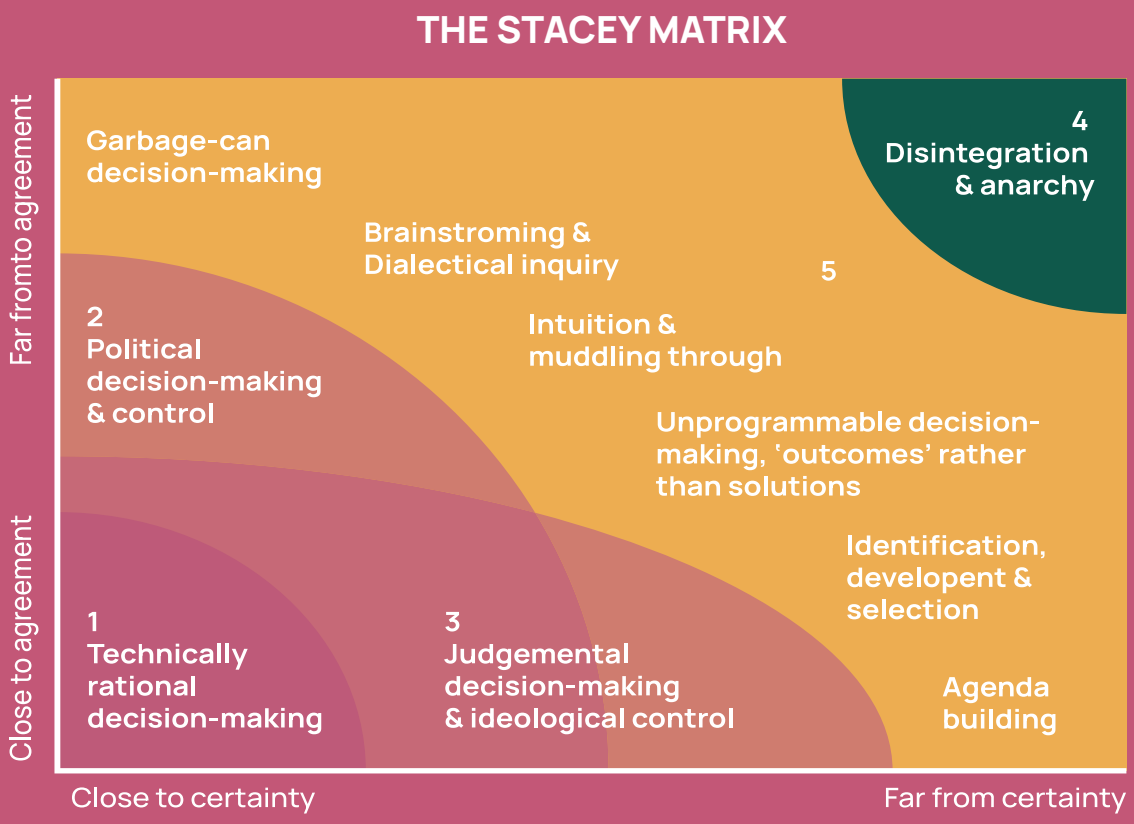


FIGURE 3.1 - AFTER STACEY (1996)

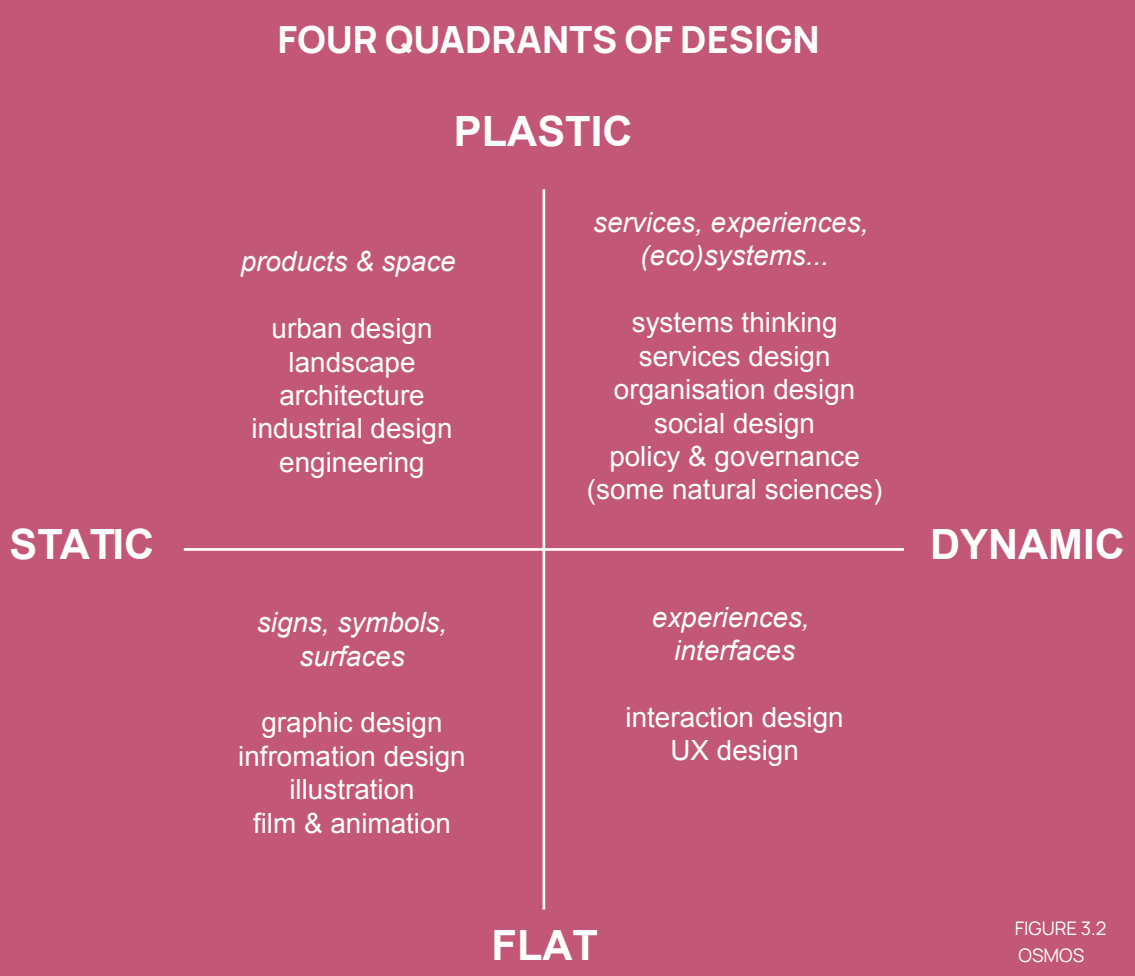


FIGURE 3.2
OSMOS

3. **Judgemental decision-making and ideological control**. Where decisions need to be made but little is known about the subject matter, expert or evidence based decisions are most appropriate. Consider the outbreak of a pandemic, war or a wildfire. In this case, stakeholders or end-users delegate their decision making.
4. **Disintegration and anarchy**. Problems involving little certainty or alignment can be treated as chaotic or unmanageable and referred to as wicked problems. Climate change and global ecosystem health can be seen through this lens. These problems should not be considered impossible to address, rather it means that the course of action is far fuzzier than other forms of decision making. In this case, process design is a vital tool to ensure that a wide range of stakeholders and actors collaborate on exploring solutions and opportunities.
5. **Complex decision-making**. These problems contain a range of uncertainty but remain manageable. There may not be a single 'problem owner' which means that responsibility must be shared. It will often involve finding working compromises, or 'least worse solutions' that can be tested and adapted. Process design is a useful tool for addressing these problems.

Stacey's matrix is purely qualitative in nature but can help a group of actors or a design team to position themselves subject to how they perceive a problem. At the very least, this matrix can help align opinions and can be useful to define the nature of collaboration (see Chapter 5). Design can be useful for dealing with addressing these five types of problems and support creative decision-making.

What do we mean by designer

Design and designers share a solutions oriented attitude. English architect Cedric Price went as far to state that "Technology is the answer, but what was the question?", a provocative opening at a conference in 1966 to discuss technology in the built environment. However, design is far from a monolithic discipline and design teams should be carefully assembled. Education, training and work environments shape

how designers think, the tools they use and the kinds of output they expect to produce. One may be able to design a train station, but be terrible at using colour, struggle with fonts and create ugly presentations. Many designers shift between design expertise - such as between graphic design and architecture, or between interaction design and services design. Some designers, particularly those focusing on services and business, enter into design practice based on the capacity to solve technical problems but without formal training. In short, it is difficult to know what to expect from designers and to recognise how they think.

Efforts have been made to categorise design according to disciplines, such as Richard Buchanan's 'four orders or design' (1992), according to graphic, industrial, interaction and systems design. Orders and hierarchies may allude to certain forms of design being more complex, which is far from true. In practice all design attracts complexity. What is more useful is to understand the mindset within which designers operate. One way of capturing how designers think is to consider the design problems they're aiming to address. This can be crudely boiled down to two variables associated with design practice.

Firstly, is the subject matter flat or plastic? Flat, refers to working on a surface, requiring thinking only in two dimensions. Plastic refers to thinking in three dimensions or in layers of information where the designer must think at different spatial scales of interaction or types of information (such as geography, water, different levels of a building, demographics etc...).

Secondly, is the subject matter static or dynamic? This distinguishes two streams of design noted in Chapter 1. 'Static' refers to products, an output or end result having either no or a very clearly defined movement. The products may move, but the movement is known and can be controlled - a graphic designer creates a book that can be opened and an architect designs a building where some surfaces can move. These design 'disciplines' have generally emerged from arts and crafts, whereby the designer is the vector and their signature is often visible on the final product. If the subject matter is 'dynamic', designers are likely to be focused on services, driven by the end user (see below) and the final output may be constantly evolving and difficult to see.

A scheme that intersects these two variables presents four quadrants, similar to those identified by Buchanan, but this time focused on design problems (see Figure 3.2). This scheme is an abstraction, but in reality very few designers will master expertise in more than one of these four segments, and neither should they be expected to do so. A designer specialised in designing books may not be suitable to design a house, a website or a government service.

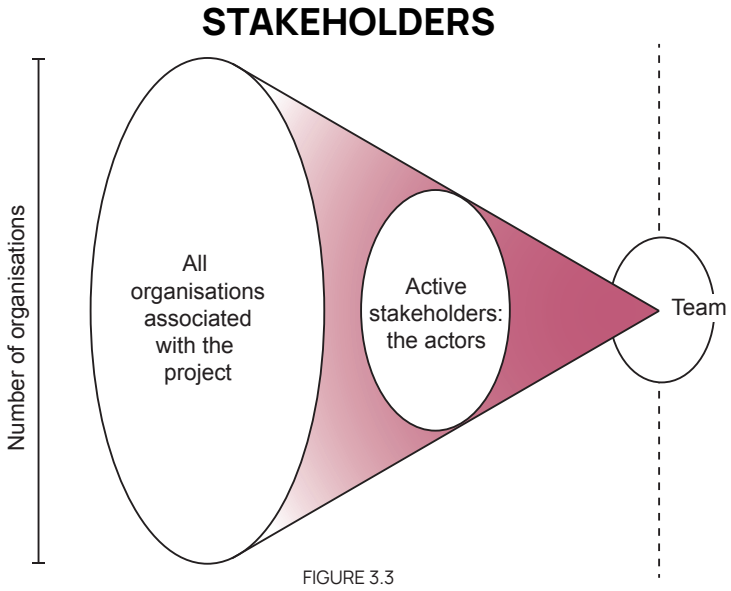


FIGURE 3.3

However, any type of designer can facilitate process design, as described in Chapter 4. When a team addresses a complex problem or project, it is useful to identify the kinds of design profiles or roles required (such as visual design, spatial design, business design etc...). Designers that have a working understanding of all four quadrants, design generalists, are rare but can be useful to facilitate knowledge exchange.

Designing with and for whom

Stakeholders and end-users are easily lumped into the same group, but there are fundamental differences that should be considered. Describing them can be very context sensitive. This section defines stakeholders and end-users in terms of environmental development projects.

Stakeholders (see Figure 3.3)

In large and complex projects, stakeholders are organised groups of people that operate under shared values as defined by the character and nature of the organisation. Stakeholders are those likely to be impacted by a

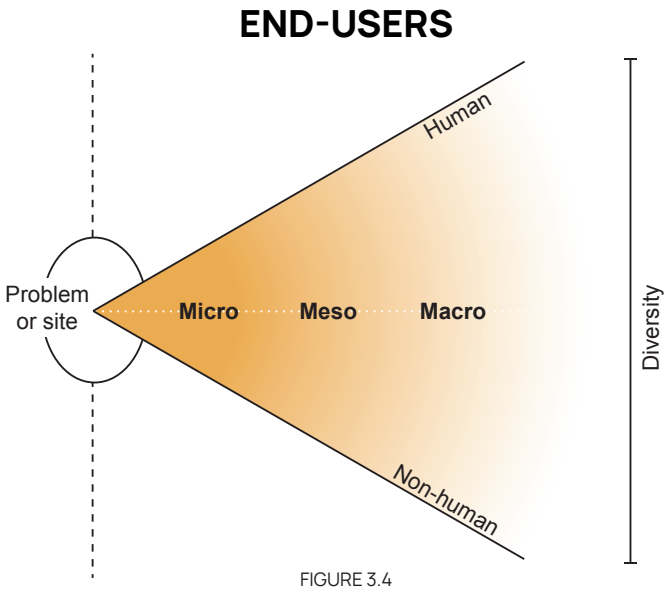


FIGURE 3.4

certain project or problem, regardless of their interest to do anything about it. To map stakeholders, refer to the Pentahelix tool in Chapter 7. If the stakeholder have an interest, they become 'actors'. Actors are assumed to take an active role on a project, may that be in favour or against the project. Those actors that are actively involved in developing the project, are the team. Actors engaged with developing a project, are more likely to look for shared ambitions and outcomes.

End-users (see Figure 3.4)

Individuals, residents, workers, clients, patients and so forth, that do not form part of an organised or federated group, make it hard to communicate in a collective voice and it can be difficult to know what they stand for. End-users are likely to grow in number according to the distance from the site or problem, however their interests are also likely to diminish. For example, a neighbour may be angry when a tree is cut down in a park without reason. While a resident of another city may agree with the injustice but not consider it a priority. End-users can also be human or non-human. For example, a forest can be treated as an end-user and the forest's interests being represented by an environmental organisation.

Engagement & participation

Participation can easily complicate projects, particularly those which are already complex. Lack of participation and engagement can undermine the outcomes. The question is not what kind of engagement and participation can be embedded in a project, but rather how engagement and participation can result in a better project outcome.

It is useful to consider engagement and participation in terms of two dimensions. Firstly, the level of power, responsibility and decision-making. This is a governance question; how decisions are made but also who ultimately must be held accountable for decision-making. The second dimension is related to complexity. By intensifying the power-sharing, the number of opinions and interests increase the complexity to the decision-making process.

Academic literature uses the term 'the participation ladder' (see Fig 3.5) to describe different forms of engagement and participation. There are many interpretations of this concept subject to the academic discipline. A simple interpretation involves six 'rungs'.

1. **Interpreting** involves little to no engagement with stakeholders and end-users. Through data, assumptions can be made to help guide decision-making processes. This approach is often used for design and decision-making where participation is not critical or rarely noticed by the general public, such as designing an online platform.
2. **Communicating** is simply about presenting plans for what is intended to happen. In large infrastructure projects, where major decisions have been made, simply communicating the results of the development phase is important to prepare stakeholders and end-users.
3. **Consulting** is about investing time into learning about what individuals or organisations think. It is a one-way monologue that can come in the form of surveys, questionnaires, interviews or focus groups.
4. **Engaging** involves a dialogue between stakeholders or end-users and the design team. This can come in the way of discussions and workshops. At the end of the engagement process, the design team is responsible for acting.
5. **Partnering** occurs where collaboration happens, yet there remains a power dynamic between one actor and the others. This could be as a client / provider relationship or where one actor ultimately holds veto rights. Partnering often involves a contract written by the actor with the greatest power.

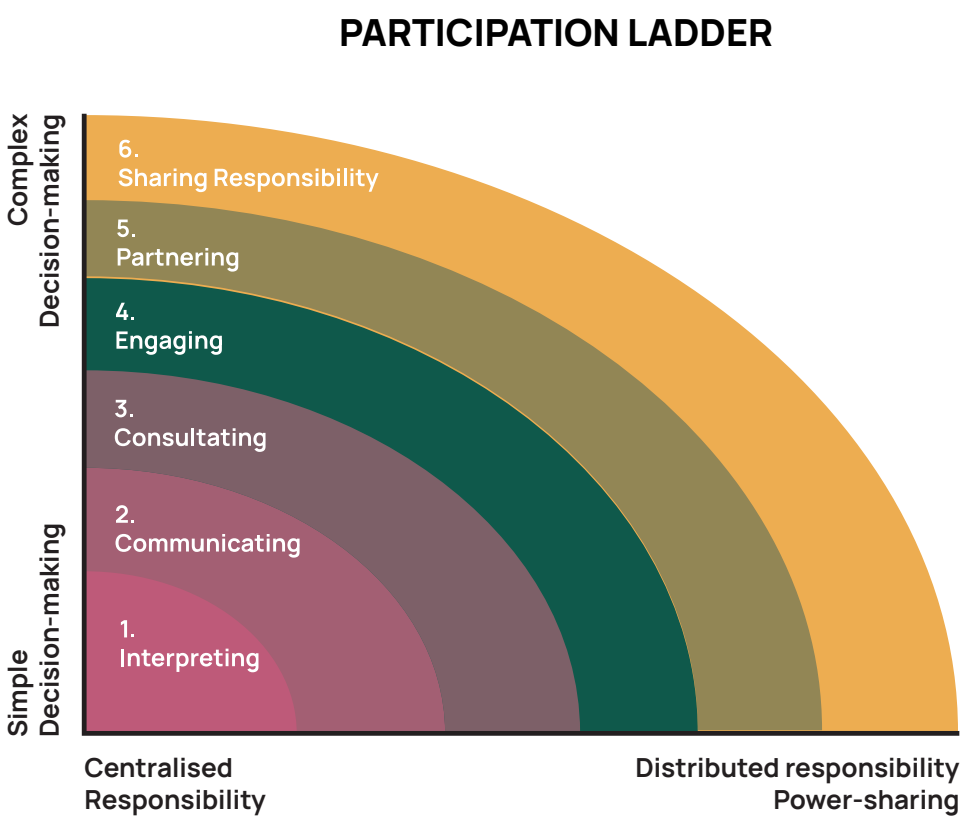


FIGURE 3.5 - THE PARTICIPATION LADDER (OSMOS)

6. **Sharing responsibility** is ultimately where all actors hold some level of agency and autonomy in achieving a common goal. In this case there is likely to be a governance structure that helps bind the partners together, however any partner can decide to back out of the collaboration.

These engagement and participation modes are often mixed within a project.

Designing products or services?

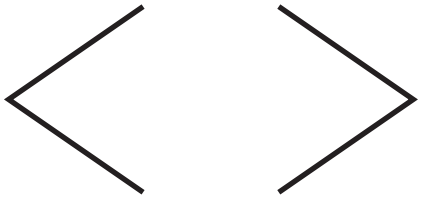
The early twentieth century saw a boom in production of material things and the increasing growth of the services sector and what economist Victor R Fuchs in 1968 referred to as 'the services economy'. The term 'servitization', where a service can not be separated from a product, is a manifestation of a number of trends such as consumer electronics, the internet, new forms of industrial production, new technology driven business models (think of Uber or AirBnB) and increasingly the environmental movement (such as the circular economy).

Design, as noted above, has two main streams: firstly products (or material things) and secondly services (which are often treated as non-physical). There is a long history of designing products which can include consumer goods, the built environment and books. The emergence of service design or the concept that a service can be designed, is much more recent (see Strickdorn (2017) in Chapter 8). Today the boundaries between products and services are increasingly being blurred. Concepts such as Product-Service Systems (PSS) have focused on consumer technology (phones, health monitors, transport etc...). Opportunities remain for exploring how ideas behind PSS can be applied to a broader range of issues such as Nature-Based Solutions and broader environment challenges.

Analysis vs Synthesis

One of the challenges of the design process is shifting back and forth between analysis and synthesis. Analysis is divergent, it is about research thinking. It opens up the mind to help understand and absorb information. Scientists, sociologists and psychologists can invest most of their time in analysing. Synthesis is about converging, or designing. It is about bringing what one knows and translating it into output, an interpretation of a situation or a solution. Architects, graphic designers and engineers often spend a large portion of their time in the design phase.

The skill of a designer is to be able to shift between analysis and synthesis. This may appear self-evident for a simple design process where a



Analysis: opening, exploring, divergent thinking.

Synthesis: closing, concluding, refining, convergent thinking.

FIGURE 3.6

single designer is doing both analysis and synthesis. Yet complex projects are likely to involve actors, interest groups and a multi-disciplinary team. Consequently, moving between analysis and synthesis can become cumbersome, particularly where actors get overwhelmed by analysis or skip the research phase and focus on designing solutions. Consequently, the availability of new information that arrives late in the process can result in expanding the scope of the project or 'mission creep', where the project shifts course. The skill of the process designer is to navigate when there is sufficient knowledge and when the design is not addressing the project or problem.

Mindsets and change

It is easy to get cought in a particular stream of consciousness or mindset while analysing of designing. This can be dangerous when it is necessary to see different perspectives or to explore critical or unrealistic ideas. Laterial thinking can help to shift focus.

Edward de Bono (1985) developed a process referred to as the Six Thinking Hats technique which has been used extensively within management. The technique requires that one explicitly activates different frames of thinking in order to apply other perspectives to a problem focusing on six mindsets: factual, emotional, optimistic, creative, organised and critical (see Figure 3.7).

Not every stage of the design process requires the same way of thinking to arrive at an appropriate solution. Using one hat, risks jumping to conclu- sions or running out of ideas increases. Additionally, one should keep in mind that not everybody is equally trained at applying different ways of think- ing, feels comfortable thinking in particular ways or has the same amount of knowledge about a particular topic. Recognising this helps to assess the strengths and weaknesses of a team, and allows it to bring in additional expertise when needed. Getting into a particular mindset, which will provide the needed information, will require different tools and exercises.

In the next chapter, mindsets and de Bono's thinking are applied to the design process by looking at how mindsets can be applied to the steps of the design process. A variation of this technique can be seen in the Personas Tool in Chapter 6.

DE BONO'S SIX HATS

Factual (white): seeking data and information.

Emotional (red): defining feelings, intuition and emotion.

Optimistic (yellow): looking at the benefits of a situation.

Ideas (green): for creative thinking and opening new opportunities.

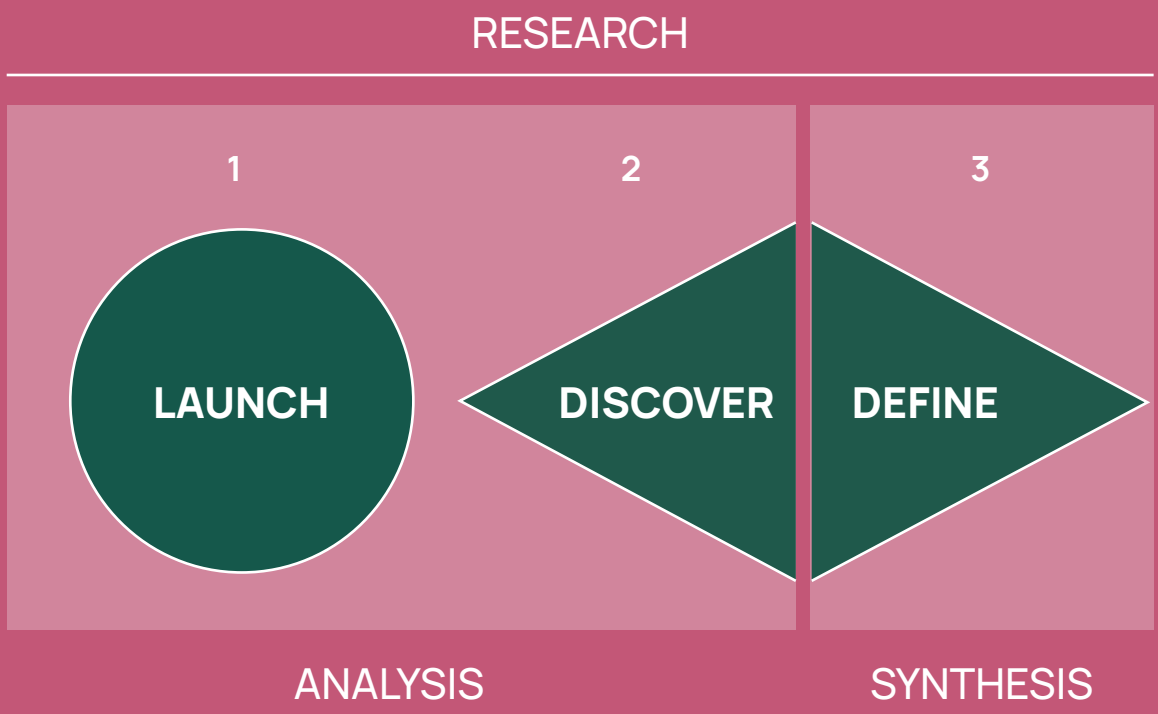
Planning (blue): managing the process and defining organisational capacity.

Critical (black): thinking with caution, casting judgement and doubt.

FIGURE 3.7 - DE BONO'S SIX HATS - AFTER DE BONO 1985

4. Process of design

Process design helps structuring engagements and interactions in order to reach an intended outcome or output. The principles presented in this chapter can be easily adapted to almost any complex multi-actor design problem, allowing the design team to define and apply the method and tools deemed useful according to the circumstances.



The process

The Double Diamond process (Bell, 2019) described in this guide involves six core steps. During each phase, the mindset changes, to analyse or synthesise (see Chapter 3). The process is divided into two stages: research and design.

The process is divided firstly into a Research stage where the design team embraces an open and analytical mindset. Starting with a Launch helps understand the problem or project facing the client or key stakeholders and gain an idea of expected output or outcome. Secondly, the team moves onto exploring the context as broadly as deemed necessary to gain a clear overview, even if the situation appears similar to previous projects. The Research stage ends with the Define phase, where the harvested research is translated into themes to aid with designing.

The Design stage is about looking for solutions. It starts with the Ideate phase: divergent thinking opens up design opportunities. The Prototype phase then converges the focus by selecting an idea, or ideas, that can be developed more seriously and their potential tested. Finally, the Implement phase is about translating the prototype into a format that addresses the project's expected output and outcome.

Theory and practice

In practice the design process is rarely linear and

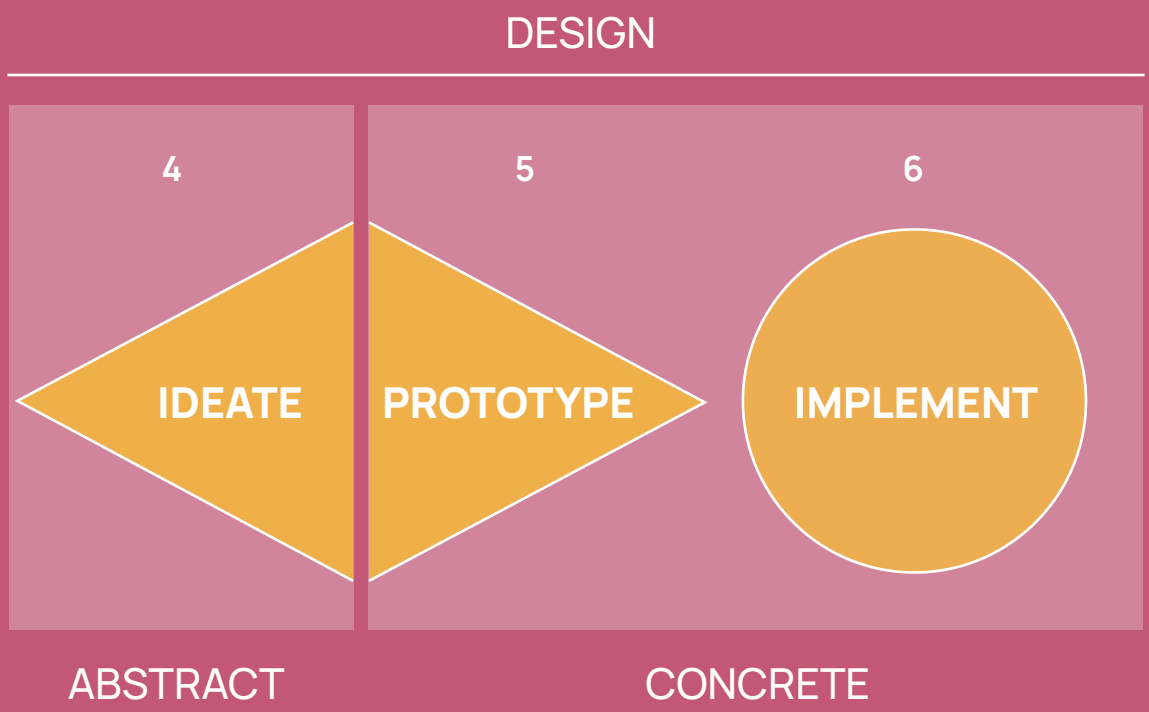


FIGURE 4.1 - THE ADAPTED DOUBLE DIAMOND PROCESS

therefore the Double Diamond process should be used only as a guide. The research and design phases are rarely evenly balanced and some activities will focus far more on one of the other.

The process can also involve revisiting previous phases if the design phase leads to a dead-end. This will evidently depend heavily on the available resources and deadlines. If a product is being developed, returning to research is common. For the design of a public space or infrastructure, returning to the research phase is less common due to planning and deadlines imposed by development processes.

To provide a concrete example of how each stage can manifest, Genk's Stiemer Valley project has been used throughout this chapter. In this case, the process in some ways led to a dead end during the design phase, which meant that the focus needed to be reframed.

Tools for design

In each phase, tools and exercises can be used to facilitate the process - a limited collection of tools and their application are described over the following pages to support the reader and further elaborated in Chapter 6. The design process can be structured around tools, especially if the tools can be used across various phases of the design process.

4.1 Launch

"You can't go back and change the beginning, but you can start where you are and change the ending." James Sherman (1982)

Start the project on the right foot. During the launch the focus lies on engaging the main stakeholders and partners that are responsible for the project or have crucial decision power. This step is largely about listening, clarifying and aligning the expectations of the core team which will be involved throughout the entire process. It is not intended to develop new ideas.

Mindset:

- *Factual* - understanding what information is available in the team and needed for the discovery phase.
- *Emotional* - by embracing curiosity and enthusiasm but also sensing any tensions, fears of change or frustrations.
- *Critical* - ensuring that the anticipated endpoint is shared and realistic, and the team is capable of reaching it.
- *Planning* - reviewing the logistics of carrying out the project or addressing a problem and defining the expected output and outcomes.

Actions

- Meet with the client and key project partners.
- Review the brief. Confirm the scope of the project and clarify ambitions.
- Define a list of expected outcomes and objectives, to be reviewed in the reframing report (at the end of the 'Define' phase).
- Clarify how to deal with uncertainty or changes to the program.

Tools

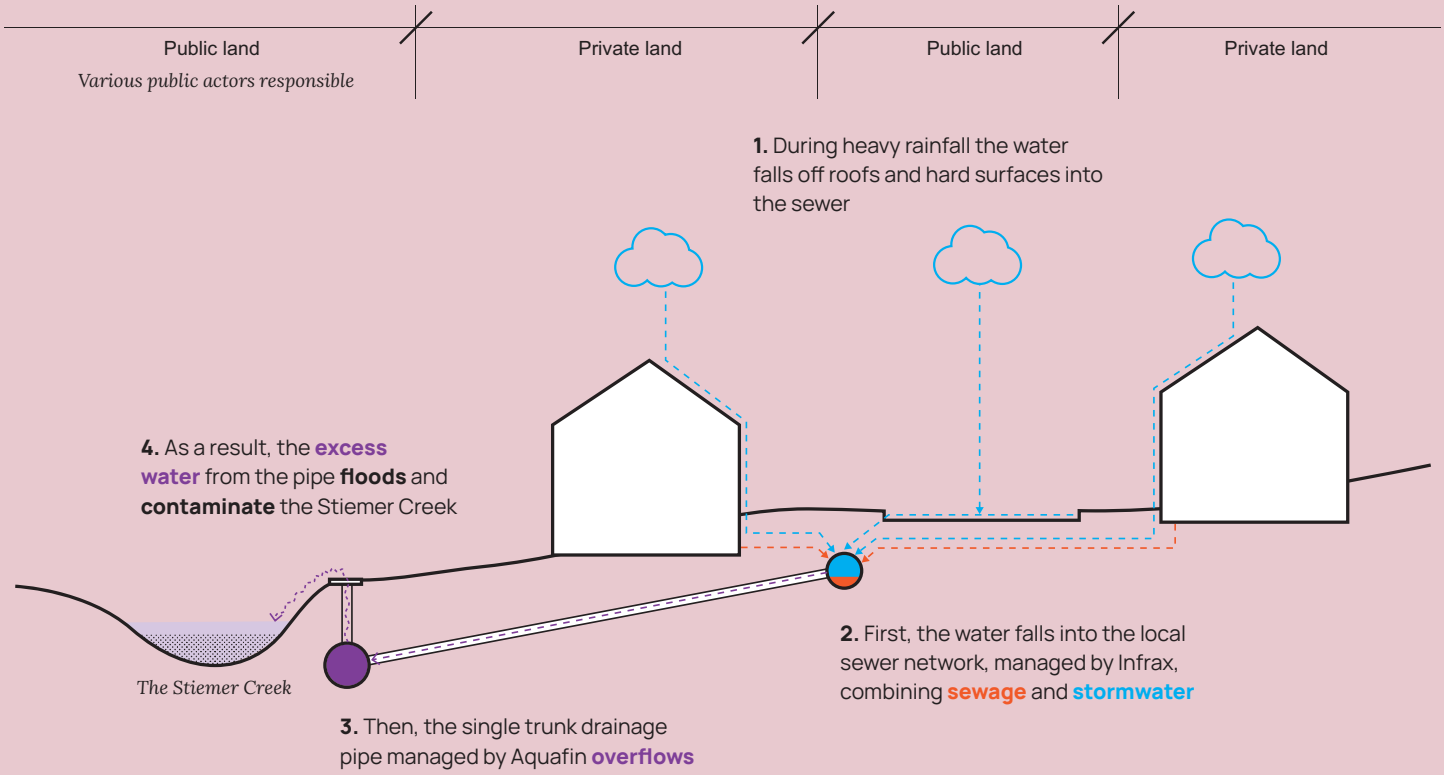
- *Context map*. Use the context map with the client or main stakeholders to map out broader issues and concrete projects or initiatives noted in the brief of scope of the project.
- *Pentahelix*. Map out quickly stakeholders that have emerged in the brief and ask the client or key stakeholders to identify first interviews and meetings.
- *Project environment canvas*. Summarise the essence of the project to be confirmed with the client or key stakeholders as a return brief.
- *Statement exercise*. Explore any uncertainties about how the client's team or the key stakeholders position themselves around key issues raised in the brief.

Output

- Project brief, a summary report or minutes of the opening meeting clearly noting any variations in the scope of the project.

Outcome

- A clearer scope of the project.
- Identification of potential obstacles.
- Identification of expected output (such as deliverables or milestones) throughout the project.



PFIGURE 4.2 - SYNTHESIS OF GENK'S WATER QUALITY CHALLENGE.

Launching Genk's Stiemer Valley project

The Stiemer Valley was once one of Flanders' most attractive destinations for landscape painters, but by the early 20th century, coal mining and then heavy industry transformed the environment into a dynamic hub for manufacturing and production. By the turn of the 21st century, the Stiemer Valley had been largely forgotten by the residents of Genk.

This project started in 2015, when the City of Genk commissioned a masterplan to create an accessible green corridor that could connect disparate parts of the city. As the masterplan project was developed, the city become increasingly aware of the complexity of the project. An under-dimensioned combined sewer system was not proving suitable for the increased hard surfaces in the catchment area. With greater amounts of intense rainfall events, the pipes regularly exceeded capacity, consequently regularly dumping raw sewage directly into the Stiemer Creek. The result was devastating the local environment and would limit the value of the landscape masterplan project.

The initial solution proposed increasing the dimensions of the sewage pipes. However, the budget required was soon revealed to be far too city. The city approached other provincial and regional actors concerned with sewage and water management. Even if long-term budgets were available, the money could not be shifted to address the large short-term capital investment. Furthermore, the sewage system and land associated with the Stiemer Valley came under the jurisdiction of some six different public structures which resulted in far more complexity than the City of Genk had initially bargained for. After exploring other regional and European funding sources, a traditional engineering solution and the landscape masterplan were put into question. The project may have begun as an infrastructure problem but become bogged down in bureaucratic and financial complexity.

4.2 Discover

"Assumptions are dangerous things"
Agatha Christie (1930)

Observe and understand the problem or project. The discovery phase should be as open as possible, aiming to hear many different sides of the story. At this stage a wide range of input is sought, through qualitative and quantitative research, to gain an understanding of the context of the project or problem. This phase often identifies other stakeholders and actors that may be important to the project or problem and could be involved in further phases of the process.

Mindset:

- *Emotional* - by being humble, empathetic and inquisitive, sensing any conflicts or tensions and possible opportunities and synergies.
- *Factual* - analysing data (qualitative and quantitative) that provides a clearer image of the situation.
- *Critical* - questioning contradictions and alternative views.

Actions

- Quantitative analysis: GIS, Statistics,
- Qualitative analysis: interviews with key stakeholders, discussions with expert groups, conversations in focus groups and user testing (where applicable).
- Grey research: reviewing documents, plans, papers…
- Site analysis: observations on the site or the space, informal discussions with end-users.

Tools

- *Context map*. Use the context map with the client or group of stakeholders to quickly gain an understanding of both broader issues and concrete projects or initiatives.
- *Pentahelix*. During interviews, workshops and discussions, ask for help identifying new stakeholders. Define which stakeholders will be actively involved in the project.
- *Statement exercise*. Explore any uncertainties about how the client's team or the key stakeholders position themselves around issues emerging from the analysis.
- *User test*. Test existing technology, tools, spaces or services.

Output

- A synthesis generally in the form of a document or report.

Outcome

- Clear idea of the situation or context.
- A clearer understanding of stakeholders, their positions and needs as well as the first steps for alliances.
- Material for the Define phase.

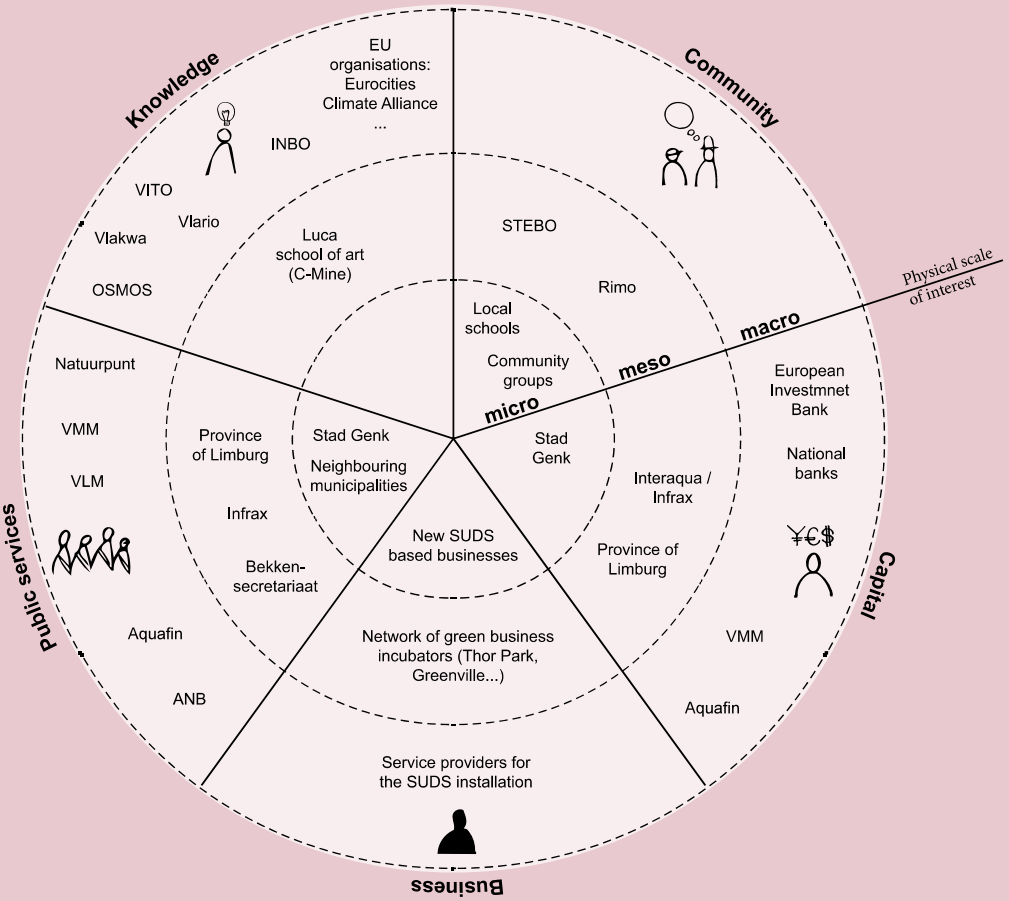


FIGURE 4.3 - PENTAHELIX TOOL APPLIED TO THE STIEMER VALLEY, SEE CHAPTER 6.

Discovering alternative channels for managing water

The missing budget to fix the sewage system, was treated as an opportunity to refocus away from infrastructure and to embrace the Stiemer Valley as a societal challenge and opportunity to engage a wider range of stakeholders and interest groups. At this stage, Genk entered into the five-year European financed research project, Connecting Nature, which provided space to explore the Stiemer project more holistically and strategically from the perspective of the newly emerging field of Nature-Based Solutions, particularly in terms of organisational change.

Upon investigation, a wide range of stakeholders were connected to or could have an interest in the Stiemer Valley. Research into alternative technical solutions also presented cheaper and less invasive opportunities using Sustainable Urban Drainage Systems (SUDS). Many of the concerned public stakeholders directly related to water management had heard of SUDS but applying it at the scale to address the Stiemer sewage problem remained a novel concept. As the problem extended past the jurisdiction of any one public organisation, SUDS was never put into action at the scale of a catchment. The Stiemer Valley example is by no means an isolated case in Flanders, with combined under-dimensioned sewage pipes found throughout the region that are increasingly exposed to the pressure of intense rainfall events with climate change. European regulation also was forcing water agencies to decouple sewage from stormwater, which spelled a huge cost for Flemish water agencies, for a highly (sub-)urbanised region.

In turn, the city discovered that decentralising the infrastructure problem would mean the locally community would need to be much more actively engaged as a considerable part of the problem involved impermeable surfaces on private land. Focus shifted to explore ways the community could already find an interest in the Stiemer Valley and use the water situation as a common challenge. Until this point, the commu nity had scant interest in the Stiemer and many residents were simply unaware of its existence.

4.3 Define

"The art of being wise is knowing what to overlook." William James (1890)

Narrow findings down to a limited collection of actionable issues and reflect on the initial framing of the project. Focus on assembling tangible themes and patterns to facilitate the next phase in the design process where ideas are generated. This step helps to reframe the brief that launched the project. The team will synthesise material produced in the Discover phase and validate the results before continuing into the Ideation phase.

Mindset:

- *Optimistic* - based on the analysis collected, embracing opportunities to be developed.
- *Ideas* - synthesising selected opportunities into a short-list of concrete and actionable challenges.
- *Critical* - ensuring that the challenges defined address the initial scope or project brief or based on new knowledge, that the project brief can be 'reframed'.

Actions

- Definition of the key themes.
- Test the validity and the contents of the selected themes. This can be done within the design team or through a collaboration process.
- The development of a reframing document. This is intended to review the scope of the project.

Tools

- *Theme clustering*. In a workshop setting, present the outcomes of the Discover phase to the project team or key stakeholders and use this brainstorming technique to define themes.
- *Voting & rating*. If numerous themes or topics are identified, vote to decide which one(s) to take to the following stages of the project.
- *Project environment canvas*. Summarise the new findings of the project using this canvas, to present as 'reframing document' to the client or key stakeholders to adapt the project.
- *Personas*. Build the personas out of interviews, fieldwork, grey research and the Pentahelix mapping to help with the design phase.

Output

- A collection of themes to help prioritise the project.
- A stakeholder map.
- A collection of personas and user journeys.
- A communications plan.
- A reframing document.

Outcome

- Defining key issues and profiles to focus on for the remainder of the project.
- Reframing the course of the project subject to what was learnt during the Discover phase.

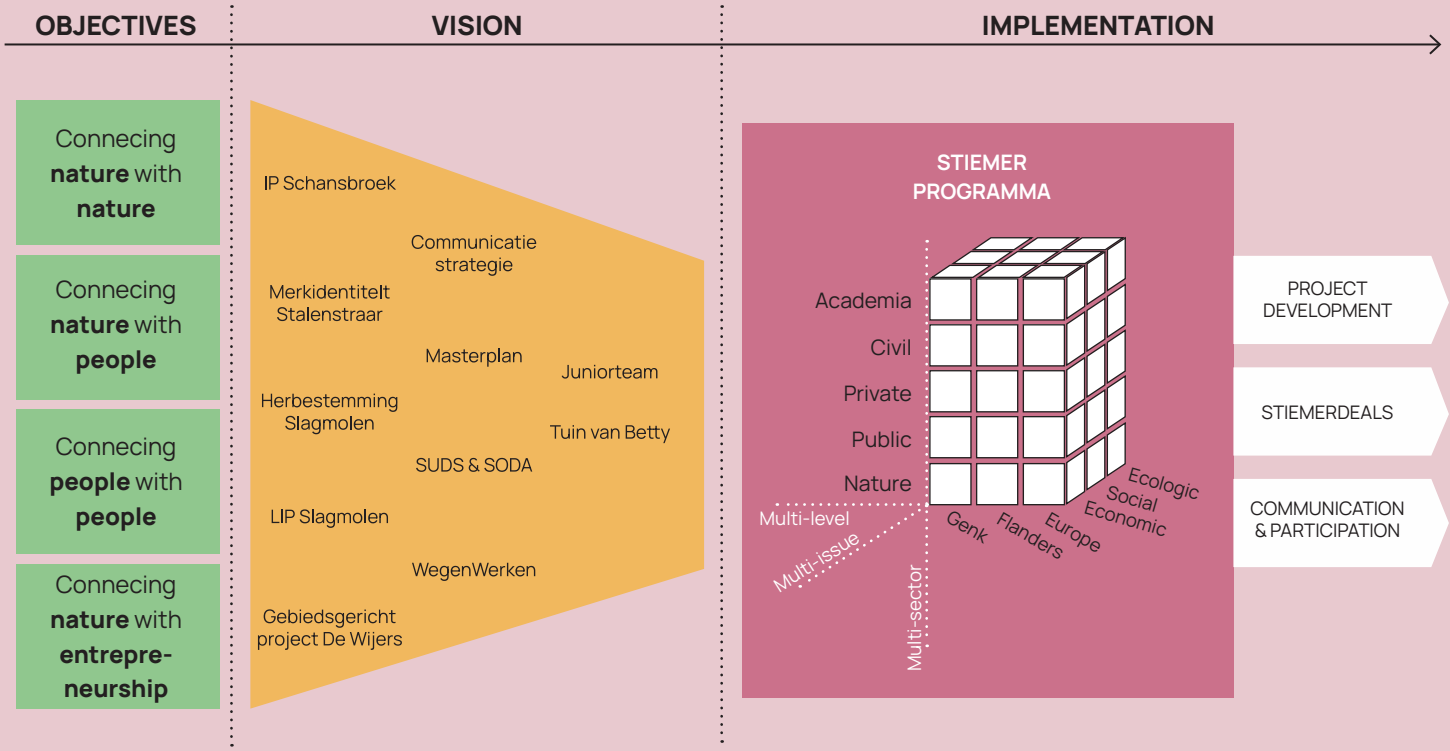


FIGURE 4.4 - GENK'S VISION MATRIX FOR THE STIEMER VALLEY (2019)

Defining a comprehensive approach for Stiemer Valley

Once the City of Genk had embraced a new attitude towards the Stiemer Valley's water quality problem, the problem was reframed. The result were four key objectives to connect:

- **Nature with nature** by increasing the ecological value of the Stiemer Valley and its connection to other green zones.
- **Nature with people** with the valley as an active green axis bisecting the city that would connect disparate neighbourhoods and become a destination in itself.
- **People with people** to improve social cohesion in one of Flanders' most cosmopolitan urban areas.
- **Nature with entrepreneurship** to encourage local businesses to become rooted into the green corridor through the exchange of goods and services that show the green space can stimulate an economic dimension.

The reframing process revealed opportunity matrix for collaborations:

- **With different actors** - academics, public institutions, private actors, civil society and natural systems.
- **At different scales of action** - local, regional and beyond.
- **With different value** - environmental, social and economic.

Finally, more concrete project ideas were considered. These ranged from communications strategies, to very low-cost interventions (*Stiemer deals*), landscape projects (*Tuin Van Betty*) and experimentation at the scale of a neighbourhood (SUDS&SODA).

FIGURE 4.5 - INTERNAL STRATEGY WORKSHOP IN GENK - OSMOS

4.4 Ideate

"Coming up with ideas is the easiest thing on earth. Putting them down is the hardest."
Rod Serling (1968)

Translate the defined themes into possible themes or scenarios. Ideation opens up the creative process to many possibilities. Start by exploring a wide range of solutions, guided by the themes selected in the define phase. Throughout the Ideate phase a filtration process occurs, narrowing or combining the most interesting ideas. End the ideate phase with coherent collections of ideas or scenarios that have different benefits, without committing to one single choice.

Mindset:

- *Ideas* - allowing the creative juices to flow, liberated and with an open mind and without judgement.
- *Emotional* - building on an optimistic 'growth' mindset, to stake out new opportunities, empathetic to the stakeholders end-users identified earlier.
- *Planning* - prioritising ideas based on priority and capacity to be realised in the project or to solve the problem.

Actions

- Allow for the ideation process to nurture individual and group ideas.
    - Use design tools and methods to avoid groupthink or power relations from inhibiting the quality and diversity of design outcomes.
    - Create conditions that allow the design team to explore divergent ideas, without prejudice.
- Filter and sort ideas through a democratic decision-making processes.
- Converge ideas or designs for the prototype phase. Accept the role of the team leader to take ultimate responsibility for the selection of ideas.

Tools

- *Concept card*. Use the cards as an early ideation or brainstorming tool.
- *Theme cluster*. In a group, allow ideas to flow freely and then be clustered to prioritise good ideas. This tool can be combined with the concept cards.
- *Voting & rating*. Where many good ideas emerge, employ a democratic process to select the most appetising option(s).
- *Project environment canvas*. After clustering ideas or voting, flesh out the idea using this canvas.

Output

- A list of ideas or concepts.
- A selection of the most important ideas or concepts.
- Ideas expressed as succinctly but coherently possible to be prototyped (through sketches, plans, models, texts, videos etc...).

Outcome

- Design opportunities to be tested during the prototype phase.
- Team members are confident of the quality and suitability of the ideas or concepts that were generated.

FIGURE 4.5 - THE STIEMERLAB - WWW.STIEMERVALLEI.BE

Community based ideation

The complexity required to address water management meant that the City of Genk was in a much weaker position to roll out the project single-handedly. But it meant that the city adopted a much stronger leadership role as a facilitator. Part of this leadership was oriented towards traditional public sector actors that are concerned with water management. But a second critical group was the local community, who were now seen as a vital partner in embracing the Stiemer Valley project and an agent in realising projects and interventions. In the Define phase, a number of existing and future project pathways were presented such as a communications campaign, community managed green spaces and water management on private properties.

The challenge was to create suitable opportunities that would be complementary to the larger project but where the community could feel comfortable in appropriating. At this stage, the City wanted to let go of its position as project engineer and open up partnerships. However, with a highly diverse population, with little experience of environmental issues and habituated to the City's role in managing infrastructure projects, the community engagement appeared challenging. Starting would require local ambassadors that could act as role models.

The Stiemerdeals were a low-barrier initiative to build win-win opportunities with local entrepreneurs that have a business idea or community project. Through a call for proposals, the City would partner with individuals and groups, using the City's communication and marketing to help stimulate the initiative. Micro-financing was available through the Stiemerfonds. The resulting deals have included clean-up initiatives, art projects, honey, icecream, education based water quality testing and a 'friends' organisation (Stiemervrienden). These projects allowed for many small ideas to be pitched and then tested, quickly showcasing the value of the Stiemer Valley without large infrastructure investment.

FIGURE 4.6 - CREME DE LYS, A STIEMERDEAL - WWW.STIEMERVALLEI.BE

4.5 Prototype

"But the best demonstration by far is experience, if it go not beyond the actual experiment."
Francis Bacon (1620)

Test ideas before committing to them. Prototyping takes a selection of the most suitable ideas that emerged from the Ideate phase and explore what they would look like if put into practice. This phase can range from low fidelity models to very realistic simulations. It can be tested by through proxies (or personas) or it could be tested by possible end-users. The selected prototype(s), will be developed during the implementation phase.

Mindset:

- *Planning* - defining how the selected ideas will be prototyped: through an iterative or simultaneous (scenario) based approach.
- *Factual* - prescribing a clear evaluation structure to test the prototypes.
- *Emotional* - allowing intuition to counterfactual outcomes.
- *Critical* - evaluating what realistically is possible within the framework of the project or problem.

Actions

- Take a shortlist of ideas or scenarios to be tested during the prototype phase.
- Decide on the type of prototyping: a) continual or b) simultaneous prototyping (or a combination of both).
- Commit to the number of iterations or expected outcomes to avoid endless prototyping and perfectionism. Search for a reasonable 'minimal viable product' (MVP).
- Define how you're going to evaluate the prototyping (user tests, reporting card...).

Tools

- *Business model canvas*. Test the real-world viability of prototypes by exploring their business model.
- *User test*. Build a prototype that can simulate a real-world experience and explore how users react. Run user-tests several times to refine ideas, from quick low-fidelity models, to working prototypes.
- *Voting & rating*. Where there are many viable options but limited resources, allow democracy to decide which to select or which scenarios are most relevant.

Output

- A series of tested ideas, evaluated in terms of their impact and benefits.
- A selection of design solutions that can be implemented.

Outcome

- A realistic simulation of how the solution will be used or interacted with in practice.
- Avoid wasted effort during the implementation phase.

FIGURE4.7 - STIEMERDEAL MET ESSERS, 2021 - WWW.STIEMERVALLEI.BE

Shifting the focus to the community, a prototype

The masterplan project showed the community that change was on the horizon. However, implementing the masterplan remained a long-term project filled with financial and bureaucratic uncertainty. Waiting for the masterplan to begin could come with a heavy political cost if progress halted. Furthermore, Genk, a city of 66,000 inhabitants, had limited capacity to take sole responsibility for managing the green spaces within the Stiemer Valley.

In the meantime, much of the Valley was accessible, albeit far from the vision promised in the masterplan. The Stiemerdeals showed there were plenty of small ideas and positive community interest to help build engagement. The challenge now was to transition from ideas to explore a new relationship between the local community and the Valley environment. In the spirit of Nature-Based Solutions, a new governance structure could be explored that placed local residents in a stronger position of responsibility for the Valley.

The *Vrienden van de Stiemer* (the Stiemer Friends) was launched by the City as a 'citizen panel' (burgerpannel in Dutch), a voluntary group that meets a few times per year. The Stiemer Friends would help provide a bridge between the community and the City, take responsibility for exploring new ideas and initiatives, review plans and proposals, help share commitment to the Valley and communicate the progress of the larger project. The result could be a new governance structure, with a stronger role of citizens and where the City embraces its role as partner. Starting the panel early helped it evolve with the development of the Stiemer Valley project.

FIGURE 4.7 - VRIENDEN VAN DE STIEMER - WWW.STIEMERVALLEI.BE

4.6 Implement

**“Knowing is not enough; we must apply.
Willing is not enough; we must do.”
Johann Wolfgang von Goethe (1774)**

Roll-out the plan or project to its expected end. At this stage, look at the most suitable medium to reach the goal set out by the brief or the reframing document. This will depend on the project, problem or sector and can range from writing a report, phasing a development, communicating a product, building something and so on.

Mindset:

- *Planning* - defining concrete steps forward.
- *Optimistic* - embracing a forward looking mindset, despite possible roadblocks, with a view of achieving the ambition.
- *Critical* - ensuring the implementation process is realistic but also addressing the key objectives of the project.

Actions

- Define how the final stage of the project will look like, agree to the outcome based on the available resources.
- Define steps to reach the outcome in terms of deliverables, deadlines, expected feedback and so forth.
- Divide tasks and responsibilities amongst team members.

Tools

- *Voting & rating*. Prioritise tasks and actions based on perceived importance. This is useful if combined with a Kanban board as a task list to easily see an overview of tasks on the ‘backlog’, ‘doing’, ‘for review’ or ‘done’ list.
- *User tests*. Before completing the project, test with end-users during a preview.
- *Business model canvas*. Revisit the original business model to evaluate the success of the project.

Output and outcome

- As defined by the original brief or the reframing document (see the Define phase)

FIGURE4. 8 - VIEW OF THE STIEMERHUB AFTER LANDSCAPE WORKS, 2022 - KATRIEN COLSON

Developing the StiemerHUB

By 2022, the masterplan project that was launched in 2015 still remained a long term mission. Small interventions and initiatives had taken root, but more serious projects were required to prove that the momentum had not been lost. The city was under pressure to show longer-term commitment, especially with concrete interventions that the local community could relate to.

In 2021, a row of houses acquired by the city were scheduled to be removed to make way for a stronger green link to the top of the Valley catchment to a site called the Thor Park. Two of the houses were in good condition and the City decided to retain them for three years as a community hub to promote and support activities occurring in the Valley. The StiemerHUB project was developed over the course of six months, following this same design process.

The outcome is a space launched officially in April 2022 and will be most active over the spring and summer months. It embraces many of the smaller initiatives that have emerged in the Valley and become a neutral space where events and projects can be hosted. The governance structure will take a step further than the Stiemer Friends in sharing responsibility for the management of the space. The three year timeframe is an opportunity to define a longer-term programme to support the community to becone anchored in the Valley project.

FIGURE 5.1 - CO-CREATION EVENT IN MALAGA, 2018 - ADRIAN VICKERY HILL

5. Setting the scene for collaboration

Collaboration is critical to address complex problems. But more actors and a bigger team can complicate things. There is no real template for collaboration, but research on group dynamics and organisational behaviour offers useful frameworks to collaborate or provide leadership. The role of the process designer must adapt to confront the situation at hand.

Process design and engagement, participation and collaboration

The Engagement here refers to communicating consulting or engaging stakeholders and end-users. Participation refers to dialogue or workshop moments. Collaboration refers to the working relationship amongst the team or between key actors.

The double diamond process presented in Chapter 4 presents a six step process for design, and effective designs can be realised without any form of collaboration and does not stipulate the need for collaboration, engagement or participation. However, collaboration is often vital for reaching meaningful and creative outcomes - it can make projects better. This raises three points.

Firstly, there is no template for engagement, participation and collaboration over the course of a project. As a site, stakeholders and end-users and value shifts, so will the modalities for interaction will change. Using a template or rigid methodology can result in unnecessary work, overlook valuable steps or cause more damage than value for a project. Collaboration within a team or amongst key actors will depend on the clarity of the expected outcomes or how prepared the team or key actors are to accept exploring ideas or testing options. The mode of collaboration can also be dictated or limited by institutional conventions, as will be described in the following section.

Secondly, a good deal of complexity boils down to a lack of alignment amongst key actors, conflicting opinions or a lack of understanding of issues faced by end-users. Addressing complex problems or projects inevitably invites some form of engagement, and particularly multi-disciplinary collaboration. The engagement, participation and collaboration process can serve for much more than simply sourcing information, it can be a critical opportunity to build relationships, trust and ultimately help look for common interests.

Finally, engagement and participation comes with accountability. Involving the community, opening up consultation with key actors, conducting interviews and surveys, sending out surveys, running user tests, hosting a workshop and so forth, can be essential for a project and provide valuable insights or help communicate outcomes. But it also brings about a responsibility to show how information will or has been used. For example, public authorities may be forced by law to offer consultation moments for significant plans or projects. This may be the only moment that a community or concerned citi- zens are engaged to offer their opinion on issues that could seriously impact their lives. However, if public consultation does not form part of a larger review process, if feedback is not taken seriously or if the procedure is treated as a formality then the consequence will likely result in a considerable loss of trust in the said administration. This is common even in projects that will result in an improvement for the quality of life of local inhabitants, if the consultation phase is not well handled anger and disillusionment can create principled public resistance. If engagement or participation occurs, participants therefore should be offered a clear indication of how their contributions will be used. Any form of collaboration thus must be tailormade according to the needs of each project.

FIGURE 5.2 - CO-CREATION EVENT IN IOANNINA, 2017 - ADRIAN VICKERY HILL

THE FIVE PARADIGMS OF CHANGE

	Negotiation	Pragmatism	Motivation and attention	Learning and development	Self-organising & dialogue
Changes occur when	bringing common interests together	thinking first and then act according to plan	stimulating people in the right way	creating settings for collective learning	creating space for spontaneous evolution
in a/an ...	power game	rational process	process of exchange	learning process	energizing process.
and create ...	a feasible solution, a win-win situation.	the best solution, a brave new world.	a motivating solution, the best 'fit'.	a solution that people develop themselves.	a solution that catalyses initiatives.
Interventions such as ...	forming coalitions, changing top structures.	project management, strategic analysis.	assessment and reward, social gatherings.	gaming and coaching, open systems planning.	open space meetings, self-steering teams.
are led by ...	facilitators who use their own power base.	experts in the field, project managers.	HRM experts, managers who coach.	facilitators who support people.	sense makers who engage themselves personally.
and target ...	positions and context.	knowledge and results.	procedures, inspiration, and atmosphere.	setting and communication.	patterns and meanings.
The outcome is...	unknown and shifting	defined and guaranteed	outlined but not guaranteed	envisioned but not guaranteed	unpredictable but not aimless.
and ensured by ...	policy documents, power balances, loyalties.	benchmarking and monitoring.	personnel systems and healthy relationships.	a learning organization.	self-organisation and dialogue.
The pitfalls lie in ...	daydreaming and lose-lose outcomes.	ignoring external and irrational aspects.	smothering and conflict avoidance.	excluding no one and lack of action.	superficial understanding, laissez faire attitude.

FIGURE 5.3: AFTER VERMAAK & DE CALUWE (2018)

Typologies of collaboration

Design processes, as noted above, benefit from collaboration. It is easy to lump collaboration into the act of working together. However, collaboration can come in many and very different formats subject to the partners involved, organisational culture, the complexity of the problem and so forth. Often an individual or organisations have a structured way of collaborating which can render collaboration difficult if combining different forms of collaboration. Some questions that could be asked:

- What is known about the problem or project? Refer to the Stacey Matrix in Chapter 3. Is the problem clearly defined? Are interests aligned?
- How visible is the problem? Is there public pressure?
- What do the partners or the client expect as an outcome? Is it clearly defined?
- What is the capacity of the team or project partners (key actors) to collaborate? Do the organisations have a history or collaboration?

Hans Vermaak and Leon de Caluwé, experts in change management, defined five key models of organisational change (2018). As shown on Figure xx, each functions in a different paradigm offering insights into the processes, practices, motivators and outcomes that are inherent to each. This same concept can be directly translated to practices of collaboration. In summary the five paradigms include:

- **Negotiation**, which is typical for political processes where actors have an agenda where either they can find alignment with other actors (win-wins) or where compromise is sought to ensure some gains are made. In this case the process designer takes on a role as mediator.
- **Pragmatism** is where responsibility is entrusted to scientists or techno-crats that look for the best possible solution considering the circumstances. This paradigm is rational, but idealistic, and can easily overlook emotions and meaning in search of the 'best' outcome. The process designer may play a facilitation or bridging role.
- **Motivation** comes down to creating momentum and building interest through exchange, inspiration and soft power. The motivation paradigm will often have a clear indication of where to go (such as improving flood protection) but is dependent on actors to sign up to the challenge. The process designer helps to curate the message and drive motivation through engagement moments.
- **Learning** brings together individuals or organisations on an exploration of a common problem or shared interest. Learning may have a vague outcome, but through learning more about the topic, the problem can be better addressed and defined. Designers enjoy this form of collaboration as it embraces testing and exploring. The process designer can help moderate and facilitate the learning process, especially looking at ways to synthesise outcomes and translate them into actionable ideas.
- **Self-organising** is about community building through sense-making or as a forum. Like learning, the actors are brought together out of curiosity and an acceptance for the emergence of problems or ideas. The process designer is likely to create a framework and methodology to facilitate this paradigm so that actors feel like it is a valuable process.

These five paradigms offer ways of evaluating conditions based on conditions, culture and outcome. In practice, projects are likely to mix these forms of collaboration subject to the actors that are engaged at the time. What is most useful is to acknowledge when to engage each learning mode in order to avoid friction or unintended consequences from the collaboration process.

Process designer within the design process

In using design to solve complex problems, the designer may need to take on a role as facilitator, bridge builder, mediator, moderator or curator. In this way the designer moves from delivering solutions to looking for creative ways of avoiding tensions, finding compromises, aligning interests and defining

suitable outcomes. This may feel uncomfortable for industrial designers, architects or graphic designers who are used to designing things producing an output such as a model, a plan or a book. Process designers must delegate the design of the output to the team or key actors.

The role of the process designer will depend on the project and context. The process designer may be an individual or a team that is dedicated to managing the design process. Subject to the scale and scope of a project, this may run parallel to the responsibilities of a conventional project manager. The following a three examples:

1. For **project management** in a tendered or competitive project, the process designer plays the role of team coordinator. A client-facing SPOC takes on a traditional project management role, liaising with key actors or external project partners. If a process design team is involved, this role may be divided between two people, one caring for the team and the other for the client. In larger projects, there may be an independent project manager within the team. The client-side SPOC liaises with external actors or may grant the process designer to communicate directly with them. In this role, the process designer carries both power and responsibility.

2. In a **research project** the process designer can help facilitate the team. A project manager, associated with a partner or as an independent organisation, has direct contact with the funding agency. In this configuration the process designer has soft power, but ultimately cannot direct project partners.

3. As a **facilitator** or **entrepreneur** the process designer is providing a bridging, moderating or curatorial role. In this case, the role is focused on leadership.

Leadership and design

Collaboration should not to be taken for granted or assumed. The process designer may need to take on a leadership role to generate enthusiasm and energy. As noted above, collaboration should build the organisation's DNA or the capacities of the key actors. An

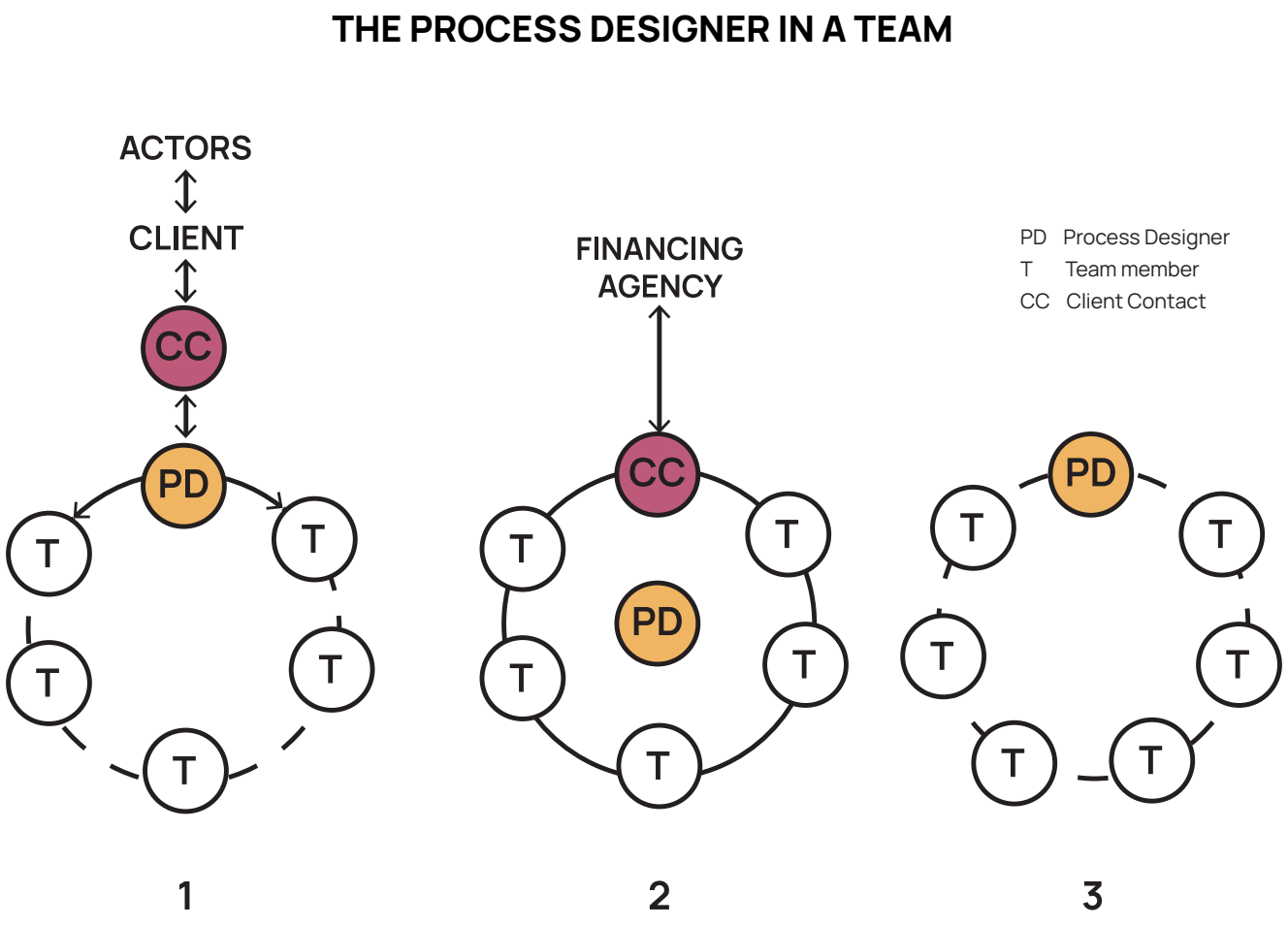


FIGURE 5.4 - EXAMPLES OF THE ROLE THE PROCESS DESIGNER COULD PLAY WITHIN A TEAM - OSMOS

THE SITUATIONAL LEADERSHIP MODEL

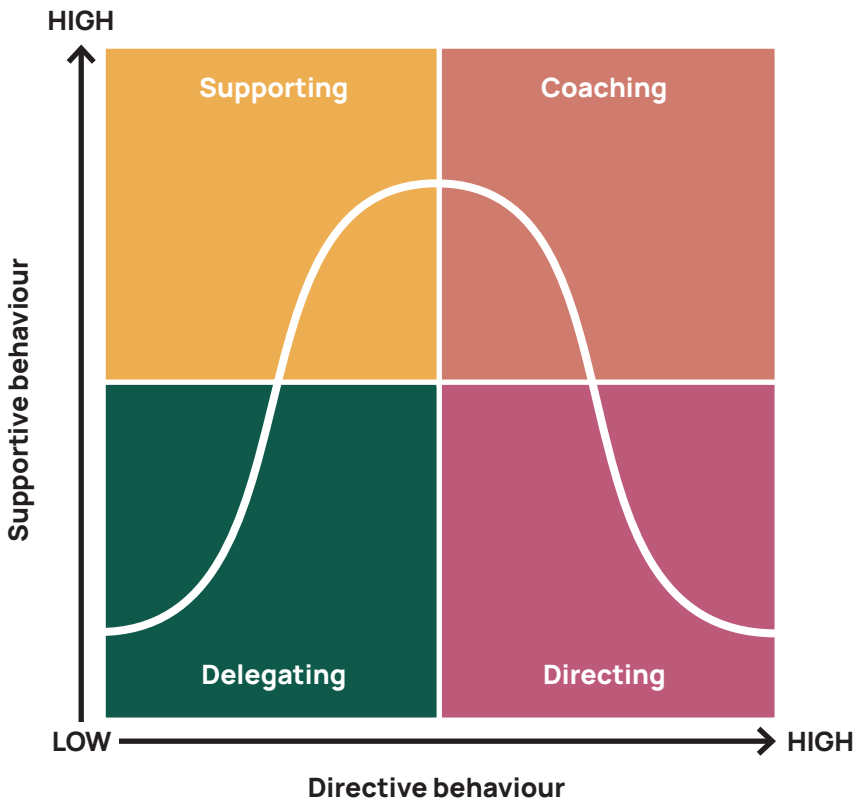


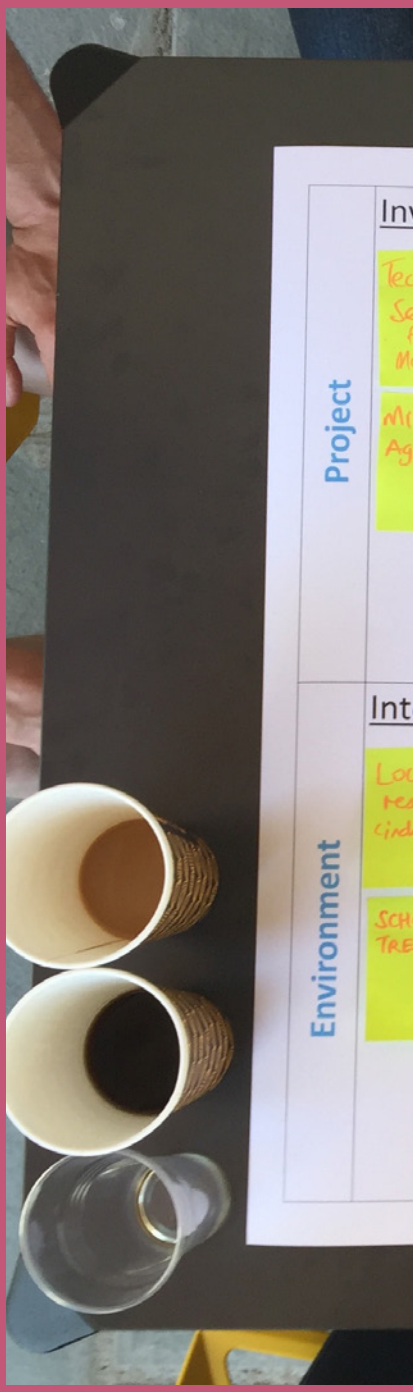
FIGURE 5.5- AFTER HERSEY & BLANCHARD (1969)

organisation that has little experience with learning and development projects or self organisation (see above), but is prepared to engage in a research project, may not know how to interact and may need to be supported or coached. The process designer, as a facilitator can use *situational leadership theory*, developed by Paul Hersey and Ken Blanchard in their book Management of Organizational Behavior – Utilizing Human Resources (1969). The theory helps guide the level of commitment and skills required to take a Delegating, Supporting, Coaching or Directing role in the group.

- **Directing** or **telling** occurs when the team has limited collaboration experience and skill, whereby the process designer is expected to clearly map out how interactions will occur.
- **Coaching** or **selling** is where the team has some collaboration experience but limited capacity to operate independently. Leadership here concentrates on convincing the team or partners to remain aligned and committed.
- **Supporting** or **participating** is where the team has high levels of collaboration skill, but lack confidence or autonomy. Here leadership focuses on building relationships rather than directing.
- **Delegating** is where actors or team members function in high autonomy and are comfortable in collaborating. In this case leaders monitor progress, but are less involved in decision making. This situation allows for the team to be self organised based often on an internal governance structure.

The process designer will need to assess the team's autonomy and capacity based on exploring previous experiences, or for new partnerships, based on a test phase.

6. Tools for design



Design tools help to guide and structure the design process and outcomes. Tools can be used to help expose knowledge, identify interests, define different attitudes and perspectives, develop ideas and evaluate concepts. Ten versatile tools have been selected that can be used in a wide range of projects and across various stages of the design process.

The right tool for the job

Refer to Chapter 4 for tips regarding pairing tools with the design process and Chapter 8 for other tools:

- Not all tools are useful and it is useful to study the problem and expected outcome before using the tool. Using a tool that does not deliver results, is simply a waste of time.
- Tools should be used with care to ensure that they do not oversimplify, complicate or over-look critical information.
- Test new tools in a controlled environment before using them under pressure as a poor use of a tool can spell distrust in the project.

Applying the tools in a workshop setting

There are certain practices worth following for new practitioners:

- Start any workshop with a warm-up to create an atmosphere of participation and openness.
- In a workshop setting, use the tools with confidence and understand the limits of the tool to ensure that the participants do not get distracted by the methodology.
- Not all tools need to be used in a workshop setting. Some can be prefilled to help avoid the stress of a blank canvas.
- Workshop participants should feel comfortable and the experience should be light and fun so

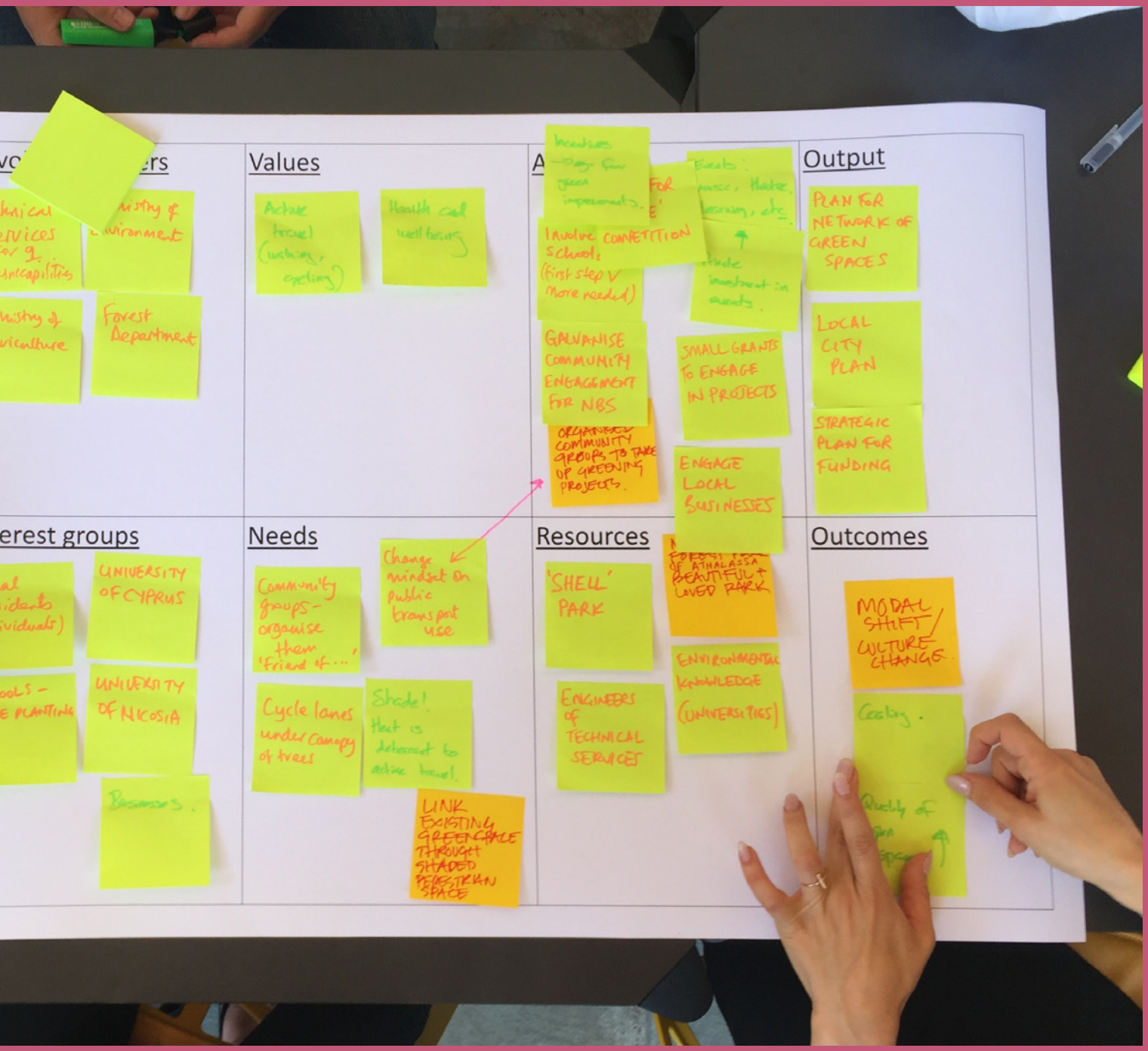


FIGURE 6.1 - THE PROJECT ENVIRONMENT CANVAS (2018) - ADRIAN VICKERY HILL

participants feel confident to collaborate.

- If participants don't understand the exercise, provide examples until the participants volunteer ideas.
- Try to avoid using too many tools in a single workshop.
- Where possible, use a collection of complementary tools. For example, the Pentahelix can be used with the Project-Environment Canvas or the Business Model Canvas.
- If running multiple workshops, bring previous tools to help build following steps. For example, the Pentahelix can be used throughout the project and be adapted over time.

The structure of the tools

To compare and Each tool follows a similar structure:

- **About** explains the context for using the tool.
- **Application** refers to the stage of the process when it is advised to be used and how the practitioner could use the tool.
- **Use** offers a suggestion of how it can be used, but practitioners are encouraged to be guided by their own experience and intuition during a workshop.
- **Source**, if the tool has been adapted and the original source is known.

Context mapping

A tool used to help take a transversal view of a problem within its social, economic and physical context.

Time: Medium (1-2 hours)
Complexity: High
Participants: A group of 5-15 people. Where necessary, split into smaller groups to ensure all participants can read the canvas.
Steps: 1 Launch; 2 Discover

About

Change, can emerge in many different ways - through big ideas or small interventions. Analysing emergent trends can be critical to build on a movement or getting one started. A simple way to understand it is that there are three scales. Firstly at the **macro-level** there are topics such as climate change or food security. At this scale the idea helps bring people together, yet it is so broad and general that it can be interpreted as various things. Then there is the **meso-level** where laws, culture and practices are present. Finally at the **micro-level** there it is possible to see tangible action.

FIGURE 6.2 INDICATION BETWEEN DIFFERENT SCALE-LEVELS BASED ON LOORBACH ET AL (2006)

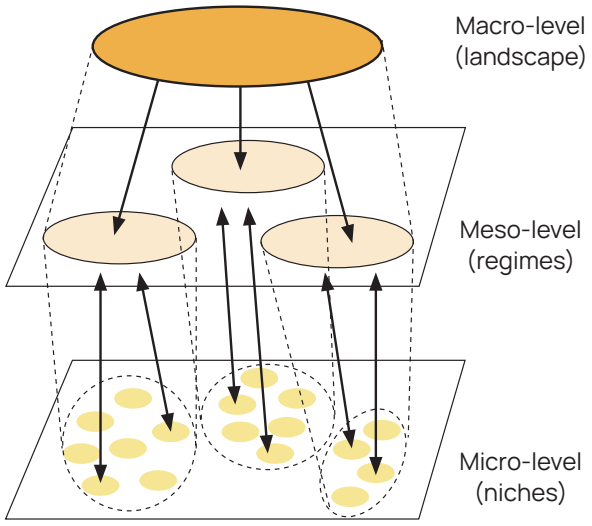


FIGURE 6.2- BASED ON LOORBACH ET AL (2006)

This concept helps us to understand that many small things can be clustered under a topic or idea. Ideas can also mean many different forms of action. Mapping this in a project helps to understand what the project can connect to and if there are any issues or opportunities that the project could adopt.

1. Long-term trends are topics that are generally not controlled, managed or owned by an organisation or institution and affect a wide range of people or organisations.

2. There four key segments:

- *Economic structures*: refers to the formal systems for exchange of goods and resources and can include financing, supply and demand and production and distribution.
- Institutional structures: these are laws, regulations or organisations that exist to manage a certain issue or challenge. For example, ownership or property is a law, building densities are often regulation and the management of environmental standards often involve an agency.
- *Culture*: refers to general opinions and values that a community shares.
- *Practices*: are the general consequences of action, which in many cases are the outcomes of the previous three segments.

3. *Emerging niche initiatives* are examples of projects, businesses or organisations which have a physical manifestation of some kind, representative of the larger topic.

Application

Use this tool at the beginning of a project to gain a clearer indication of how a project fits within the

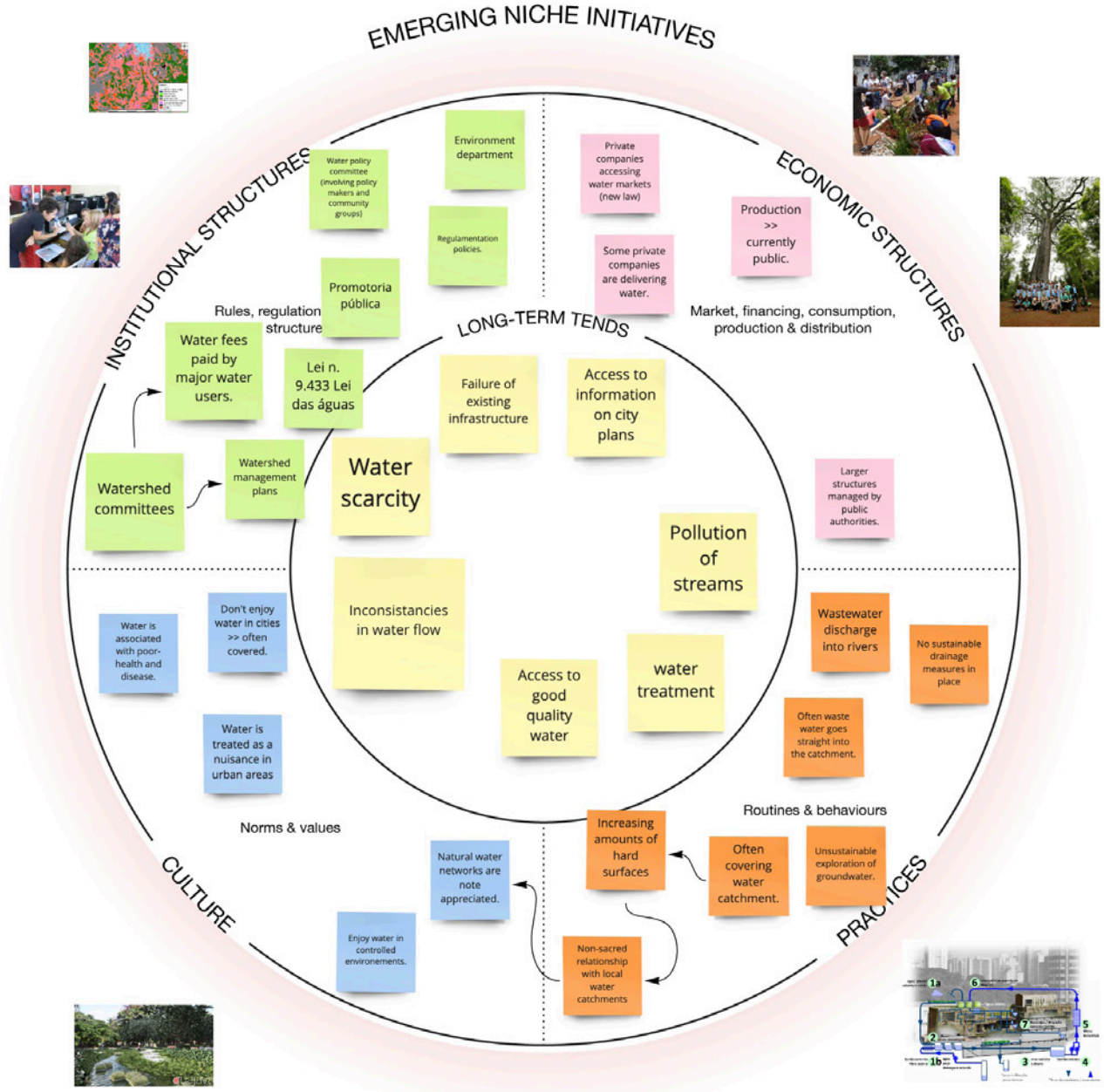


FIGURE 6.3 - CONTEXT MAPPING - OSMOS

bigger picture and how to relate to other projects or initiatives.

This tool can also be used to review the project once it has been developed as an ex-post evaluation and to see if trends, structures or new initiatives have emerged.

Use

1. Define a key topic.

2. Start with the long-term trends and move out to the niche initiatives.

- Use post-its or sketch directly onto the canvas.
- When reaching the second ring, move from 'institutional structures', clockwise to 'culture'.
- When identifying niche initiatives, try to link them to the middle and inner circle.

3. The exercise can be considered complete when the group has reached a saturation point and no new information can be added.

Source

- Tool adapted from the Systemic Design Toolkit: (https://www.systemicdesigntoolkit.org/)
- For theory refer to Loorbach, Derk & Rotmans, Jan. (2006). *Managing Transitions for Sustainable Development*, in Understanding Industrial Transformation (pp.187-206), Springer

Pentahelix stakeholder mapping & management

A methodology and canvas to understand and map stakeholders

Time: Medium (1-2 hours); Short (30 minutes)
Complexity: High
Participants: Alone or in groups of up to 15 participants
Steps: 1 Launch; 2 Discover

About

Stakeholders generally refer to organisations that are connected to a problem or project out of interest or organisational motive. Stakeholders may not have an inherent interest in a project problem. Actors are those stakeholders that actively partake (with or against) the development of a project.

Projects generally involve coalitions and constellations of different stakeholders and interest groups. Even if there is a relatively good understanding of the stakeholders, the place, problem or timing may result in different levels of interest or engagement. Mapping out stakeholders is therefore an art in curating which actors should be taken into consideration. As there is no formal way of knowing which stakeholders should be taken into consideration, it is useful to run a mapping exercise during an early project team meeting and where possible with a client or the main project partners.

The Pentahelix is based on five stakeholder types:

- *Public sector*: including administrations and elected officials.
- *Knowledge sector*: most notably organisations focused on expert knowledge.
- *Businesses*: providing business services through material and immaterial goods.
- *Civil society*: the NGO or third sector that is accountable to a community (excluding private lobby groups).
- *Capital (and finance)*: which can involve land, finance and the ownership of technology and resources (but not the exploitation).

Actors can fit into more than one category, particularly if they are a large public authority. If this is the case, it is best to define which department is responsible according to the actor type.

FIGURE 6.4 - PENTAHELIX - OSMOS

Application:

The Pentahelix is most useful early in the project to get a quick snapshot of stakeholders and to gain a qualitative understanding of how stakeholders are connected or what their main focus is. The tool is qualitative and should not be used beyond its limits to conceptualise actors and their interests. The Pentahelix can be used throughout a project, however as more

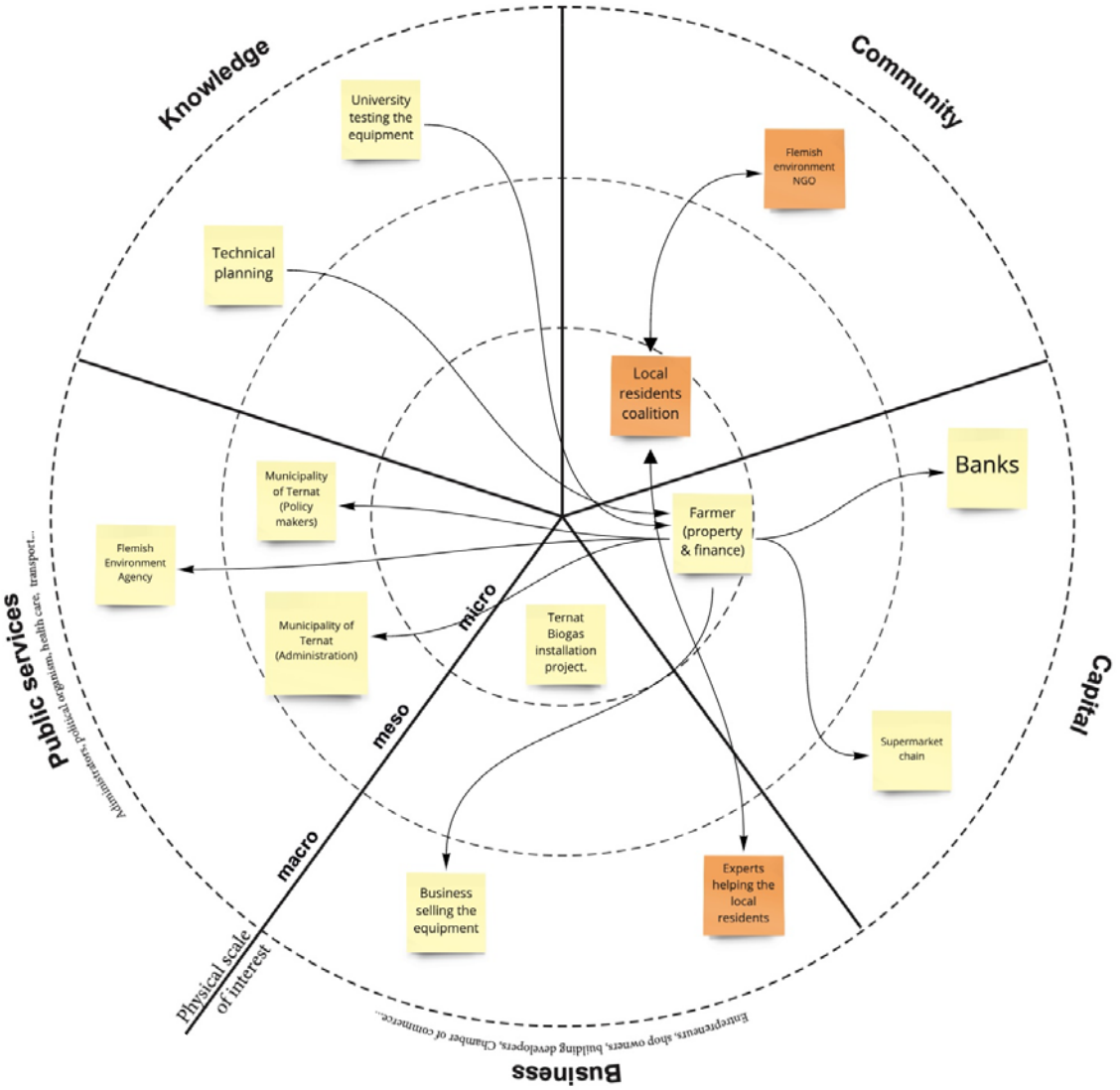


FIGURE 6.5 - PENTAHELIX - OSMOS

is known about each actor, other tools (such as *Personas*) may be required to address nuances.

Use

1. Start by simply listing known relevant stakeholders, and then locate them on the canvas, one actor per card (or post-it). Begin with the stakeholder that is closest to the topic at hand. Avoid discussions or excessive discussions during the first 5-15 minutes. It is not necessary to define why each stakeholder is interested, simply populate the canvas and later remove stakeholders that are not relevant.
2. Move around the the five segments accordingly, from easiest to hardest. If working in a group, allow names to be added as they emerge.
3. Use the scales (micro to macro) in terms of the physical scale at which the actor operates. A neighbourhood committee may function at a micro scale while a national institution fits at the macro scale.
4. Once the canvas is suitably populated, suggest a review round to move or cluster the stakeholders. If useful, draw links between stakeholders.
5. Explore possible actors by marking them. The actors are those that are likely to have a role in the project (constructive or possibly threatening).

Source

- The tool and theory was developed by Osmos, building on other collaboration models. See below.
- A similar model is referred to as the Quintuple Helix. More information at: https://innovation-entrepreneurship.springeropen.com/articles/10.1186/2192-5372-1-2.

Statements exercise

An exercise to tease out individual positions within a group.

Time: Medium (1-2 hours)
Complexity: Medium
Participants: For live events, no less than 5 or more than 15 participants.
Steps: 1 Launch; 2 Discover

About

Rarely are groups of people perfectly aligned or informed and in many cases, group members make incorrect assumptions about what other group members think. Diversity of opinions can be healthy for an organisation, but it is important to understand how these differences in opinion could affect the problem you're trying to solve as well as the motivations behind these different opinions to avoid unnecessary tensions. This can be especially useful in team building or to identify if additional energy is required to engage a particular actor or team member.

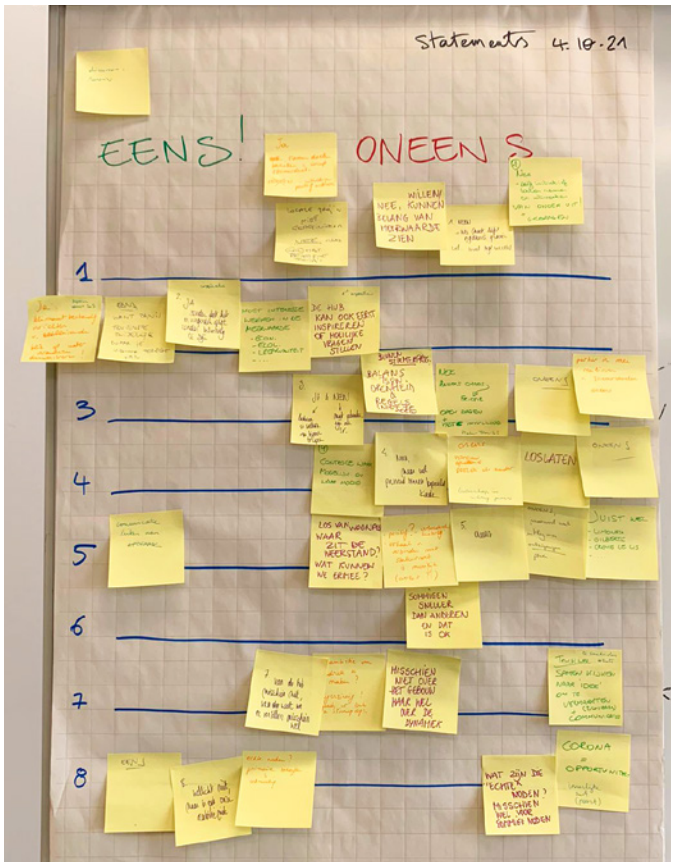


FIGURE 6.6 - STATEMENTS - OSMOS

The goal of the statement exercise is to get participants to describe and justify their position (agree or disagree) on a specific topic. Ideally this is done by creating statements which are somewhat extreme so that every team member will agree or oppose to them but are able to provide different reasons as to why. The more the team sees that they share similar positions, the more they will be prepared to listen to the arguments of other team members rather than impulsively trying to convince others that their position is correct.

The statement exercise is a simple tool to structure discussions about complex or emotionally sensitive topics. What it shows is that diversity can be nurtured through dialogue. It is also a tool that allows for individuals to find expression within a group, and to avoid group-think.

Application

The statements exercise can be used throughout a project, but is most relevant

- To discover team member's positions.
- To align the positions of team members.
- To help team members to justify their positions.
- For a structured discussion on opposing views within the team.

Use

1. Give each participant a pile of cards or post-it notes, one per person and per statement.
2. The facilitator presents one statement per round. Start with some more simple and non-critical statements, to allow participants to feel comfortable with the rhythm of the exercise .
3. 60 seconds are given for the participants to 1) decide if they agree or disagree and 2) write a short reason why. Be aware that one minute is often very

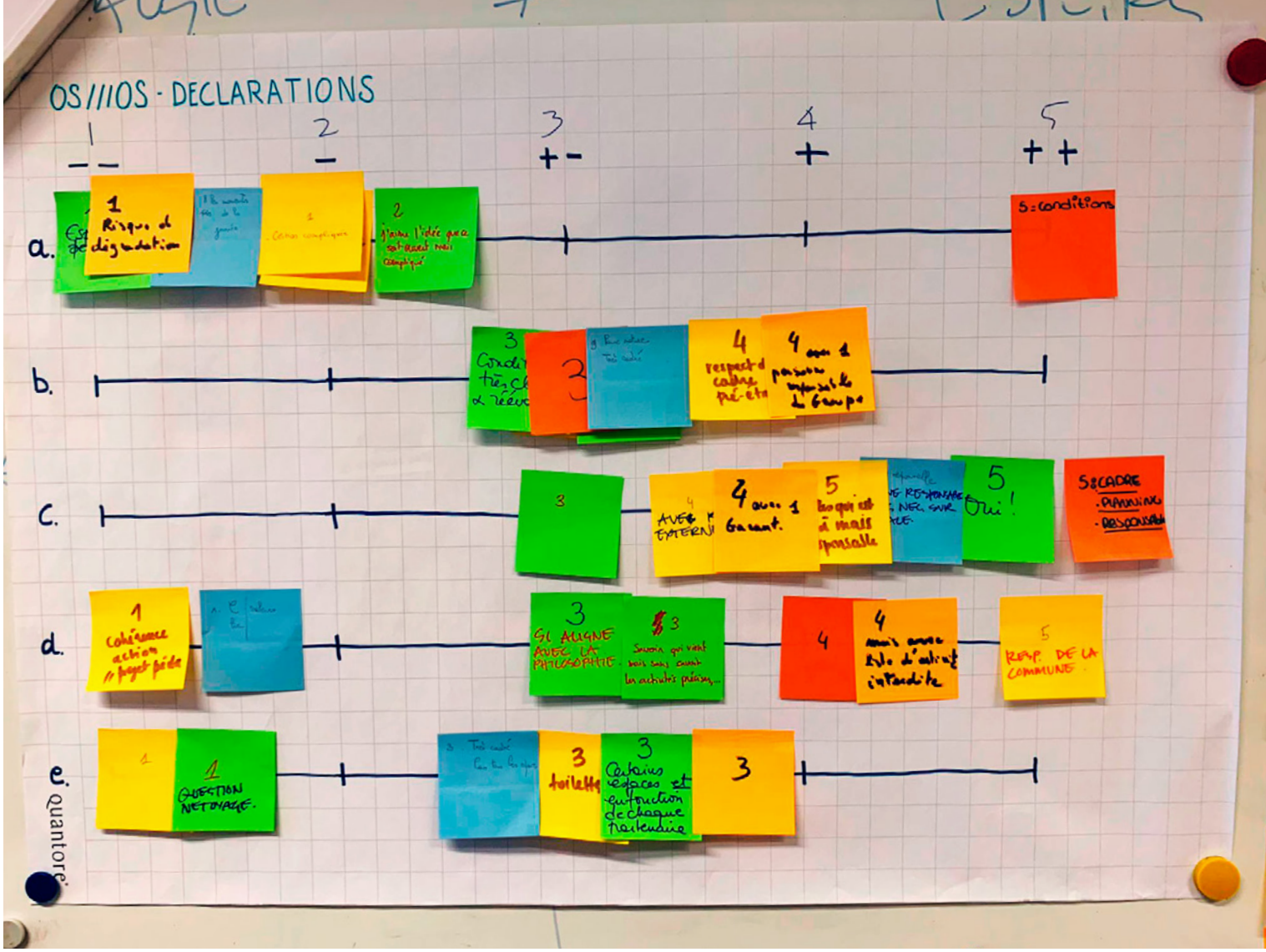


FIGURE 6.7 - STATEMENTS - OSMOS

short for participants to do this and advise them not to overthink it.

4. When the time is completed, the facilitator asks the participants to bring their response to the board. The facilitator first looks for a pattern in positions and shares this with the group. If there is a clear majority for one position, start by asking the people of the minority to elaborate. If a response is unclear, the facilitator asks for clarification.

5. Team members are also allowed, and sometimes even encouraged, to change their position during the discussion of the topic or when another related topic is discussed.

If nuance is required, the canvas can include numbers such as 1 (agree) to 5 (disagree) to help participants position themselves.

The following are tips for the statements:

- Define a list of 5-15 statements. Each statement will take 5-10 minutes.
- The statements should be quite absolute. For example 'Everyone needs to ride a bike' is a statement likely to incite similar positions but for different reasons.
- Find statements that will trigger participants to chose a similar position so they notice that they have something in common.
- Avoid complex or double-barrelled statements. For example 'Not everyone should always ride a bike or walk'.

Source

Tool developed by Osmos.

Personas

A tool to understand end-users by proxy

Time: Long (2-8 hours)
Complexity: High
Participants: Alone or groups of up to 15 participants
Steps: 3 Define; 4 Ideate; 5 Prototype

About

Design is a complex and messy process, especially if you don't have a good image of the people that will be involved or affected by your design. Generally referred to as end-users, they might be very divers, complex or difficult to reach. Designing for anyone and everyone can be rather difficult which can result in either generic outcomes or poorly resolved problems which didn't take the end user's needs into account. However, if designers are given a more concrete image of the end user, they can use that information to improve their design and make a product or service more user-friendly.

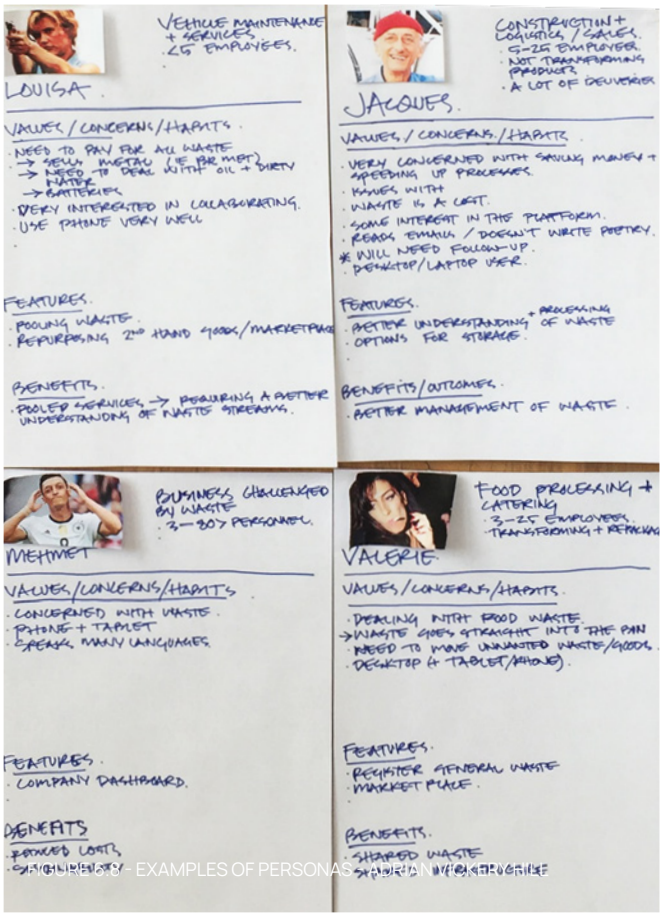


FIGURE 3.3 - EXAMPLES OF PERSONAS CREATED DURING A DESIGN PROJECT

Personas are a very helpful medium to transition from basic qualitative & quantitative research into design by diminishing and prioritising the amount of users to design for. The tool that can help reduce the pitfalls of designing without a clear end user in mind.

Application

Personas are an excellent tool to use throughout the design phase. At the beginning of the Ideate phase, present the personas to the design team to add more empathy to the design process. During the Ideate phase, use the personas to look for solutions for a variety of end-users. During the Prototype phase, use the personas to evaluate the designs and test where there may be weaknesses in the design. Personas can also be used to help select members of a focus group, when reviewing designs.

Use

1. During the Discover phase, bring together the people who have experience with potential end-users and ask them to describe as many different profiles as possible using *Profile cards*
2. Go over the *Profile cards* with the participants and create clusters based on similarities of the profiles relevant to the project.
3. Infer different important dimensions, which can help segment the groups of end-users, through a discussion with the participants. Make a selection of the 4 most relevant dimensions and chose different profiles of interest which cover the field of potential end-users. Generally, 4-6 profiles is a healthy range to start with.
4. Learn more about the end-users by conducting surveys and interviews to discover more about their problems, challenges and opportunities.
5. During the Define phase, present the results of the Discover phase, and draft the personas based on the

Bruno

59 / male

Lawyer

Upper-class

QUOTE	GOALS	FRUSTRATIONS
The poor and is my top priority, I love my people (voters). I do my best to solve environmental problems	• Retain status quo. • Remain in power. • Satisfy voters. • Climb the political ladder (president)...infinite growth. • Improve wellbeing.	Communism. Bolsonaro. Not seeing progress. People not believing him. Not delivering on promises. Health status (& people talking about it). Shadow of the family.
BIO / SCENARIO	**MOTIVATIONS**	**PERSONALITY**
Persuasive and a great communicator. Was born into politics (grandfather) and loves power.	Power. Fame > face on TV. Family approval. Integrity.	Introvert – Extrovert Analytical – Creative Loyal – Fickle Passive – Active
TECHNOLOGY	**BRANDS / INFLUENCES**	**TOUCH POINTS (COMMS)**
N/A	Grandfather. Fernando Cardoso. Other countries. Liberalism.	Social: Twitter, FB... Ministries comms channels. TV.

FIGURE 6.9 - AN EXAMPLE OF A PERSONA CANVAS - OSMOS

results. Develop a template according to variables that suit the project or problem (such as demographic information, a bio, a quote, goals, interests, touch points...).

6. Review all the personas together with the client, and if possible, with end-users.

7. Enrich each persona by creating an associated User Journey

Tips:

- Personas can be non-human and can be abstracted to include eco-systems.
- Avoid creating too many personas as they can be difficult to empathise with. Five to six personas are useful. If a project is highly complex and many personas are required, distinguish personas according to larger groups (farmers, policy makers, retailers, experts...).
- There is an ongoing discussion about the political correctness of this exercise, and how it can be made more politically correct. Research has however shows that we categorise other people rapidly on age, gender, skin colour, warmth and competence, so those elements should not be ignored in a persona.

Source

For a comprehensive research evaluation of the tool, refer to Gudjonsdottir, R., (2010) Personas and Scenarios in Use. PhD Thesis dissertation, KTH (ISBN-978-91-7415-655-3)

User test

Exploring the value or impact of a project at any stage of its development (concept, testing or complete).

Time: Very long (various days)
Complexity: High
Participants: Generally between a participant and a facilitator
Steps: 2 Discover; 5 Prototype

About

Asking people hypothetical questions generally provides unreliable answers. But by creating a more concrete context through a prototype or the current version of a product or a service, we're able to conduct user tests which allow us to get more reliable answers about what users really think about a product or a service. A user test is a qualitative research tool which resembles a semi-structured interview. It allows a user researcher to test the concept and user-friendliness of an existing product or service, or a prototype version of this.

Conducting a user test requires only six to seven participants in order to detect 80% of the major usability issues. Due to the limited amount of participants needed to get the desired information, user tests work well if implemented iteratively. User tests can be split into segments, for example, detect big issues in a first run, smaller issues in a second run.

Application

User tests can be applied to a wide range of situations and across various stages of a project. This could include a website, a document, a 3D environment, an application, a physical tool, way-finding within a building, a film and so forth.

User-tests are very relevant during the Discovery phase to understand how people interact with existing things or environments. It can also be used for testing assumptions of a design during the Prototype phase.

It is important that the designer is not also the user-tester as it can result in a testing context which is not optimal, because the tester is too personally and affectively involved in the development, which could lead to subtle details being overlooked or participants feeling less comfortable. The designer is advised to participate in a user-test as an observer in another room in order to spot potential ways to improve the design without disturbing.

Use

1. Define the objectives of the test.
First define an objective for the user test:

- Detect potential issues related to made assumptions. To test user's responses by testing a prototype.
- Find issues in existing products or services. To identify areas of frustration that users face when they interact with your product. In this case, you use existing products and test them with your users.

2. Write the script for the user test
A user test generally involves different types of questions which are asked in the following order:

- Demographic questions. Questions intended to evaluate a test participant's qualifications and capacities.
- Concept questions. Questions directly related to the concept you are testing. These questions can include both general questions and specific questions.
- Scenarios. Tasks directly related to the product or service you are testing which a participant needs to be able to fulfil in order detect any usability issues. In order to create a scenario one can first create a storyboard of how the designer thinks the product or service will work. From this storyboard different scenarios can be inferred by identifying potential

FIGURE 6.10 - USER TESTING OF A PLANNING TOOL - ADRIAN VICKERY HILL

weaknesses, assumptions made and crucial steps which need to be made when using the product or service.

- Debriefing questions. Questions you ask at the end of the session. These might include clarifying questions.

3. Prepare the user test

As a user test is a form of a semi-structured interview, the same rules for conducting a good interview apply here as well.

4. During the user test

A tester can use different interviewing techniques during the user test in order to gain more useful information without going of script too much.

- Echo: Repeat the last phrase or idea mentioned by the user, rephrased into a question.
- Boomerang: Return participants own questions while they are testing the research object.
- Columbo: The interviewer presents an air of innocence or naivety and asks for the user to help solve the problem.

Source

Krug, Steve: "Rocket Surgery Made Easy: The Do-It-Yourself Guide to Finding and Fixing Usability Problems" (2009, Addison Wesley)

Project environment canvas

A canvas to explore the value, viability and impact of a project on its environment

Time: Medium (1-2 hours)
Complexity: Medium
Participants: Alone or in groups of up to 15 people
Steps: 1 Launch, 3 Define, 4 Ideate, 5 Prototype

About

Complex projects or problems must have a clear message in order to reach stakeholders or end-users and gain traction and interest. Projects should also not be depicted as overly simplistic and meaningless. The Project Environment Canvas is intended to capture the essence of a problem, concept or project without delving into complexity while also presenting vital elements that affect a wide range of actors.

FIGURE 6.11- PROJECT ENVIRONMENT CANVAS - OSMOS

Application

Use the canvas throughout the life of a project to present different aspects as they emerge.

The canvas can be used at the Launch phase simply to understand the scope of the project and use it as a return brief to the client or key stakeholder group to ensure that all parties agree to the scope of the project.

This is a useful tool for reframing a project at the end of the Define phase as a reframing tool to review the original brief or mission.

The canvas can also be used as a simpler alternative to the *Business Model Canvas*at the end of the Ideate phase to help establish scenarios that can be tested during the Prototype phase.

Use

1. If possible, attempt to sum up the problem or project into one sentence.
2. Begin filling in the canvas with post-its via the simplest point of entry. Ideally, one begins with the 'involved partners' and the 'interest groups'., subsequently fill in the values and needs, the actions and resources, and the output and outcomes. Alternatively if the end results are clear, work backwards from the 'output' and/or 'outcome'.
3. Quickly and intuitively complete the canvas within one round taking 10-15 minutes.
4. Once each segment has some contents, return for a second review, this time interrogating the material in more detail and adding or adjusting contents added elsewhere in the canvas.

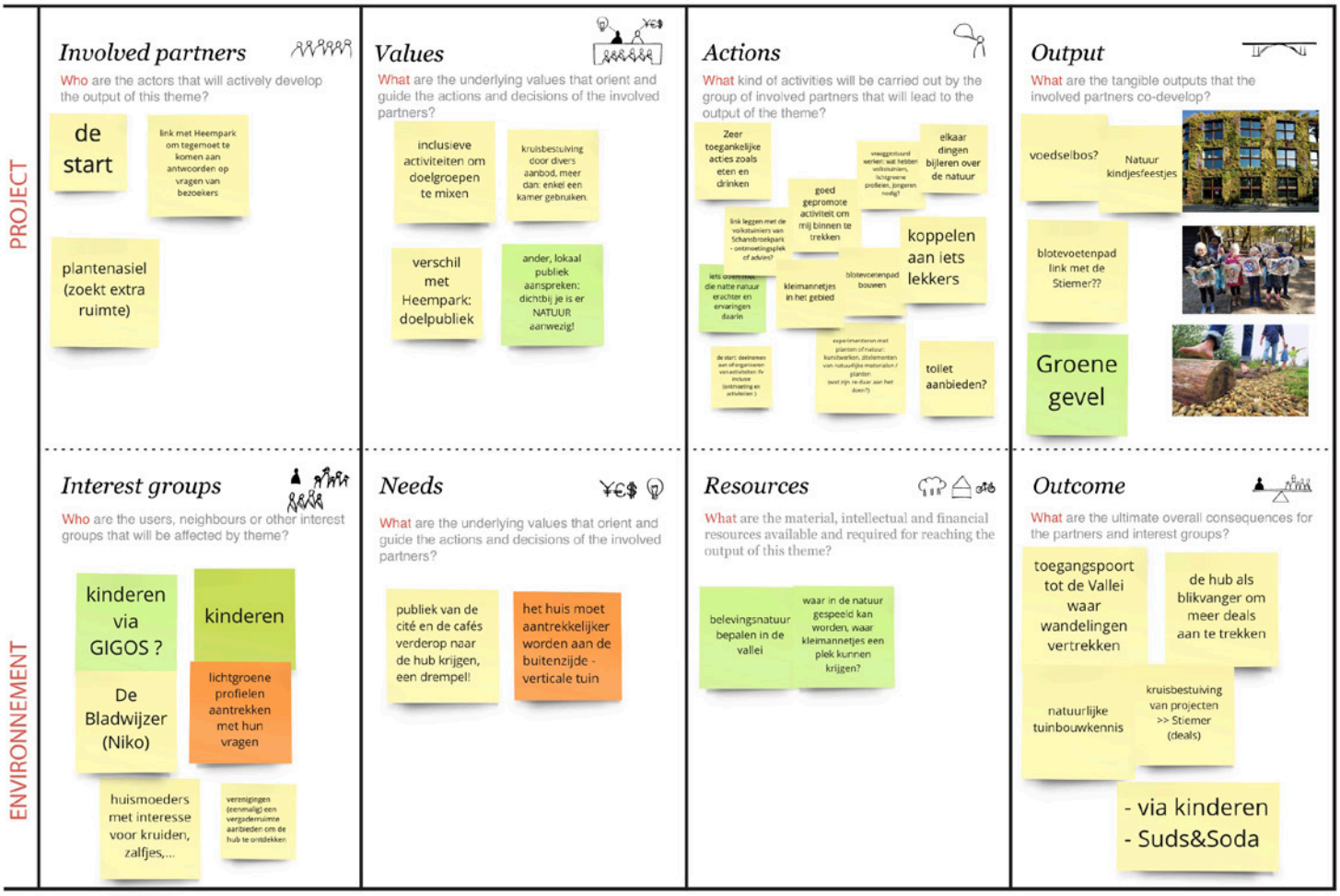


FIGURE 6.12- PROJECT ENVIRONMENT CANVAS - OSMOS

5. Have a representative present the canvas and review if material is missing.

Tips:

- Use this canvas in combination with the Pentahelix stakeholder mapping & management
- If using the canvas across various stages of a project, avoid looking at previous iterations of the canvas to allow previous and current states to be comparable. This will allow new material to emerge and old material to perish if it is no longer relevant.

Source

Tool developed by Osmos.

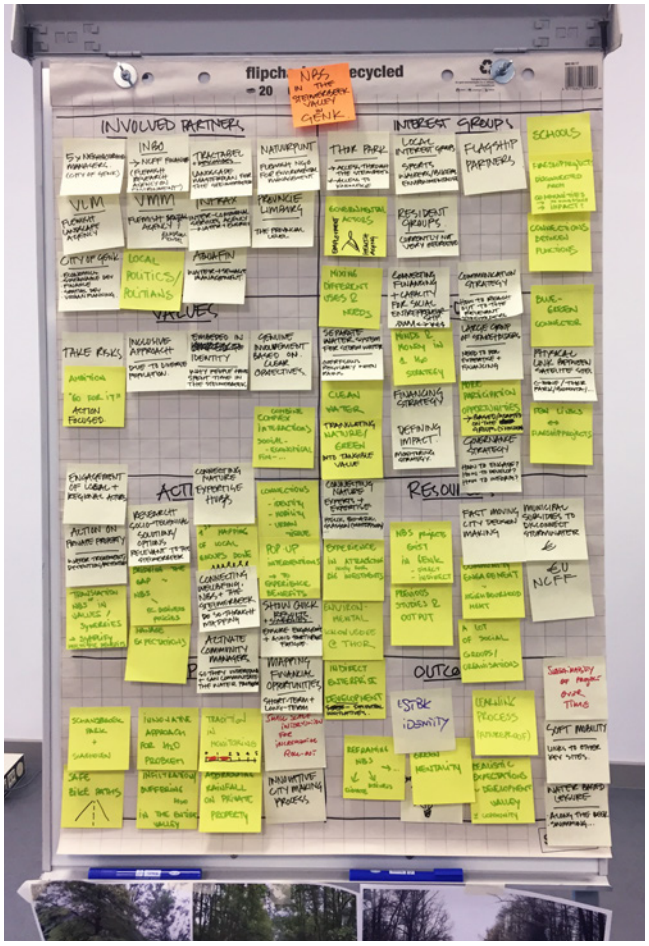


FIGURE 6.13 - PROJECT ENVIRONMENT CANVAS - OSMOS

Concept cards

A template for developing many (simple) ideas, quickly

Time: Short (30 minutes)
Complexity: Low
Participants: Alone or in groups of up to 15 people
Steps: 4 Ideate

About

There are no standard forms of expression for a creative process and everyone has a different capacity to express ideas. Drawing, writing, performing, photographing, building - these are all mediums to communicate an idea. Some people need to spend time thinking while others are spontaneous. Therefore, forcing participants to use a specific medium of communication and pace of ideation can be jarring for collaboration. Regardless, workshops remain valuable for collaboration.

Concept cards are a simple tool to guide participants in structuring ideas. The cards cater to both people that are visual thinkers and those preferring to use text. The participants are given the chance to present their cards verbally or even acted. It is a particularly useful tool for developing ideas within a multi-disciplinary group, involving designers and non-designers.

Application

Use the tool at the beginning of the Ideate phase to generate a large collection of simple ideas.

Create a concept card template based on specific questions relevant for your project. For example: the name of the idea, which problem it solves, how it works and how radical their idea is.

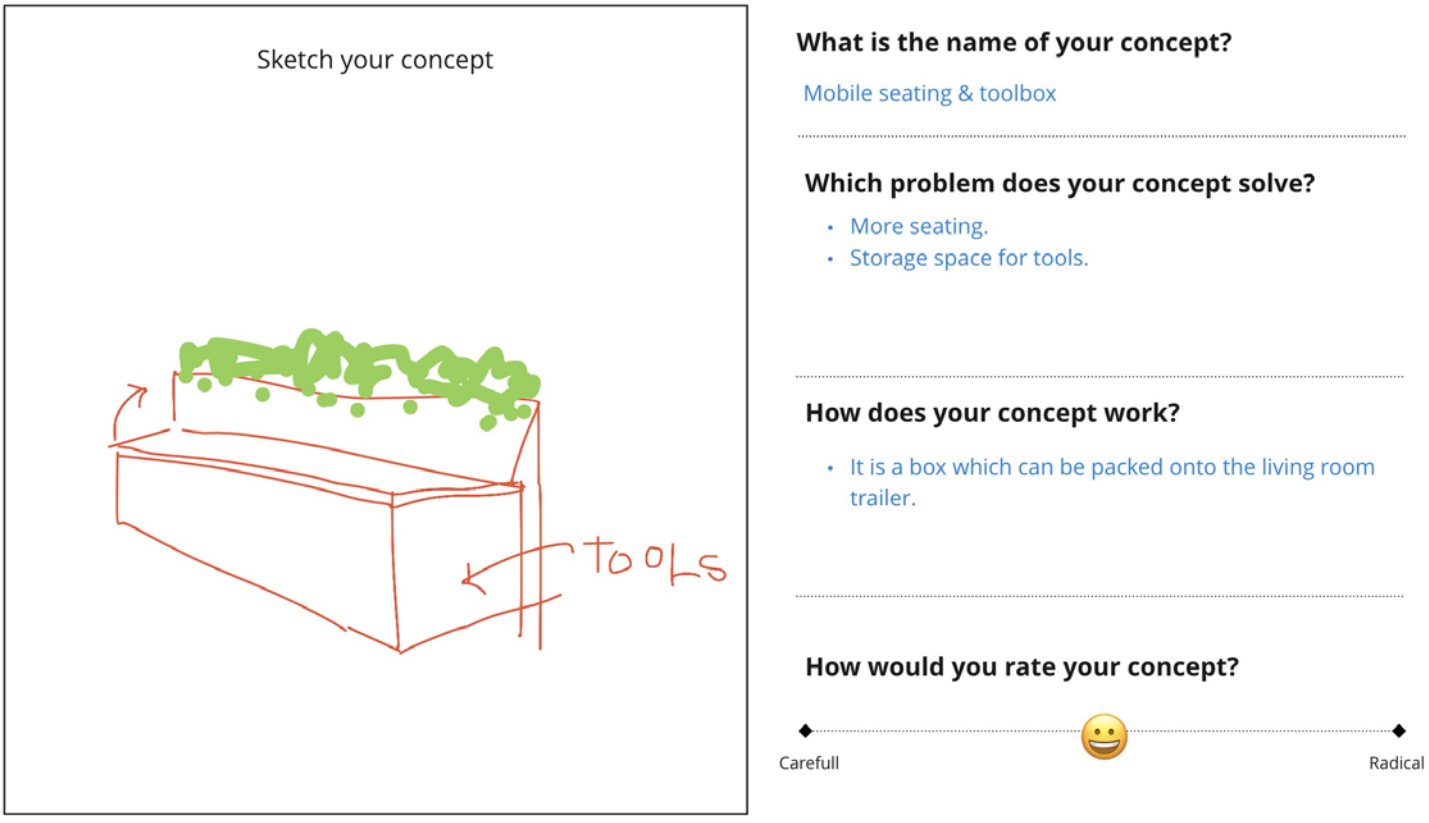


FIGURE 6.14 - A CONCEPT CARD TEMPLATE - OSMOS

FIGURE 6.15 - A CONCEPT CARD TEMPLATE FOR FUTUREING - OSMOS

Use

1. Give the participants several empty concept cards. Allow participants 5 minutes to complete their first card before presenting it. Instruct them to explore ideas based on the problems and themes identified in the Define phase.

2. After the first card, allow participants to continue completing the cards and when complete, present each to the group, to inspire other participants.

3. Allow participants to reach a saturation point where no new ideas emerge - this can take 30-45 minutes.

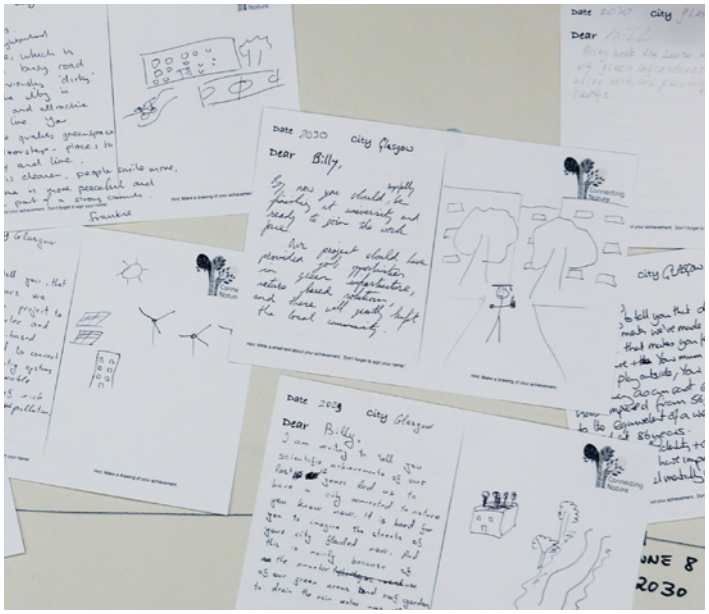


FIGURE 6.16 - A CONCEPT CARD TEMPLATE FOR FUTUREING - OSMOS

Tip:

- If ideas are abstract (such as a service), allow participants to complete two cards before acting them out.
- Once the ideas have been presented, move onto *Voting & rating* the ideas or *Theme clustering* into groups.

Source

Tool developed by Osmos.

Voting & rating

A system for selecting and prioritising issues

Time: Short (30 minutes)
Complexity: Low
Participants: Alone or in groups of up to 15 people
Steps: 3 Define; 4 Ideate; 5 Prototype; 6 Implement

About

Decision making is a critical but challenging process for collaboration when synthesising qualitative research and during the design process. A well-informed jury is generally considered to make more comprehensive decisions than expert-witnesses (Vidmar 2005). The form of decision making and the capacity for participants to make decisions are therefore critical.

Application

There are numerous forms of voting and variations on them. Simple voting (one vote per person) may not be enough to show nuance.

Dot voting is typical for design, whereby participants are given a limited number of stickers, which they can attribute across all the options of choice, given the option to place more than one dot at a time to show increased support.

Quadratic voting is an approach to express the degree of their preferences, rather than just the direction of their preferences. Voters are given voting credits to spend on their votes, but additional votes cost is squared (2 votes costs 4, 3 costs 9….). This is particularly useful for issues affecting minority rights.

Preferential voting is a system to rate candidates in order or preference. This is useful when the second or third choice option is the most viable option for most people.

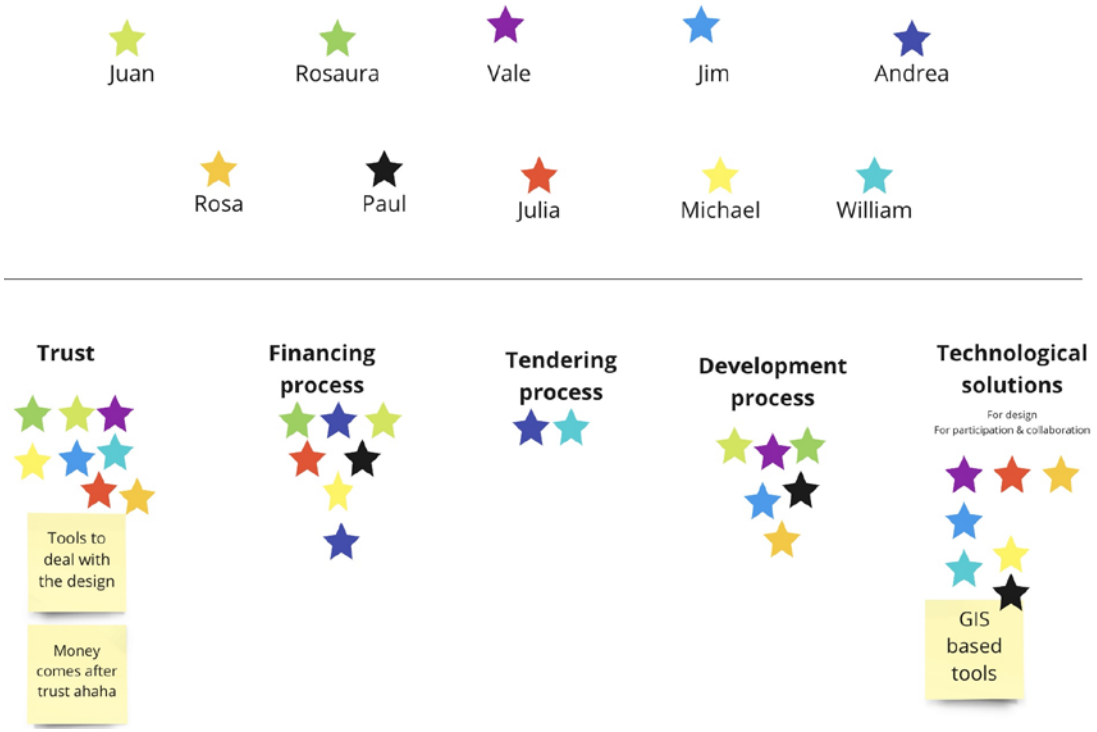


FIGURE 6.17-DOT VOTING - OSMOS

FIGURE 6.18-SIMPLE VOTING - OSMOS

Two-round voting is as simple as voting in two consecutive rounds. This can be useful where nuance is required.

Multi-criteria evaluation this can be done to allow voters to consider a range of different qualitative issues. This is more associated with surveys than voting but in a small group, qualitative evaluations, such as feasibility and importance, can be voted on to prioritise tasks.

Use

1. Ensure that participants have gathered sufficient information on a topic or problem before voting.
2. Clearly present the rules for voting. If the voting system is new or complex, run a practice round.
3. Once voting is complete, discuss the outcome. In many cases, aspects of the non-selected topics or designs could be integrated into the selected one.

Tip:

- It is also possible to additionally let participants vote on their least favourite options in order to get more information on which options might be controversial or of no interest.
- An important variable to define at the beginning is if voting is secret (anonymous) or public (where the identity of the voter is known).

Source

See the Electoral Reform website for more information: www.electoral-reform.org.uk/voting-systems/types-of-voting-system/

Nature-Based Business Model Canvas

A simple but powerful tool to get the heart of a business proposition

Time: Medium (1-2 hours)
Complexity: High
Participants: Alone or in groups of up to 15 people
Steps: 5 Prototype 6 Implement

About

The Business Model Canvas, developed by Osterwalder, Pigneur and Tucci (2005), is one of the most famous service design tools. The strength of this canvas is in its simplicity. The Nature-Based Solutions Business Model Canvas is a variation on the original version developed by McQuaid during through the Connecting Nature project (www.connectingnature.eu). Nature-Based Solutions (NBS) are different from conventional business models in terms of the importance of delivering value wider than the business itself.

The canvas consists of various segments:

1. The Value Proposition. This is the core driver of the business model, essentially what is on offer. This could be relating to environmental, social or economic value.

2. Value Creation & Delivery. *Key activities* and *key resources* are generally what make up the project. The project is developed by *Key partners* for the *Key beneficiaries* (referred to also as the end-users). Collaborations and partnerships are held together by the *Governance* structure in place.

3. The Value Capture. The *Cost structure* relates the typical costs associated with a business. *Capturing value* may not necessarily be just financial (contrary to the original Business Model Canvas). Value may have many forms of manifestation in terms of jobs, eco-system management, community building and so forth. Value can also emerge through *Cost reduction*.

FIGURE 6.19- USE OF THE NBS BUSINESS MODEL CANVAS - SIOBHAN MCQUAID

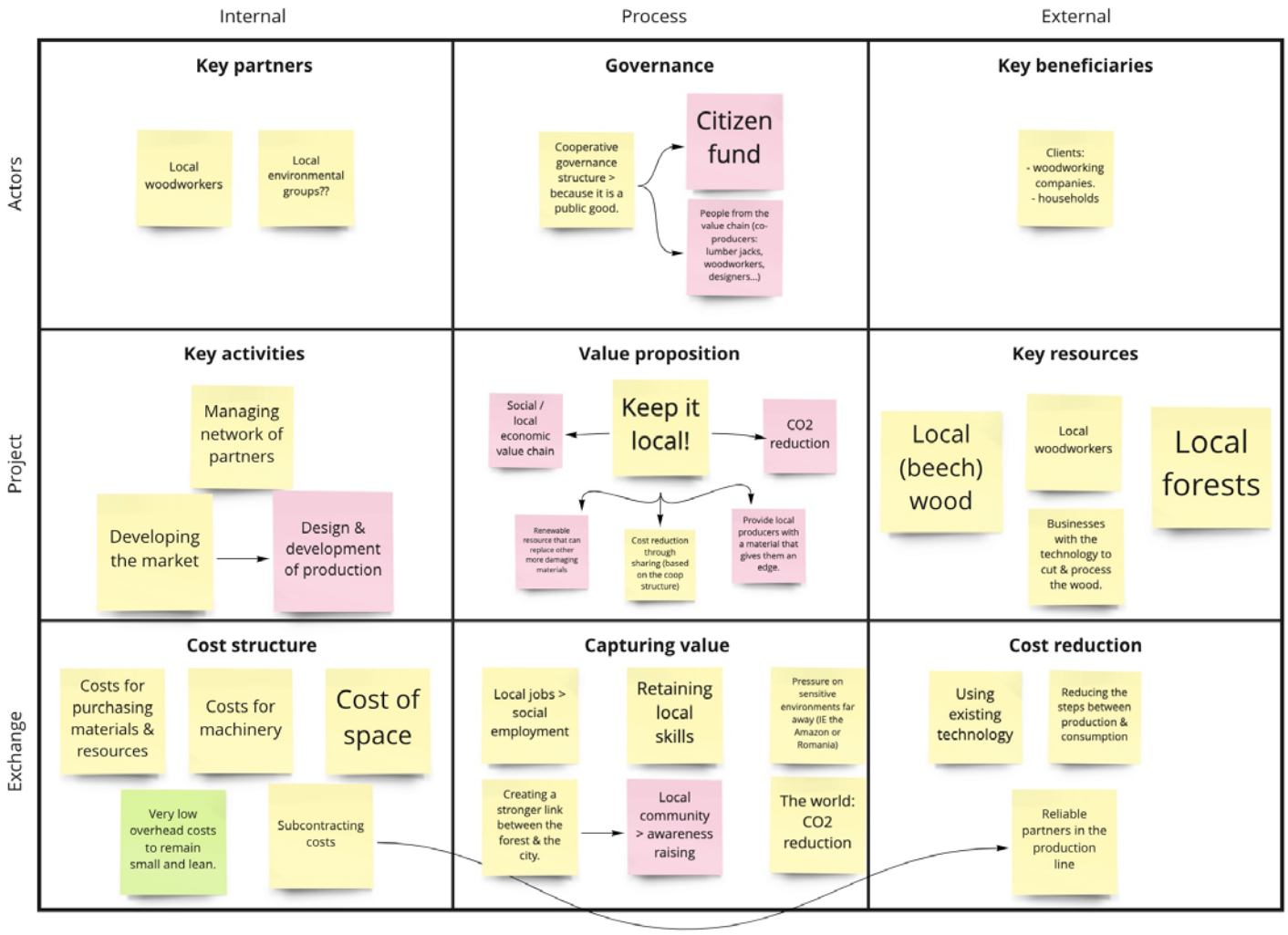


FIGURE 6.20 - ADAPTATION OF THE NBS BUSINESS MODEL CANVAS - OSMOS

Application

Business Model Canvases are most relevant during the last two phases of a project. It can be useful to build on the *Project environment canvas*, which contains many of the same fields.

During the Prototype phase, use the canvas to summarise the intentions of the project or to synthesise different scenarios before the NBS intervention has been conceived.

During the Implement phase, use the canvas evaluate the project. A Kanban board can be useful to prioritise tasks. The canvas can also be used at the end of the Implement phase to test the project.

Use

1. Start with a one-sentence summary of the project or scenario.

2. Begin completing with the easiest point of entry. This will depend on the project, namely the partners, beneficiaries, activities or value proposition (see the sentence above).

3. An empty canvas can be daunting. In one quick round, fill in as much of the canvas that emerges spontaneously. If working in a group, add contributions quickly, without interrogating the input. If working with a team, encourage participants to use the post-it notes rather than relying on the moderator - this will speed up the process.

4. Once the canvas has some material and a clear narrative emerges, begin reviewing the segments and look for possible interdependencies.

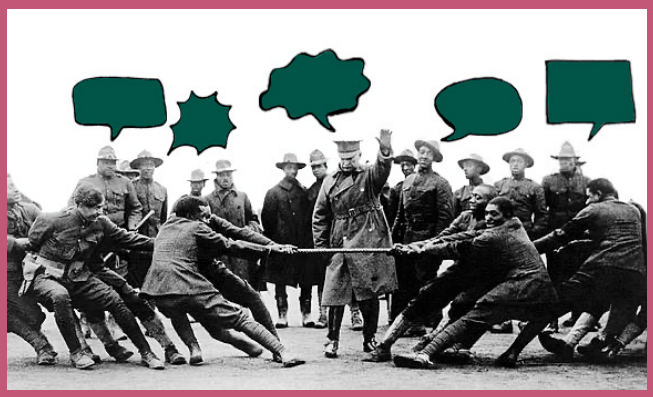
5. When the team feels comfortable with the business model, present it to others for feedback.

Source:

This canvas was based on the Nature Based Solutions Business Model Canvas developed by Siobhan McQuaid (Trinity College Dublin) https://tinyurl.com/nbsbusinessmodelcanvas

7. Practice notes

It is natural for the design process to be stressful. Change and new ideas may test the project or could be treated as a useful opportunity to strengthen the outcome. This chapter looks at scenarios resulting in conflict, tensions and divergent expectations, offering guidance on how to navigate constructive or positive outcomes.



Alignment from key stakeholders

Scenario. Often project briefs focus on solutions without investing enough time in understanding the root of the problem. Rarely do clients or stakeholders understand their problem before launching into a project, sometimes assuming that the project can help overcome any tensions. This can be highly problematic for the design team that is likely to bring their own assumptions about the problem and launch quickly into finding solutions that don't address the problem they were initially engaged to address. The same can apply to entrepreneurs, developing solutions or services that do not have a market.

Guidance. Investing time during the Launch phase with a retrospective workshop, looking at past experiences and learning intimately about the needs and interests of the main individuals engaged in the process can be invaluable for later phases in the project to develop interpersonal rapport within the team or between the key stakeholders.

Lack of engagement

Scenario. The project is complex and there is an uncertain outcome. The client or key stakeholders have little interest in a collaboration process even if they need to take responsibility for the results. The project team worries that the project will not be taken seriously.

Guidance. Lack of engagement can be the result of deception by both the project team and the client. A client may want a collaborative process but have little time or experience. The project team may also think that the client wants to be involved, while only being interested in the result. It is useful to define the kind of collaboration that will take place as soon as possible, ideally during the Launch phase (see Chapter 5). If collaboration does not materialise, it is important for the project team to clearly define the output or outcome of the project as concretely as possible at the soonest available moment.

Lack of vision

Scenario. A briefing reveals that a client does not really know what they want. The project does not fit into wider policy, the project is reacting to trends but does not suit the organisation or the brief is disjointed and lacking definition. In a government context this may be due to political reasons or because power is concentrated at the top of the organisation. In a business environment it may be due to bureaucracy, where the organisation has lost its original vision.

Guidance. This kind of scenario can be problematic and unrewarding. A major threat to the design process is a lack of boundaries and unrealistic expectations which could drag out the project. Lack of vision can also be the result of an organisation being stuck in an ingrained pattern of behaviour that simply does not work anymore but is still a source of comfort for the client. In this case, there is a risk of investing time guiding the client through their fear of change rather than dealing with the project and problem at hand. Continuing in such a project can become costly and exhausting. The team must decide if they are capable of delivering a project that at least will cover costs and at best deliver value. Workshop exercises such as the 'Chart of Emotions' (see page XX), the 'Statements Exercise' (pXX) and the 'Project Environment Canvas' (pXX) as a return brief, during the Launch phase can help reveal hesitancy. Interviews and engagement of executives or senior management may be necessary to ensure there is alignment within the organisation. If a lack of vision is considered troubling at an early stage, limit as much as possible the Analysis period. A reframing document after the Define phase can help offer a moment of reflection. If a lack of commitment or vision remains, it may be healthy to stop the project.

Unclear role for the designer

Scenario. A) An enthusiastic client or project manager writes an excessively detailed brief that allows little room for interpretation or an outsider's perspective. B) Conversely, key stakeholders feel obliged to take over the designing role. In either case, the role of the design team to contribute constructively is compromised and they may wonder what their role was intended for in the first place. This creates tensions regarding the roles of individuals and organisations within a project.

Guidance. There are many ways to interpret this quandary. Anyone close to a project or problem can be tempted to invest emotionally in it or to push a certain agenda without realising that this can damage the design process. Alternatively a project manager with a very clear agenda may not need a designer but rather an illustrator, a website developer or a drafter. Finally, the governance modalities may not have been clearly defined from the outset in terms of what was expected from each team member or actor. In all of these cases, most of this conflict is likely to occur in new partnerships and early in a project. The launch period is therefore critical to sense any of these tensions, particularly by hosting a workshop to establish a working relationship.

Internal validation issues

Scenario. The project is running smoothly, but at some point decisions must be made. The project comes to a standstill because of an organisation's decision-making hierarchy. What started as a co-creation process has turned into a top-down decision-making process (see Chapter 5). This sucks the life out of the project and its participants.

Guidance. Use the Launch and Define phase to identify what information needs to be signed off by senior management and what actions can be taken without approval. Use the project timeline to block off internal milestones. Partners should be aware that they risk trust if they delay the process

Key stakeholders arriving late

Scenario. When dealing with a complex project involving various organisations, not all of the key actors are present from the outset of the project. An actor that arrives late in the process and feels out of place. They react defensively in order to gain or retain power or to avoid taking on work.

Guidance. There are a number of ways to deal with important actors throughout the project, even if they're not actively involved. The Launch and Discover phase should identify key actors (see the Pentahelix pXX), and where possible, speak with them directly. If critical actors are not interested or able to be involved in the project, the project may need to proceed by avoiding any issues concerning those actors. If the new actor has interest in the project but is not able to follow it, Personas (see pXX) may be useful as a proxy to ensure that the outcomes suit this actor. If a new actor joins after certain critical decisions are made, it may be necessary to engage this actor in a parallel onboarding process to ensure that any possible conflicts are identified and addressed.

Process oriented vs ends oriented

Scenario. A client or stakeholder group has a complex problem with no clear outcome or end point. The design team is engaged, proposing a partnership and collaboration, based on experimentation and exploration. Halfway through the project, the design team realises that what the client is expecting, far exceeds the budget. The client wants answers and ultimately is not prepared to risk uncertainty, wanting a deliverable or for the problem to be addressed as quickly as possible.

Guidance. In many cases, designers enter into projects without having a clear understanding of what will be delivered. Exploration is characteristic of the design process and entering into the unknown can be routine for designers. Clients, particularly public authorities, are inclined towards stability and structure, needing assurances of what a budget will deliver. In many cases, clients are expecting an

output and want to see concrete evidence that their investment (time and money) has led to something. Defining the output during the Launch phase and then reviewing them at the end of the Define phase can help reduce tension. Transparent communications of the consumption of the budget can be useful with some clients. If the budget is limited, it can be useful to agree that the project is concluded at the Prototype stage.

Toxic characters

Scenario. The team or project partners struggle to collaborate constructively due to tensions. The cause is attributed to a partner that is negative or struggles to contribute constructively to the team dynamics.

Guidance. A perfect team is one that emerges based on collaboration and mutual understanding. Rarely do people intentionally set out to sabotage a collaboration process. However, tensions often emerge when team members are poorly understood or their role does not suit them. Not everyone is comfortable in working in groups or speaking publicly, but this should not limit their capacity to contribute to a project. Diversity in a team is critical. People that may appear negative and defensive can offer crucial feedback when testing new ideas. For new teams and partnerships, the Launch phase is critical for the project manager to gain a better understanding of each person's strengths and role within the team. A skills and personality survey can be useful. For small projects, this analysis may need to be done based on observations during meetings. In larger projects, one on one discussions with key team members or partners can be invaluable. Ultimately, this will help define what kind of collaboration process is possible (see Chapter 5).

Evolving team

Scenario. A key team member leaves the team and the project dynamics radically change. As a result momentum and enthusiasm is lost.

Guidance. Changing team members is normal and should be anticipated. This is particularly challenging for long projects, for projects involving public organisations that evolve after election cycles and most circumstances where the client's project manager changes. Firstly, to protect the team, it is important for the project manager to regularly revisit the expected outcome or output for the project. Secondly, simple project management documents can help address expectations in a multi-organisation team. It is useful to keep a clear programme of meetings, deadlines for deliverables or events that allow all partners to keep abreast of what is expected of them. This should not compromise the creative process as partners should be free to define how they contribute to the project. The programme should also be regularly given space for review and adaptation to ensure it remains purposeful. Finally, an individual briefing session with any new team member and (physical) team collaboration moments can help rebond partnerships.

8. Read further

Process design is linked to a wide range of topics, requiring a transdisciplinary mindset. Process design practitioners can be inspired by ideas and methods from services design, psychology, systems thinking, organisation management, philosophy and sociology. This chapter is intended as a concise reference and reading list for sources that have been used in or have inspired this guide.

Aeon & Psyche
Aeon Media Group Ltd
https://aeon.co & https://psyche.co.
Two websites publishing useful articles related to society, philosophy and psychology that can be directly applied to design and dealing with change.

From humble beginnings to a cornerstone of design language
Ball, Jonathan (10/10/2019) The Design Council
https://tinyurl.com/thedoublediamond
Launched officially in 2004, the Double Diamond process is a simple but very dynamic framework for design, which is particularly useful for dealing with complexity and projects that depend heavily on collaboration. This article was written by one of the process' authors, Jonathan Bell.

Six Thinking Hats
de Bono, Edward. (1985) Little Brown and Company
One of de Bono's most influential management books based on lateral thinking according to mindsets. This method can be applied through the design process and is very useful in combination with the use of personas.

Nature-Based Innovation Guidebooks
Connecting Nature Project
https://connectingnature.eu/innovations
Nature-Based Solutions are a prime example of an excellent opportunity for the public sector, enterprises and communities to engage with human impact on the environment, yet much remains to be mainstreamed. The Connecting Nature project devised numerous mechanisms and co-creation processes for innovating with and therefore scaling-out nature-based solutions with a particular focus on cities.

Frame Innovation
Doorst, Kees (2015) MIT Press
For designers interested in a more complex or comprehensive methodology for design, 'Frame Innovation' describes a nine-step process (archaeology, paradox, context, field, themes, frames, futures, transformation, integration) which in many ways follows a similar rhythm to the double diamond method that is used in this guide. Doorst's methodology is very useful for anyone with confidence and experience in process design, as presented earlier in this guide. Various case studies help to illustrate this process but unfortunately Doorst is light on detail about the process. While the methodology and the text can come across as academic and difficult for practitioners to apply to messy or complex situations, the book's most useful message is the notion of 're-framing', which helps to bridge between the analysis phase and the design.

Good Services: How to design services that work
Downe, Lou (2020) BIS Publishes
The concept of services has been mentioned throughout this guide and readers may struggle to grasp how a service can be designed. This book synthetically describes a service and offers fifteen principles to design them. The book is written by a practitioner, a former design director in the UK Government. The book comes across as a manifesto, there are very few references and the principles are the product of years

of experience. It is light and a quick read with some useful tips for both novices and practitioners of service design.

Innovating with Nature: From Nature-Based Solutions to Nature-Based Enterprises

Kooijman, Esmee et al (2021) Sustainability, 13(3), 1263

Nature-based solutions have been widely recognised to address societal challenges and adopted in climate change and biodiversity strategies. Nevertheless, significant barriers exist for the necessary large-scale implementation of NBS and market development is still in its infancy. This paper explore opportunities for Nature-Based Enterprises, a sector that has a lot of potential for business, society and the planet.

Reinventing Organizations.

Laloux, Frederic (2015) LannooCampus

New, iterative and dynamic design processes should be coupled with organisational structures that can easily adapt and embrace change. Self-organisation has become an increasingly attractive concept for enterprises, allowing groups to quickly evolve to the problems at hand and avoid the burden of hierarchies. It is particularly an interesting and novel opportunity for multi-disciplinary partnerships. However self-organisation, like process design, requires considerable discipline to be effectively put into practice. Laloux's book evangelises the concept of self-organisation and looks at 12 organisations that put it into practice.

Nature-Based Solutions Business Model Canvas Guidebook

McQuaid, Siobhan (2019) Trinity College Dublin/ Horizon NUA https://tinyurl.com/nbsbusinessmodelcanvas

Alex Osterwalder's Business Model Canvas is one of the most popular tools for quickly and effectively structuring the bare essentials of a business model based on academic research. Osterwalder's canvas is oriented to classic capitalist oriented businesses and therefore not ideally suited to other issues that also need a business model. McQuaid's version introduces a number of new elements, supported by research on Nature-Based Enterprises and projects. See Chapter 6 for a description of the tool.

Thinking in Systems: A primer

Meadows, Donnella (2008) Chelsea Green Publishing

Systemic thinking has infiltrated the world of design and shown that it is an interesting way to structure complex information in different fields in order to facilitate the development of innovative solutions. In 'Thinking in Systems: A primer' Donella Meadows introduces you to the world of systemic thinking in different contexts and explains its basic principles in order to allow you to start looking at your environment through patterns organized in a system. Systemic thinking does also have its limits and every system inferred from your environment should therefore also be approached with the knowledge that systems can change and still remain a reduction of a complex environment.

Org Design for Design Orgs: Building and Managing In-house Design Teams

Merholz, Peter & Skinner, Kristen (2016) O'Reilly Media

Designing in teams is often done impulsively and intuitively but lacks formal structure that is needed to allow design processes to embrace good ideas and then effectively put them into action. Traditionally, power and hierarchy were associated with either experience level or with an assumed level of authority. This book is written for the technology sector, but many of the concepts are applicable to design teams in general, including: team structures, compe- tencies, levels of design and so on. The book provides an interpretation of the Double Diamond method mentioned in Chapter 4.

DIY Toolkit. Development Impact & You, Practical Tools To Trigger & Support Social Innovation

NESTA (2020)

https://diytoolkit.org

An extensive list of design tools were compiled within a project lead by NESTA, a UK based innova- tion agency for social good. These tools are focused on services design, but can be used for a wide range of applications and are complementary to the methodology presented in this guide.

Change your mind (online series)

Sandel, Michael (2018) Human

www.human.nl/changeyourmind.html

In this interesting series in English (the website is in Dutch though) Michael Sandel demonstrates how to challenge people's minds on complicated issues. When attempting to develop solutions for problems involving stakeholders with different views, this can become a serious issue if not dealt with. This series shows you that it is possible to discuss sensitive and complicated issues with different stakeholders and reate a constructive context.

Together

Sennett, Richard (2012) Yale University Press

Even though humanity depends on cooperation, it

remains a major issue in dealing with community, change and development. Sennett's book brings a well grounded by academically rigorous narrative on the skill and craft of cooperation. It offers an excellent introduction to Western democratic structures with a sensitive take on issues such as diplomacy and relations on the workfloor.

Strategic Management and Organisational Dynamics: The challenge of complexity to ways of thinking about organisations

Stacey, Ralph D. (1996), Pitman, London.

A thick and academic tome focusing on how organisations deal with uncertainty or continual change. Dealing with chaos from an organisational perspective is critical to addressing complexity or wicked problems.

This Is Service Design Doing: Applying Service Design Thinking in the Real World

Stickdorn, M., Hormess, M.E., Lawrence, A. & Schneider, J. (2017) O'Reilly Media

An updated version of the 'This is service design thinking: Basics, tools, cases' book published in 2010 and considered an important reference on service design, which is a design methodology heavily influenced by Design Thinking. Service design focuses on improving the experience of actors through the application of a set of qualitative and quantitative techniques such as giving actors diaries, creating personas and user-journeys of important actors and facilitating the design process through ideation and prototyping a service.

Designing With-in Public Organizations

Schaminée, Andrée. (2018) BIS Publishers

Public organisations are often diametrically opposite to designers within the private sector. Public organisations are characterised by being bureaucratic, slow, conservative, defensive, looking for stability and lacking space for creative thinking and exploratory processes. In contrast, designers are typified by being dynamic, adaptive, fast-moving but also can be fickle, capable of change and embracing independence. This is evidently a caricature, as many private organisations can act like public organisations, and there are excellent examples of public sector innovation. But designers interested in addressing complex problems can come into natural conflict when working with public organisations. This book serves as a candid guide for practitioners, using various reference case studies.

Working with Wicked Problems

Vandenbroeck, Philippe (2012) Koning Baudouin Stichting
https://issuu.com/shiftn/docs/wickedproblems_online

This booklet offers a synthetic and accessible introduction to wicked problems and presents methods and recommendations to work on them. A very useful primer linked to systems or systemic thinking.

The Colors of Change Revisited: Situating and Describing the Theory and its Practical Applications

Vermaak, Hans & de Caluwé, Leon (2018), Chapter in Research in Organizational Change and Development
https://tinyurl.com/vermaakdecaluwe

A paper that offers an excellent overview of forms of engagement, what is referred to in terms of 'change paradigms'. This paper is a retrospective on one written two decades earlier and has allowed the authors, who are academics and practitioners, to reflect on the concept and now consider practical applications. Interestingly, the authors generally have not seriously re-written the principles.

FIGURE 8.1 - REDISCOVERY OF THE STIEMERBEEK - OSMOS

There is no recipe to address complex environmental problems. There are no playbooks to roll back the effects of climate change, to protect urban areas from flooding or to improve biodiversity. Despite having access to innovative solutions, we're often bogged down by bureaucracy, overwhelmed by change, halted by available resources or lost in complexity. Humanity has a good idea of what a sustainable future looks like, but struggles to get there. Process design can help.

Until recently, design was considered a craft resulting in products or services. Design has been treated as an end, rather than a means, and the design process has been seen as the mysterious art of the designer.

Yet the process of designing can be a vital aid to manage complex or wicked problems, to explore ideas and to open dialogue. Process design offers an inclusive and iterative approach that guides teams or groups of actors to move from analysis and research to ideation and designing to reach meaningful outcomes.

Dealing with complexity means entering into the unknown. Just like an explorer embarking on a new journey, one should depart prepared with the right equipment. This guide has been written to equip practitioners, design teams and project managers with basic process management skills to help become more confident in thinking about both the means and ends of a project.

The guide provides an introduction to the concept of designing processes and includes methodologies, tools and reflections to put it into action. It follows a case study in the City of Genk (Belgium) where Nature-Based Solutions are employed to revitalise a forgotten polluted creek. The guide is the result of the five year Connecting Nature project, supported by the European Commission through Horizon 2020 funding.

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connectingnature.eu

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