DESIGNING A VALUE MAPPING TOOL FOR STRENGTHENING CO-CREATION IN PUBLIC SERVICES

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ALGEBRA UNIVERSITY COLLEGE

BACHELOR THESIS

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Empowering smart decision making through three orders of design: service, urban and transition

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Zagreb, August 2019.

"In full accountability, I confirm in writing that this is my author's work, of which no part has been created by copying or plagiarizing any other content. When I was working, I used the materials listed in the literature list, but I did not copy any of them, except the citations, where I mentioned author and source, and clearly marked them with the quotation marks. In the event that at any point in time it is proven to be the opposite, I am prepared to bear all the consequences including the annulment of the public document obtained partly and on the basis of this work".

In Zagreb, 29th of August 2019.

Franka Grubisic

Acknowledgments

"Take the time to slow down and remember everything good in your life, everyone that made an impact, changed you and try to grow from understanding where you came from, and how far you are willing to go." P.Š., 2018

The series of events which led me to this very moment may have seemed, at the time of happening, as difficult and hard, but in the end, trusting the process and following my own set of beliefs and values, I've arrived precisely where I need to be, and for that, I do have to thank a number of people. Some of them have challenged me to look at how and why I am working on a thing in a different light. They have asked me difficult and often searching questions with kindness and support and have encouraged me to be and to do the best I can.

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I have had the best advisors throughout my time on Faculty of Geodesy I could have dreamt of. Professor Emeritus dr. sc. Miljenko Lapaine understood my personality early on and he gently, but firmly, pushed me forwards, together with doc. dr. sc. Dražen Tutić.

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matched by anyone else. I hope that, if I ever start teaching, I'll be able to honour his passion and spirit by providing my potential future students with the same amount of support as he provided me with.

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Preface

Since I was a child, I was fascinated with maps. How “a single sheet of paper” offered so much information, direction and meaning beguiled me. How can something so complex and multi-dimensional as a place be translated into one dimension?

Curious about the details of map making, soon enough I’ve found myself as a geodesy and geoinformation science student. However, as I got older, I started to look at maps through additional layers, dimensions of social and cultural insights, interconnectedness of the city and its people – life and form, in order to get a complete, contextual picture I was striving for.

Followed by a number of both, personal successes and challenges, today you’re reading a paper which is my last step in the path of obtaining a bachelor’s in computer engineering. Even though it seemingly sounds I have not moved much from the technical stream, design was always a big moving part of my life – from owning my own bespoke design studio to working in service design today. I’d argue service design is exceptionally complimentary with the geospatial thinking I’ve acquired since I was little and everything systemic I’ve learnt throughout the facets of my education. Additionally, I see how design and engineering share similar underlying processes so I easily translate one into the other and vice versa.

Consequently, today my work crosses multiple disciplines to study and manage the interplay of services – I combine my engineering knowledge and design experience to demonstrate how integrating spatial science and design creates value for all stakeholders involved. This all-round knowledge and unique dimensional views make me aware that there are questions that nobody in my field asks. The result of this, paired with my passion and endeavour to make a contribution to the society, with all of the knowledge I currently possess, is now in your hands.

The places which maps represent are where everyday life is happening. People who affect these happenings are its inhabitants, citizens from one side and the overall public sector from the other side. I wish to help strengthening the connection between the interplays of the three.

This is just the first step.

Summary

People use a plethora of services every day. Our society has been shifting from product to service oriented with the rise of the sharing economy. While product design and development processes have been put in order and acknowledged long ago, not much of the services have witnessed the same – especially public services.

Hence, this thesis studies the intersection of service, urban and transition design within the public sector, set up to create a value mapping tool for strengthening co-creation in public services. Co-creation is hereby seen as an important method as, as citizens, we are obliged to pay taxes, which fund public services. If our chosen services fail, we can just stop paying, which is not the case for public services and this in return results with mostly negative connotations.

Built on existing theories, this thesis's research shows how to implement design, which is important for its both actionable and imaginative features, to facilitate co-creation in public services. It does so by integrating design principles in both the proposed co-creation model, as well as the value mapping tool and enabling derivation of specific actions (after co-creation). This way, both the government and the citizens not only see the value of the process and the tool but reawaken the partnership and a sense of trust between the two. Additionally, this makes it easier for any designer to approach the design of public services.

The thesis has both theoretical and practical value. The proposed co-creation model and the value mapping tool work in synergy and are envisioned to be used together. With this orchestrated use, the tool does not only strengthen co-creation in public services but offers actionable points for future development. It helps identify citizen's area of interest related to a specific problem by utilising transition design and the introduced the concept of spatial touchpoints and value statements. The end output are key action points left to public service managers to tackle later on – but in this case the journey might be more important than the destination.

Keywords: transdisciplinary research, co-creation, transition design, service design, urban design, public services, public transport, participation, value mapping, framework

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1. Introduction

"If you want to teach people a new way of thinking, don't bother trying to teach them. Instead, give them a tool, the use of which will lead to new ways of thinking." R.B. Fuller

This work dances on the lines of speculative, critical design, as it rejects the role of design as being limited to the production of objects and instead focuses on a rationale that seeks to address matters of public concern through provocative and unfamiliar, holistic rather than linear ideas and solutions. Such design practice challenges the boundaries of the discipline, our assumptions and subverts the status quo (Malpass, 2017). This critique is not necessarily negative – it just means slightly turning away from what exists offering a proposal of what could be by offering alternatives and highlighting weakness within existing environment. All good design is critical, because it doesn't take things for granted and it always questions what is given.

This type of thinking used for the argumentation of all key areas used within this thesis – which are a lot – stimulates ideas and offers value that we might not have otherwise come across had we chosen to address the same issue via purely linear and incremental thought – just like we are unlikely to arrive to a solution of a social problem with a purely technical approach. This is why the work emerging from this type of practices advances the design discipline, as it especially suits framing of the context of design around social needs, while being independent of a production and utility model. At the end, it is positive and idealistic because I think that change is possible – I just believe there is another way of getting there.

However, the thesis is not purely theoretical and hypothetical, just like design now addresses issues beyond the object. The role of design as "the arbiter of creativity" (Richardson et al., 2018) is changing – and while design has always concerned itself with the **planning and making of *things***, emerging approaches in research methods now see **design as transformative agent in intangible areas**, such as **shaping experiences and service systems**.

The case of this thesis is that these ambitious directions address more open-minded and ill-defined challenges, which contain ambiguity, change, contradictions and potentially insurmountable barriers of culture and understanding – like urban public transport does, or

any other public service per se. These sorts of problems are often referred to in design parlance as *wicked problems* (Buchanan, 1990), a term which emerged from social planning and which has a very firm attachment to design. Since such problems are multifaceted, they call for thinking that is capable of grasping the wider picture – which I aim to do by uniquely connecting disciplines of interest. I do this by including the interrelationships of a full range of casual factors with the help of transition design. As you will see later on, the tool also facilitates the use of design as a means of speculating how things could be. This is especially useful in this area, as it opens up new perspectives and creates spaces for discussion and debate. Discussions are a key part of the co-creation process which is explained throughout the thesis, because wicked problems require wider participation and collaboration in the process. With design as a catalyst, it aims to inspire and encourage people's imaginations to flow freely. In order to ensure this, a new co-creation model is proposed. So, assuming it is possible to address such problems with design, I'm interested in could design help citizens participate more actively, and if yes – how?

I believe design can help raise awareness of both the consequences as well as the possibilities of our actions and activities as both citizens and consumers. Many don't realize that we as citizens have effect on the happenings in our surroundings, which is why my aim with this tool is to strengthen co-creation for this very exact reason.

This thesis, just like wicked problems, called for an exploratory learning approach. That exploration is by no means exhaustive. As a matter of fact, it has only just begun. Yet, my beliefs about the link between the disciplines has never been more certain. There is already a momentum of public participation, and I believe it won't only become increasingly attractive to a vastness of public organisations – it will become the norm, and hopefully, sooner rather than later, it will offer new ways of supporting co-creation as a design method within the government and inspire people to co-create more, and to do so sustainably.

As a result, the work presented here is to be seen as "the first layer" to the topic(s), a broad overview of the created hypotheses of the complementariness of the used disciplines which range across fields. The work consists of the proposed new co-creation model and created value mapping tool for strengthening co-creation in public services. I intentionally use the word "proposed". This idea of the "proposal" is at the core of speculative, critical, transition design: to propose, to suggest, to offer something. As all good design is critical, design is therefore good at sketching out possibilities. The proposal at hand, the co-creation model and the value mapping tool, is drawn from rigorous analysis and thorough research, but it

does not lose its imaginative and provocative qualities. To arrive at this proposal, I've looked beyond "only" design and the public sector, to methodological backgrounds of ethics, politics, art, science, industry; in order to explore, understand and hybridize tools, methods and processes used in other areas, deconstruct them to elements and create a new concept from the ground up.

1.1. Inspiration, motivation and approach

When I first started thinking of how design and spatial science could be used for the enhancement of public services through co-creation, the only things I've had were my knowledge to date and a hunch of the idea. This hunch of mine has led me to the initial representation in a form of a *hack*, which is discussed later in the process. The hack then allows the more detailed elaboration of an idea, resulting in a prototype, which is the first version of the value mapping tool (VMT), and it helps me understand and formulate principles. These principles then go beyond the created artefact to set out guidelines, which could, in some cases, lead to a new paradigm. This approach is the spiral model created by Bill Verplank and it suggests the **maturation of the original idea** from phase to phase, as Tomitsch (2018) explains in his book "Making Cities Smarter". The development of this thesis follows this model, throughout which I, within literature study, research and review, generate and capture new knowledge by formulation of the design principles when creating the value mapping tool. The usefulness of the paradigms to which I arrive to extend beyond their particular approach within this thesis, as others can pick them up and apply to their work.

This capturing of knowledge is what defines design-based research in academia. It's not so much about identifying methods through reproducible experiments, as reproducing citizens' experience in a city with public services is vastly complex and hence hardly reproducible. It's more about making things and sharing the insights gained from the process, which I aspire to do throughout this thesis. Any solution is only as good as the thinking that goes into its design, development and implementation. To that end, the end artefact itself in the form of the VMT as a representation of the solution to the problem – as well as the process of how I came to it, is equally, if not more, important. Since one of my goals for this project is to get adopted by others, it is highly important for me to capture the process and to document it in a way that allows later analysis and reflection. As this topic is very complex and could be deepened so much so it could form another thesis, I aim to list every step and

elaborate all decisions while creating the tool, all the way writing possible implications, future opportunities and risk.

Future forecaster working at the Institute for the Future, Jane McGonigal, PhD, has said that "*To create something new, or make a change, you have to be able to imagine how things can be different*". This paper introduces a novel way of thinking that creates links to mentioned disciplines which, on first sight, are too diverse to even be linked together. I do this for a pragmatic reason: to empower individuals and organisations to pursue bigger and bolder ideas in the form of public services; to break from traditional thinking and current way things are done and consequently, stop creating solutions which create new problems.

In order to arrive to the final solution, I fully decompose introduced concepts to their bare skin before putting them back all together in one big, networked picture. This process draws inspiration from Kenya Hara's book *Designing Design*, in which he states that "*To understand something is not to be able to define it or describe it. Instead, taking something that we think we already know and making it unknown thrills us afresh with its reality and deepens our understanding of it*". Through this thesis, I take you together with me on this journey of breaking down and building concepts to arrive to a new solution.

Because of my academia background in spatial sciences, as well as interest and current job in service design, this thesis is set to connect my two areas of interest into something usable and useful for both public service providers (the government) and consumers (the citizens). This is because we experience the city to a large extent through its services, most of which are public ones. Thesis will specifically focus and offer examples from urban public transport, as using the public transport or actively experiencing the bicycle lane network to its development extents – these are all services, spatial entities, provided by the city. Moreover, participation in transport and mobility planning is less studied than participation in other areas of public policy and planning, while cities around the world are facing tremendous challenges and unexpected side effects from mass transport, due to fast growth of urban areas and failing strategies of urban planning.

However, there is a now momentum building for a new approach to strategic sustainable transport planning across Europe that incorporates public participation as an integral element. The specific concept of Sustainable Urban Mobility Planning, which is promoted by the European Commission (see Lindenau and Böhler-Baedeker, 2014), establishes the principle that **the public should be involved from the very beginning of the transport planning process** and not only when the plans are largely completed, and only minor

amendments can be carried out. The paper also touches upon sustainability principles and the future of mobility, as, well, it's the future, and it makes the Smart City 2.0.

Mueller et al. (2018) state that the main reason to introduce design and value co-creation into urban transport planning, and visions of future cities as well, is that mere smart technologies fail to integrate evolving self-organizing entities by dealing with mainly post-occupied spaces and it cannot improve aspects of cities that go beyond easily quantifiable criteria. Such aspects include quality of life, liveability, or the citizens' identification with a place. Both design practices and co-creation process take citizens' context and culture into consideration.

A useful concept which I introduce in this thesis are **spatial touchpoints**. They are the interfaces through which a customer (in this case, a citizen) experiences a service, consisting of a location entity. In other words, touchpoints are the connection, the interface between citizens and the government, with the city being the unique key which connects the two because that is where the public services with spatial touchpoints take place.

But, before jumping into designing a value mapping tool for enhancing co-creation in public services, we first need to understand the need behind it, as developing an understanding is the first step in any human-centred design process, as well as the steps before delivering public services. This step involves learning and conduct[ing] research with the goal to develop background knowledge, which then serves as "springboard…to address design challenges", as per Radcliff (2009). After all, everything about the creation of objects, systems and artefacts, whether critical in approach or highly pragmatic, should start with the engagement of human beings.

1.2. Current state of …

Co-creation is by no means a recent phenomenon, even though it may not look like that. Since the dawn of civilisation, people co-created, co-produced and co-designed things, activities, their lives. It has been practiced spanning different cultures and reasons. Indeed, the idea of mutual collaboration is as old as the humanity itself. We are, after all, social animals, and the problems of public services are social problems to solve.

The element of co-creation between citizens and governments alone, as well as within a spatial context, is also not new. There are a number of tools, software and case studies outlining or functioning on the concept of collaboration within some spatial scale. This

crowdsourcing is known as volunteered geographic information (VGI) in the spatial sciences and one of the most famous examples of it is OpenStreetMap. Additionally, every time we add an interest point to the more known Google Maps (e.g. a local business), we are voluntarily adding geographic information, and, in that way, we are theoretically[1] enhancing the map.

Most of the developed tools related to public services are in the realm of community management, where citizens can, through created platforms and their contribution, help keeping the city graffiti free – e.g. Report Graffiti as a feature of VanConnect mobile app[2], report street issues – e.g. FixMyStreet platform[3], as well as problems of infrastructure and service delivery – e.g. FixMyCommunity platform[4] and Gradsko oko[5] etc.

Having this in mind, I, as a designer, find that we are becoming increasingly involved in finding practical solutions to large-scale societal issues, such as climate change, poverty alleviation and also – rethinking public service delivery. Rosenquist & Mitchell (2016) state that this is a turning point in the way the things, services, environments and systems which we design fit into the world around us. Up until now, designers were mainly concerned with shaping our physical world, while today emerging fields such as service design, social design and political design, means designers are influencing social realities to a larger extent. This new role of ours not only calls for new approaches, principles, guidelines or forms, it also makes us be critically aware of how our work influences not only the physical world which was the focus until recently, but also our social world. This is perfectly understandable: the problems of today and tomorrow are social problems, and the question of how we want to live together in a networked society is a design question.

With the rise of social engagement and big, new problems, the role of the government is also changing. Some of the most difficult public sector problems of the modern era have been described as complex, intractable open-ended and 'wicked'. Similarly, cities, being complex and constantly changing environments are no different. They have changing, never-ending, or even contradictory requirements and many of the challenges that cities are facing are

[1] VGI has attracted some concerns about data quality because it is up to the individuals to add content and sometimes there are no moderators.
[2] https://vancouver.ca/home-property-development/vanconnect-graffiti.aspx, a mobile app by City of Vancouver (Canada)
[3] https://fixmystreet.org/
[4] https://dem.tools/fix-my-community
[5] https://www.bjelovar.hr/o-bjelovaru/projekti/gradsko-oko/, a mobile app by City of Bjelovar (Croatia)

notoriously complex challenges with interconnected dependencies. This situation calls for significantly different ways of doing. However, services as solutions have up to now have mostly been approached only from one side (government), whereas in practice the service as a solution is dependent on two-sided thinking (government and citizens). This has resulted in service failure. We could draw a conclusion that solutions can only be realized when everyone affected by the issue is given the opportunity to become part of the solution.

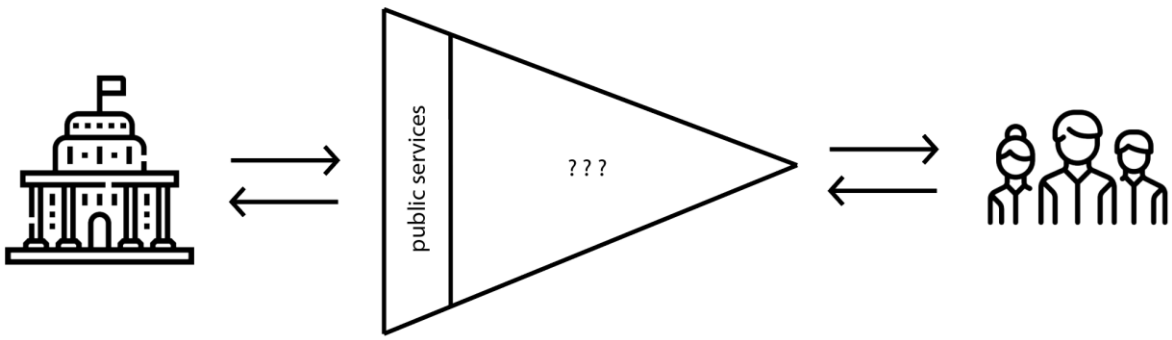

Figure 1.1 Link to Citizen Participation

This is why many governments are therefore considering how citizens might take part in co-creating and co-producing of the public services. I've done extensive research for ideas and attitudes towards co-creation and co-production of public services, but the conclusions are mixed: the interest in co-creation is massive, but so are the internal barriers that prevent real and complete co-creation to take place.

However, the fundamental idea is that citizens, rather than being viewed as recipients of public services, should be conceived as potential resources and take part in the creation, production and delivery of services (Brandsen & Pestoff, 2006; Ostrom, 1996). Nevertheless, further rethinking is necessary to bring the citizen-centred design thinking across all departments and public services. Argument made by many scholars in the field, as well as the one within this thesis fits with how Tomitsch (2018) summarizes is that to successfully and sustainably address the challenges cities are facing, it is crucial to empower the inhabitants of cities by helping them to make smarter choices. This government's increasing attempt at 'downloading' responsibility for service delivery onto citizens can according to Julier (2011) be seen as an opportunity for designers.

With these changes comes the change in public value perception. Many public services still have a low level of value creation and delivery and are trying to catch up with citizen's expectations set by private companies, if seen as relevant. Current literature focuses on value

being created at the point of or after the service interaction. For example – value is not created by just making urban public transport available, value is created and utilised the moment the citizen experiences the service by using it.

However, by putting co-creation in order, within this thesis I explore and explain value creation which happens **before the interaction** and argue that value is created **during co-creation**. The full value is afterwards utilised as current literature describes.

The guiding hypothesis is that public value is not only created as described above, as value-in-use, when experiencing the provided service. Rather, to enable true and complete value creation, value needs to be co-created from the beginning.

To make these collaborative decisions smarter, which in turn makes cities smarter, we need to design tools that allow people to make smarter choices about the way they live and work in cities, which is directly impacted by public services. This is what allowed us as humans to evolve and rise beyond other species on the planet and what will come out as the artefact of this thesis. However, every tool has its requirements, limitations and constraints, and when designing the VMT, we have to keep in mind not to make it overly complex.

Another thing to note here is that designers inscribe their visions into artefacts, experiences or environments, and thereby can implicitly reinforce or even construct values and norms. Hence, designers (both trained and untrained) should critically reflect on the impact of their work, in order not to inadvertently promote unintended values and norms. Following this, the conclusions I draw here are based on the interpretation of research data which are subject to my subjective interpretations. Therefore, the findings are not generisable, and others may find different patterns and draw other conclusions using the same information provided.

In this context, it is also crucial to understand the role of trust and responsibility in aligning the needs of citizens with the interests of public organizations intending to serve them. Designers should put on their "superhero" caps, look deeper into the problem and start redesigning interactions between citizens and public organizations from the ground up, reflecting upon responsibility and trust.

1.3. Research and development objectives

Although much has been written about co-creation in business models, or about smart cities in general, as it's already mentioned there is not much literature that discusses co-creation

in government (especially in public services), or which emphasizes the importance of design in this intersection of design, governance and urbanism. On the other hand, the literature that does exist looks at only government or only citizens, while this paper examines both. This is an essential distinction, as **both government and citizens are drivers of value**.

This thesis aims to approach the described challenge from a different view and actually take a step back. It argues that, contrary to existing literature which defines value creation happening at the point of or after service intervention, real value creation happens before the service is even delivered, through utilisation of co-creation.

Looking at the intersection of service, urban and transition design, this thesis aims to answer **two research questions**, the first one being: "*How could design be implemented within the public sector?*" One of the ways this is done is by integrating service design principles into the produced value mapping tool, introducing the concept of spatial touchpoints deployed in urban environments and makes use of the transition design framework by translating it to the value mapping tool. This, in turn, enables smart and distributed decision-making for the government but also enables a better and more sustainable life for citizens.

Drawing on the first research question, as a transdisciplinary bachelor project, which combines the fields of design, spatial concepts and public service management, it also indirectly explores **how designers can take part in reformulating participation and decision-making**, by creation of artefacts for public services, towards more just, sustainable and equitable cities and societies.

The fusion of these disciplines is actually the defining characteristic of transdisciplinarity, which include collaborative, creative, higher order thinking which transcends discipline boundaries, the explicit contribution of an ethical or moral perspective to problem resolution, and the generation of new knowledge and new resolutions, as Mitchell et al. (2007) explain. If a 'wicked' problem is the subject of our problem-resolving process then transdisciplinarity offers a framework for guiding the application of the tools to resolve the problem by creating new synergies and insights into the grand challenges that face society, and throughout this thesis you will find out that it is.

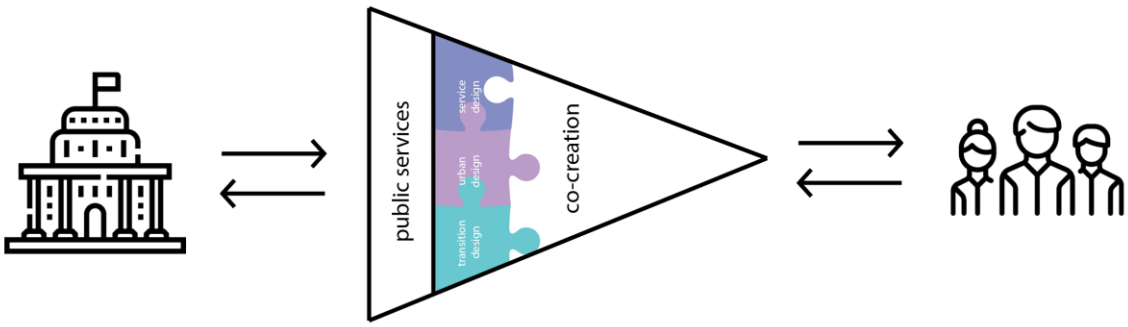

Figure 1.2 Developing models for Citizen Participation

The second question derives from rising trends in the form of participatory design, to which I refer as co-creation: "*How to strengthen co-creation in public services?*" These two questions (concepts) are then linked together and answered with the creation of a value mapping tool, coupled with a new co-creation model, which embed existing design principles and models and together form a framework for strengthening co-creation in public services. Consequently, it also **aims at creating awareness for social and political issues through designing forms of participation** and collaboration that enable sharing of information, spaces and resources among people in the city – hence designing an entire tool to enhance it, hoping it will contribute to replicability of practices by creating the right conditions.

All of this is done by keeping in mind the overarching tendency to arrive to smart and sustainable outcomes, which is done by connecting transition design principles to the holistic model. This holistic model incorporates all three dimensions of sustainability (social, environmental and economic) within co-creation, with the emphasis on the importance of design strategies in shaping the future of public services.

Developing models that allow for new ways of co-creation and tools to enhance it are essential to foster and scale more public projects utilising co-creation as a process. These ambitious, yet functional, models and tools can help develop projects that are more socially, environmentally and economically viable.

The final output are **value statements**, which are then distributed throughout the public sector accordingly - they (1) represent acknowledgment of the ideas born and presented, and consequently citizen's needs and wishes, (2) provide a vocalised, detail-specific output of the process and (3) yield actionable approaches and roadmaps for delivery.

1.4. Research methods

As designers, we bridge the gap between "what *is*" and "what *could be*", or "what *should be*". In design research, this is mostly done with **models**.

This thesis follows the *Design Research Process* model by Rick Robinson and John Cain (1993), as shown on the figure below.

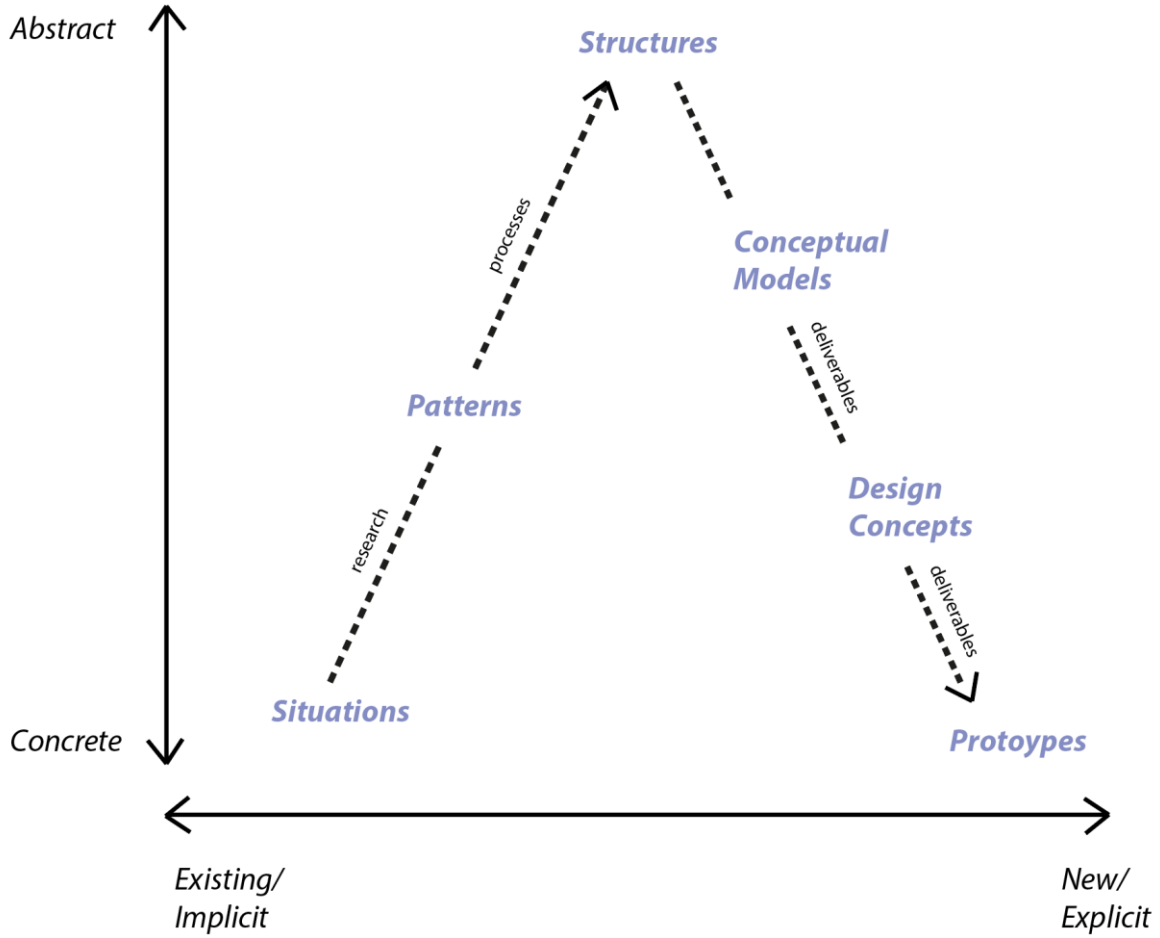

Figure 1.3 Design Research Process

Going further right on the horizontal axes moves the shift from existing and implicit towards new and explicit. Within this thesis, this is represented as the presentation of current co-creation spectrum models and way of doing things, towards the newly proposed co-creation model.

Moving from the bottom to the top, we move between layers of concreteness and abstractedness. On the beginning of the thesis, after introducing key concepts, I explain the current state of public participation. This notion is then transferred to the abstract levels by connecting different areas of our human life and their connectivity to public participation

happening within urban environments, which is then again brought back to concreteness by proposing a new co-creation model, together with a value mapping tool made to strengthen it.

The journey along both axes is characterized by *research*, *process* and *deliverables* phases or outcomes. In this thesis, the *research* covers Chapter 1 and 2, *process* Chapter 3 and *deliverables* Chapter 4, followed by a discussion in Chapter 5.

For me, designing is analogous to learning, which is why complementary to the design research model, this thesis follows a learning model as well – *Verplank's spiral* by Bill Verplank (2000). This concept is explained at the beginning of Chapter 1.1 Inspiration, motivation and approach.

1.5. Structure of the thesis

Public services, co-creation and design are very broad concepts. As such, the thesis first explained the idea behind connecting these concepts as well as their current state. Chapter 2 then outlines the working relationship between them through literature background, making the case for combining design, public sector and urban studies. Beginning of Chapter 3 reflects how transition design, service design and co-creation are used in real life examples with selected case-studies, before introducing the new co-creation model and value mapping tool, as well as explaining their development and design process. Chapter 4 presents findings and results from the process, reflecting on intended use scenarios and ethics behind it. In the last chapter, Chapter 5, theoretical contributions of the thesis and applicability and transferability of results are, among other things, discussed.

This thesis builds on various methods and techniques used in both the design world and the public sector, as well as some knowledge and concepts from organizational and spatial science. Where necessary, it provides further reading suggestions.

2. Existing theories and theoretical grounding

The idea behind this thesis is to approach public issues, which are social issues, from a design perspective, rather than the technical one, and research in what ways can co-creation succeed. It goes without saying that the fields of both design and the public sector are profoundly interdisciplinary.

Hence, this thesis involves the exploration of an **extensive and broad array of material** (including journal articles, books, reports, conference proceedings, policy documents, toolkits) at the intersection of various disciplinary areas of relevance to the intended research topic and focuses on the existing and established theory and qualitative research. I combine streams of literature on three topics: value co-creation, public sector and design (urban, service and transition). Desk research and a review of research findings are complemented by a review of planning practices and case study analyses.

What will be made clear throughout this thesis is **the interconnectedness** of the topics of design, public services, co-creation and urbanism. It will also come to light that problems which are contained at the unity of those areas are described as aforementioned '*wicked' problems*. These topics form an all-round picture, creating many new opportunities for further research, as additionally discussed in Chapter 5.6.

Even though each of these vastly complex topics has been researched individually, and the literature research outlined below shows relevant academic work done, I would say that the first and foremost important distinction of this thesis is that I illustrate the connectedness between these ideas, a unity of accumulated knowledge frameworks, beyond the disciplinary perspectives.

The six sections of this chapter thoroughly explore existing theories and academic literature and establish the theoretical grounding. Firstly, the chapter presents all the concepts and makes the case for bridging the 'technical' and 'social' gap. The following four sections describe evolution and value of design, public sector, urban studies and co-creation respectively. The final chapter reviews all three presented concepts and explores their mutual relationship.

2.1. Overview

As stated by Argyris (2000), over the last 50 years, knowledge of the human capacity for problem solving has broadened from a narrow concentration on the individual to the study of collective problem-solving processes in organizations. And in the last 20 years, the rise of the networked society has sparked interest in collective problem solving that takes place outside the confines of a single organization, in networks of stakeholders that can be spread throughout society (Stacey et al., 2000). As it happens, this type of collective problem solving coincides with designers' approach of dealing with problems, as well as lays a fruitful ground for developing co-creation as a design method.

On the other hand, in many planning problems, planners face major challenges in coping with uncertain and changing physical conditions, as well as rapid unpredictable socioeconomic development. These problems which are characterised with uncertainty and many aspects and dimensions are, as Head (2008) states, 'wicked' problems (e.g. urban transport planning and services). We, as a society, appear to require some new approaches for addressing the multiple causes of problems, opening up new insights about productive pathways for better solutions thus gaining broad stakeholder acceptance of shared strategies, which is especially important in public organisations. One of the reasons why design has risen to solve public issues is its possibility to tackle these open, complex, dynamic and networked problems, described as wicked problems.

Understanding of all – the perspectives and interests of key stakeholders, the knowledge bases available, the extent of agreement on broad goals, and developing shared expectations, can provide a sound basis for considering how further engagement should occur and how future decisions should be made when dealing with this type of problems. The hypothesis of this thesis is that co-creation is the way to go. This is important to keep in mind when developing and designing the value mapping tool as these processes can help address the insecurities arising from uncertainty, complexity and divergence, which could be addressed or solved by the VMT.

As mentioned, this thesis looks the issue at hand as a *social problem*, rather than a *technical* one. Many academics in the field (Blackman et al., 2006; Devaney & Spratt, 2009; Kreuter et al., 2004; Durant & Legge, 2006) wrote that the linear or rational approach to address technical problems cannot be used on wicked problems. They are to be considered unsolvable, as they are poorly defined, known and are changing fast. In such environment,

traditional problem-solving methods don't hold ground. Because of their nature, the VMT is seen as a fit solution as it provides an understanding of competing values (between multiple stakeholders), which for a smart decision-making process is more important than information.

The latter paragraph also explains why the emphasis of this thesis is on co-creation. An Australian Government discussion paper on wicked problems (APSC 2007) suggests that the general aim of government when dealing with those problems should be to achieve '**sustained behavioural change'** through '**collaboration'** as a response to '**social complexity**'.

This **collaboration**, in the context of public services, is referred to as **co-creation**. The very literal meaning of co-creation is: together (co-) make or produce something (new) to exist (creation). It enables idea generation through shared knowledge and experiences and a better understanding of the user. The latter sentence shares many similarities with design, and for a good reason. In design, co-creation has its roots in human centred design and participatory design (De Koning et al., 2016).

In this way, co-creation not only ensures that the real challenges in the lives of public-service end-users are taken into consideration but also actually ensures that they serve to guide and structure the involvement of all the internal and external stakeholders critical to implementation and thereby ensures behavioural change and real social impact (Bason, 2018). I address this by creating the output of the co-creation process and the VMT in the form of value statements, which ensure just that.

The linkage between wicked problems in the public sector, which are a consequence of our social, networked society and a constantly changing environment which cause challenges to public service managers, and ways designers tackle problems is clear. Ultimately, both design and governance are about solving problems and creating opportunities, which is an important relationship to keep in mind.

Just like traditional linear and technical problem solving is not sufficient to solve complex problems, neither is traditional design process (as a stand-alone). Design practitioners, theorists and researchers have worked to develop tools and methodologies better suited to these 'unsolvable' problems. In particular they have sought to integrate design's core competencies (visualization, prototyping and form-giving) with user-centred, social and

generative research methods that continually evolve in parallel with a deeper understanding of the dynamics of social complexity (Dubberly, 2008).

One emerging design discipline that especially fits into this picture is Transition Design. It acknowledges that we are living in 'transitional times' and takes as a central premise the need for societal transitions to more sustainable futures[6]. As Irwin et al. state (2015), transition design argues that design has a key role to play in these transitions and applies an **understanding of the interconnectedness of social, economic, political and natural systems to address problems at all levels of spatio-temporal scale in ways that improve quality of life**. Design can help give form to policy in practice (which is delivering the service) through the prototyping and creation of artefacts and communications such as service templates and system maps, or in this case - a value mapping tool, and the design of all types of information to clarify, direct and explicate. Because design emphasizes human experience in context, it has the potential to highlight values other than the economic and legislative indicators that public managers typically focus on. These principles are embedded in the design of the VMT, and consequently, into VMT itself.

Lastly, one of the dimensions of wicked problems, is the spatial scale of issues and proposed solutions, ranging from very small localities, through sub-regional areas and up to the national scale, as problems are often 'nested' and interdependent. For this reason, this Bachelor thesis sets to aim to find opportunities to facilitate spatial touchpoints in the research, as a response to the spatial scale. These are based on the fact that geography has traditionally dealt with environmental spaces (e.g., the immediate area in which a person lives and behaves, activity analysis) and geographic space (the area that cannot usually be perceived from a single vantage point on earth, the space of representation rather than personal interaction), whereas for the purpose of this research I will focus on figural (decision making, attitudes, preferences, emotions, values and beliefs) and personal interactions in conjunction with the environmental spaces. The research seeks out to examine how do these attributes work with each other, as it is taken as a premise that the figural spaces happen on top of the layer of environmental spaces. The environmental spaces will be represented as spatial touchpoints, while figural reflect the implemented

[6] We've already mentioned that the VMT will aim to facilitate smart decision making. Smart, in its way, contains the notion of sustainable, which for the purpose of this thesis is defined as: a way of thinking in which business (both public or private) is viewed as a positive force, which contributes to society and the environment.

niche/regime/landscape multi-level perspective and social context, explained in detail in Chapter 3.2.3.

The value mapping tool is considered as a tool for further exploration in this thesis because it provides a simple and visually emerging format to help create value for the public organisations, society and environment, as by Bocken et al., 2014. The task of every transition designer is to develop effective ways of visualizing the complexity of both problems and their context. This visualization can, especially as an artefact, serve to coordinate action and guide strategy, which is VMT's sole purpose.

2.2. Design evolution

Design can be defined as the human endeavour of converting actual into preferred situations (Simon, 1996). This broad definition views design as the process of creating 'new integrations of signs, things, actions and environments that address the concrete needs and values of human beings in diverse circumstances' (Buchanan, 1990). Rather than viewing design merely as an addition to the public manager's toolbox, this definition indicates that design offers a different way for public service management to be done. However, even though design is now explicitly entering the public service space, literature that convincingly marries design, public organization and societal context, and explores their relationship, is extremely sparse. As a contribution to the topic, the intent of this thesis is to point to new avenues for applying design-led processes within public service management and innovation at all levels of the public sector.

According to Buchanan (1990), design affects contemporary life in at least four areas: symbolic and visual (*communication*), the design of material objects (*construction*), design of activities and organized services (*strategic planning*) and, finally, the design of complex systems or environments for living, working, playing and learning (*systemic integration*).

Today, these design forms are undergoing a number of transformations, two of which are of particular importance for the development of this thesis.

Firstly, design is shifting to the concept of 'co': to *co*-llaboration, *co*-creation and *co*-design as a central feature, **emphasizing the explicit involvement of users, partners, suppliers and other stakeholders in the design process**, in essence discarding the notion of the heroic single designer, as many experts have concluded (Boland and Collopy, 2004; Shove et al., 2007; Sanders and Stappers, 2008; Michlewski, 2008; Bason, 2018; Meroni and Sangiorgi,

2011). Design as a discipline is thus undergoing a significant transformation, which perhaps places it more squarely at the heart of an organization's ability to create new valuable solutions. Variations such as participatory design and service design, which focus on (re)designing service processes from an end-user perspective, are in rapid growth (Bate and Robert, 2007; Shove et al., 2007; Brown, 2009; Cooper and Junginger, 2011).

Secondly, design is increasingly embracing the social. Although not a new perspective to designers per se, Ezio Manzini emphasizes that design as such has followed the evolution of economic thinking. This has led to a wider change in design culture which has arguably been under way since the late 1960s, and which could be characterized as design for 'social good'. This could be attributed to the rise of social innovation and responsibility, as well as designers' growing interest in the public sector – for example, the UK's Government Digital Service employs around 900 designers.

This is because design offers a different approach to the task of understanding public problems. Drawing on elements of systems thinking, design research can help public service managers better understand the root causes of problems and their underlying interdependences – the 'architecture of problems' (Boyer et al., 2011; Mulgan, 2014). Its emergent and more collaborative aspects suggest that public service management options could be increasingly co-designed through an interplay between various stakeholders. Design's strength in graphic facilitation and the use of tangibles and visuals for service and use scenarios can provide the means for cross-cutting dialogue, mutual understanding and **collective ownership of ideas and solutions**. Design, as a creative discipline, is ripe with ways and means of stimulating individual and group creativity and can thus facilitate a wide divergence of views and ideas, enabling selection, then synthesizing them (Bason, 2016). It is on these grounds that this thesis is built.

Design also offers the devices – concepts, identities, graphics, products, service templates, system maps – that can help give form and shape from theory to practice. In this thesis, I'm building the VMT. Design is perhaps at its best when it creates the tangible artefacts that we as humans can engage with physically and emotionally, of which our day to day lives are the best demonstrations – products are extensions of ourselves. The ability to create deliberate experiences and to make services desirable and attractive is at the heart of design practice.

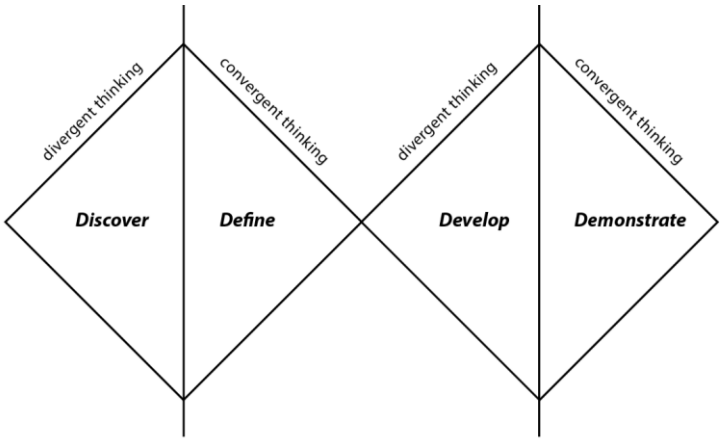

Figure 2.1 A double diamond characterisation of the design process

One of the most famous 'devices' is the double-diamond characterisation of the design process. The first part of the double-diamond design process is concerned with the problem (the first diamond), while the second one deals with finding suitable solutions. As the figure above illustrates, it is divided into four distinct phases: discover, define, develop and demonstrate.

The first diamond consists of divergent and convergent thinking and it contains the first two phases - discover and define. In these, an understanding of the problem is gained, and the area of focus is defined through the utilisation and switch from divergent to convergent thinking. At the intersection of the first diamond with the second one, a design brief is created, and the problem is reframed. The second diamond consists of a develop and a demonstrate phase, where exploration and implementation happen. In summary, activities in the first diamond support identifying the right problem while in the second diamond they help respond to human needs (Norman, 2013).

In a time when we search for ways to better manage and even benefit from the rising complexity and turbulence of our societies, design seems to promise smarter and more engaging ways of tackling problems.

As designers' understanding of complex problems has increased, they have begun to contribute within transdisciplinary teams to address problems in areas such as transportation, community revitalization and resilience, energy systems, healthcare and policy design (Jones, 2014; Hughes et. al., 2009). Designers are now the drivers of strategy and innovation for business and are contributing within the social sectors of governance and public sectors (Brown, 2009; Thackara, 2013; Junginger, 2014).

These new areas can be characterized as a **shift from the design of discrete objects and 'things' to relationships**, interactions and experiences for and within complex social systems. Design has changed from an activity often undertaken by an individual professional designer to a highly collaborative, co-design activity that involves a variety of actors, including professional designers, experts from other fields and disciplines and users/co-creators (Manzini, 2015). Today's design characteristics have moved away from the mechanical, product (object) view to systems, social view. This means that we are moving from disciplinary to transdisciplinary, from customers to co-creators and all of this while embracing new complexity arising – these are exciting new times for design.

To explain design's expanded field of operation, Richard Buchanan developed a model called the Four Orders of Design (2001) (Figure 2.2). Buchanan argued that design had evolved from two original 'orders' or placements for invention/creation; 1) visual communication/graphic design and 2) product/industrial design, to a third and fourth order; 3) actions and interactions and 4) complex systems and environments (which encompass the first three orders).

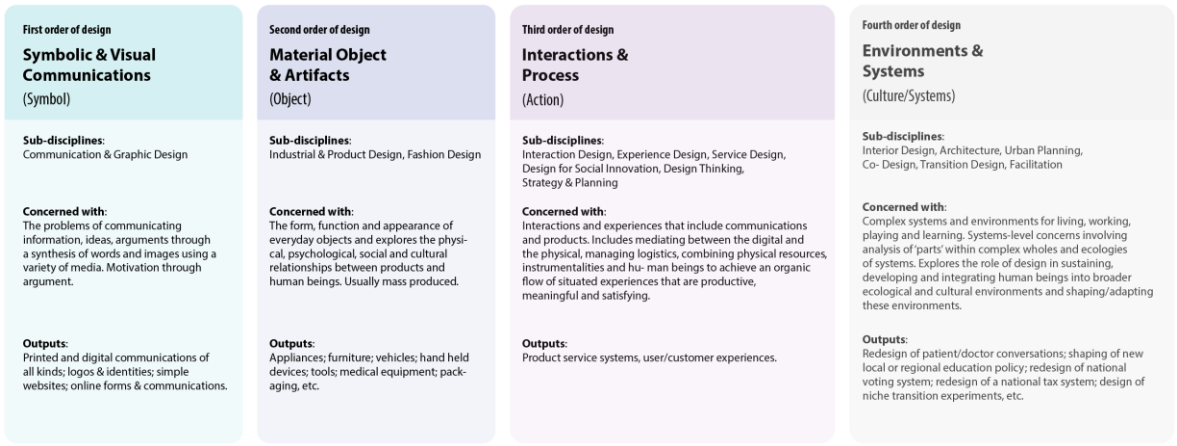

Figure 2.2 Design's Evolution by Buchanan

Jones (2014) developed a similar model (Table 2.1) which traces the evolution of several aspects of design including broad orientation, methods and influences and argues after Buchanan that **design has moved from more reductionist, mechanistic mindsets and processes to a holistic, highly collaborative systems approach.**

Table 2.1 Four Generations of Design Methods by Jones

Generation	**First**	**Second**	**Third**	**Fourth**

Orientation	Rational 1960s	Pragmatic 1970s	Phenomenological 1980s	Generative 2000s
Methods	Movement from Craft to Standardized Methods	Instrumentality, Methods Customized to Context	Design research and Stakeholder Methods, Design cognition	Generative, Empathic and Transdisciplinary
Authors & Trends	Simon, Fuller; Design Science Planning	Rittel, Jones; Wicked Problems evolution	Archer, Norman; User-Centred Design, Participatory Design	Dubberly, Sanders; Generative Design, Service Design
Systems influences	Sciences, Systems Engineering	Natural Systems, Hard Systems	Systems Dynamics, Social Systems, Soft Systems	Complexity

Within an expanded field of operation, there are three areas of established, maturing and emergent design focus that are of particular relevance in socio-technical transition management, which is closely connected to public service management and elements of which form the VMT. They are also recognised and discussed by both Buchanan and Jones. The focus areas are: Design for Service, Design for Social Innovation and Design for Policy. These areas evolved out of user-centred, participatory and co-design approaches used to understand how people meet their needs and interact with products and services, which is imperative for enabling value creation for citizens by the public sector. A growing body of tools, research methodologies and processes are being used by both expert and diffuse designers (Bason, 2013) in these areas to frame and solve problems at multiple levels of spaciotemporal scale.

Moritz (2005) explains how service design looks equally inwards and outwards, how value emerges for stakeholders inside and outside of the organisation, and how there is a reciprocal influence on both sides. Comparing this to the relationship between the public sector and the

citizens, it is deductible that service design is natural to the manifestation of the relationship through public services.

Even though service design looks equally inwards and outwards, more often than not a human-centred approach is advocated. This would mean that instead of firstly going from the business side – it being the government and the public sector and how they go about shaping policies in the form of laws or regulations which are then translated into processes that become experienceable for people through services, we start with citizens, which portrays a different picture. They use a public service instant to achieve a certain outcome, may have a vague understanding of its underlying processes, but are often far removed from a law's original intention (Jackson, 2017). Most often than not, their contexts, activities, practices, experiences and desired outcomes are not perceived by the public sector at all. However, capturing citizens' life worlds as Medberg & Heinonen (2014) suggest is required to understand how public service and the outcomes of their usage can contribute to the creation of public value.

Additionally, Bason had discussed three ways in which design can offer a different approach by: (1) Defining the problem space, (2) Developing concepts and ideas for policy, and (3) Articulating policy in tangible ways.

Last two of these approaches I've translated for its application in the case of creating a value mapping tool for enhancing co-creation in public services, as discussed below.

1. **Developing concepts and ideas for public service management**

The collaborative aspects of design research and practice can enable a co-creation process among government and end users (citizens). Visual representations for service and future scenarios can open spaces for negotiation, mutual understanding and collective ownership of ideas. In addition, design approaches enable both government and citizens to envision a desirable future together.

2. **Articulating public service experience and delivery in tangible ways**

Design brings things into existence, things that can then become crucial to our everyday life. This kind of world-making is not just a physical skill, but necessarily a social one. Design can help give form to public services in practice through the prototyping and creation of artefacts and communications, bringing together both "sides" by providing a value mapping tool which aids in enhancement of co-creation in public services.

Because design emphasizes human experience in context, it has the potential to highlight values other than the economic and legislative indicators that the government typically focuses on. This is done through service and transition design.

Service design impacts both artefacts as well as behaviours. It influences norms and values, while organisational transformation affects fundamental assumptions and prevailing paradigms (Sangiorgi, 2010). Design for service expands from designing experiences delivered through artefacts to **creating new, more holistic value relations that compass artefacts and people** (Kimbell, 2013).

On the other hand, transition design looks at everyday life as a potentially powerful, transformative space (Lefebvre, 1984; Gardiner, 2000). As our main protagonists are the government and the citizens, this approach is well-suited. Transition designers explore ways in which basic human needs are satisfied locally, within economies that exist to meet those needs (Max-Neef, 1992; Illich, 1987; Kamenetsky, 1992), in contrast to the currently dominant economic paradigm. Hence, it proposes that everyday life, and lifestyles, should be the **primary context within which to design** for **sustainable futures and improved quality of life**. Utilising social contexts within the VMT, it ensures and facilitates just that.

The focus areas of this thesis are service and transition design. It also explores urban design, which is explained later, in Chapter 2.4. When talking about public services, it feels natural to introduce service design. Generally, services help customers solve a problem or achieve a goal and thereby create value (Bettencourt et al., 2014). Stickdorn et al. (2017) characterise it as having six central principles of being **human-centred, collaborative, iterative, sequential, real, and holistic**.

All of these principles can be mapped to underlying principles of co-creation, transition design, urban design as well as smart decision making – concepts presented throughout this thesis. Human-centeredness emphasises that all people involved in every stage and usage of the service are considered. The second principle highlights that service design is collaborative in its very nature. The two of these principles make it complimentary to the co-creation process, as in both methodologies the main stakeholders concerned with the service are actively involved in its design. Service design being an iterative and sequential process correspond to later-to-be presented concepts of the double-diamond design process as well as design thinking. The three of these concepts are all characterised by scholars to have on humans, utilise artefacts, embrace interdisciplinarity and apply experimentation and iteration. Being real and holistic compliments well the sustainability notion of value creation,

which is intended to overarch all levels of sustainability. The entirety of all six principles are present in the value mapping tool, as it has been designed with those principles in mind, as it will be discussed later on.

As the main objective of service design is **transformation** – from the individual to society – and **creation of value** (Wetter-Edman, 2011), the practice and activity of service design represents and simulates a lifecycle, not focusing only on single-instant interactions, but contributing to a longer-lasting benefit for the user. That "longer-lasting benefit" is one of key pillars of sustainability, as well as main thought concepts of transition design – another order of design presented here.

Within this context, it is clear that understanding how people go about satisfying their needs is a key strategy for developing fit-for-purpose solutions. Manfred Max-Neef's theory of 'needs and satisfiers' (1992) proposes that needs are finite and universal, but the ways in which people meet those needs are limitless and unique to their era, culture, geographic location, age and mindset. The purpose of the public sector is to respond to citizens' needs. Those responses are, amongst other things, delivered as public services and its elements. Therefore, **a response to basic human needs is the foundation for the creation of any public value** (Meynhardt et al., 2017).

The application of service design by (re)designing the service with citizens' input through iteration yields the promise of creating more useful and usable public services. To achieve that, co-creation with multiple key stakeholders and collaboration over a longer period of time is required (Junginger, 2009; Sangiorgi, 2009).

Additionally, this concept of "*where people meet their needs*" presented by Max-Neef is another attribute of the spatial touchpoints introduced earlier. It happens on the environmental geographic layer, but it is affected by the figural spaces. Transition Design argues that everyday life is more likely to be sustainable when communities are in control of the satisfaction of their needs at multiple levels of scale: the household, the neighbourhood, the city, the region etc. (Kossoff, 2011). This means that the solutions have their origins in long-term thinking, are lifestyle-oriented and place-based (Irwin et al., 2015), which is again linked to the spatial touchpoints and discussed figural spaces and personal interactions with the environmental spaces. Linking this back to co-creation, the implementation of the transition design principles in the VMT actually ensures that the value statements created at the end are both lifestyle- and place-based and that sustainability is facilitated by enabling a "feeling of in control" during the co-creation process.

Transition Design also foregrounds questions of the social roles designers need to play to accomplish large-scale change in situations of urgency and crisis (Tonkinwise, 2015). Any Transition Design project also entails a redesign of the knowledge, values and practices of the designer as well – and so does this one.

If applied well, a unity of service design and transition design and practices can address fourth-order design issues on a system or environmental level, where wicked problems lie.

2.3. Public sector and its services

The bulk of research on innovation has focused on the private sector and especially on the industrial sector (Bessant, 2005; Michel, Brown, & Gallan, 2008; Oke, 2007). Similar research has concerned with the public sector as well, due to public management practiced throughout the 1990s, where theories and practices from the private sector have been brought into the public one – the idea of running public sector like private businesses. This way, the citizens were turned customers, and the goal was to produce the same outcomes, just more efficiently and effectively.

Even today, the goal of many private companies is still to maximise shareholder value. This notion being translated to the public sector, it would mean making opportunities for creating public value – a term coined by Moore in 2005. However, the roles of shareholders and citizens differ. While shareholders want to get as many and as much value they can by any means possible (cost and staff reduction, increased automation, etc.), citizens want to have their needs met and fulfilled. However, in Moore's model, public value is created by the public sector *for* the citizens, not *by* them. This movement, corresponding with the at time popular goods-based economic thinking, has now been on a decline, as a result of the service-based economy, adopted by many private companies, which left the private sector behind with the old doctrine.

The Marketing Science Institute (2008, 2010) has recently deemed service-based innovation a research priority. In terms of public services, however, the study remains at an initial phase and still very much in its infancy (LSE Public Policy Group, 2008; Mulgan & Albury, 2003; Vigoda-Gadot et al., 2008).

Pressures on budgets and rising citizen expectations as to more accessible and flexible services in addition to all the economic, social and environmental challenges that are prevailing have together driven innovation in the public sector (Bloch et al., 2009;

Commonwealth of Australia, 2009, 2010; Kaul, 1997; Mulgan & Albury, 2003; Scott-Kemmis, 2009). Hence, studying innovation in the public sector proves to be of corresponding fundamental importance.

The questions public service managers face are about the ways in which governments can create public services and public value, together with citizens and organization in the private and social sectors, which partly reflects a hunger for longer term stability and vision, which is in greater demand from citizens. In response, a new focus on 'strategic', 'collaborative' and 'networked' governance has begun to emerge (Parker and Parker, 2006). Spano (2009) argues that for value to be created, at least four groups need to be considered: 1) the individual and beneficiary of public offerings, 2) other people who may not directly benefit from the offering, 3) the community as a whole, and 4) future generations. He rightfully acknowledges that **collaboration between different public organisations and private companies** as well as a "**co-operation of citizens**" are **success factors for public value creation**. This "new" public value creation also requires addressing in three key areas: high-quality public services, achieved measurable social outcomes and trust generated between citizens and government (Try & Radnor, 2007).

As the growth of interdependence through connection, transparency and exchange applies to almost every aspect of life, we should think about what public service managers, by joining forces with designers and co-creating with citizens, can do. This manifests in creating new links and opportunities for collaboration and focusing on developing new tools and methods to achieve these new interdependence factors – something manifested throughout the thesis.

2.4. Urban experiences

We experience the public services on urban grounds. They happen on the environmental spaces – streets, squares, buildings; but are affected by figural ones – emotions, experiences and decisions.

It's safe to say that the city is its people. We don't make cities in order to make buildings and infrastructure, we make cities in order to come together. This is because living together, experiencing together and sharing experiences with each other creates memories and happiness.

The idea of designing cities as human habitats of the future is not new. The fields of architecture, urban design and urban planning all look back on a long tradition of conceptualizing, planning, designing and assembling cities and their building components. As by Tomitsch (2018), what is new is the digitalization of cities and their infrastructures, **creating a need for a new profession** that **understands both the design of cities and the design of digital experiences**. Fundamental to this new profession is the **ability to understand people** and their needs, as ultimately those new experiences are used by citizens.

In order to deliver these new experiences, a benchmark of existing ones as well as a detailed strategy must be put in place. It could be argued that those experiences can be digital-first, but they are not digital-only, as the majority of the public services are experienced across both ends of the spectrum (for example, we may look at the digital interface to see when our bus is coming, but the actual ride is physical). This is why I dismiss the purely technical approach when dealing with public services, as they are far from being just that – purely technical. They carry an immense social weight, and it is imperative to understand how it interplays with other contributing factors.

Public services in the public space

While in geography places are seen to be hierarchically arranged, from single room to planet Earth, the built environment uses an inside out perspective of place, proposing a scale that exclusively focuses on the **local**. This definition of place focuses on those who "dwell in the urban" – the citizens and passers-by – and considers place as something that is experienced and sometimes transformed by citizens and passer-by (Friedmann, 2010).

The practice of designing places with people in mind is known as *placemaking*, the idea which is attributed to Jane Jacobs and William W. Whyte (Project for Public Spaces, 2010). Two core principles of placemaking are its focus on **designing cities for people** and **including citizens in the decision-making process when designing public spaces**.

Even though by designing public services we are not directly designing physical places, those public services have own habitats within the urban environment and are being used by its citizens. As people are social beings and public services are shared experiences, exchanges and interactions between people can change the perception of value.

Consequently, the same core principles as for placemaking can apply for co-creation of public services, which will be kept in mind while and when designing the value mapping

tool. The aim and result of every public service should be to transmit feelings of safety, security and orientation. It could be argued that a "good" public service actually contains these needs.

Lastly, important distinction of any public space is that it is exactly it – *public*. Experienced passed-on socially in the urban area, from person to person or group to group, can lead to the perceived value creation for an individual. Value creation is, in this case, situated in and affected by relationships of the individual and social groups, and the transferability largely happens in public spaces.

2.5. Co-creation

Consumers are increasingly getting involved in shaping their own service experiences. This is a trend that became generally known as value co-creation. Prahalad and Ramamaswamy (2000) coined the term co-creation when they identified an evolution of the role of customers mainly from being passive buyers of products and services to become active players in the value creation process, bringing along their own specific preferences and requirements.

There are several definitions of co-creation for the public sector found in the literature. For example, Alford (2009) describes co-creation for the public sector as the involvement of stakeholders in the agenda setting, the development and the implementation of public policies. De Koning & Van den Broek (2011) define co-creation between government and citizens as the joint development and the improvement of policies and services at an equal level through constructive dialogue. In all these definitions, joint development in equity, interaction and dialogue, influence on agenda setting, high involvement and common goals are main characteristics for co-creation (see also Osborne & Strokosch, 2013; Voorberg et al., 2014).

Now, in participatory design, participants are seen as beneficial contributors to the design process by offering their expertise and knowledge as a resource. That is why the term co-creation is often associated with participatory design.

This thesis draws on the notion that traditional conceptions of service planning and management, explained in Chapter 2.3, are outdated. Co-creation empowers citizens and puts on citizen involvement in the creation of public services, which means services are no longer created and delivered only by public agencies, but rather by someone who has a better connection to the service. Placing the citizen as an active participant in the public sector

using the co-creation process institutes one of the foundational premises of service-dominant logic (S-D logic).

In organizational literature, co-creation has also been praised, in terms of what it can bring to the process of change. Co-creating changes, instead of imposing changes top down, is said to be more effective. This is because it becomes meaningful for the people involved, it ensures a platform for many to be heard and room for diversity, difference and desires (Wierdsma, 2004; Wenger, 2000). Goldsmith and Crawford (2014) in the context of cities propose the formulation *Responsive City*, which reflects the changeover from **top-down governed cities towards citizen-centred and citizen-inclusive governance** as the best way. Obviously, the significant shift in approaches and ways of thinking has emerged. Introducing design and making the co-creation process "necessary" tool in the public sector would capitalise on this current change and additionally contribute to it.

More about co-creation and the process will be discussed in more length in Chapter 3.

2.5.1. The spectrums of co-creation

As by Koning et al. (2016), the co-creation spectrum gives an overview of models that place co-creation in the field of other similar or overlapping approaches/methodologies (Figure 2.3). It shows what I've already mentioned, that co-creation overlaps with other movements and terms such as open innovation and participatory design, judging on the position of "co-creation as a design method" along the influence on output and level of collaboration axes.

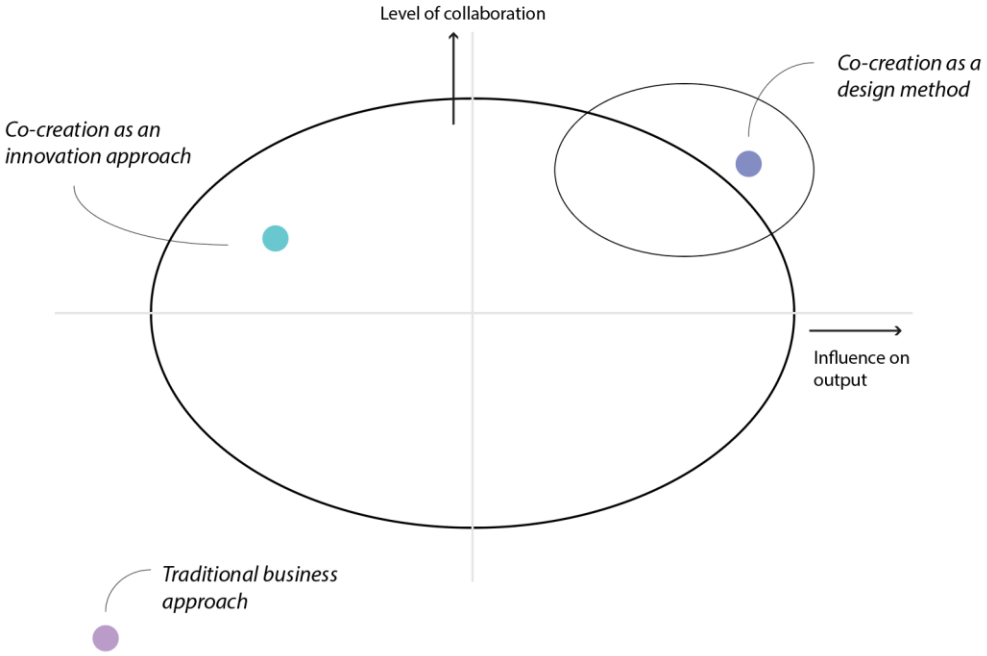

Figure 2.3 Spectrums of Co-creation

Similarly, International Association of Public Participation (IAP2) has developed their own Spectrum of Public Participation in order to help clarify the role of the public in planning and decision-making and its influence the processes. The IAP2 claims that the Spectrum is "quickly becoming an international standard" and, while this claim is partly self-promotion, it certainly has some validity in some sectors (Sustaining Community, 2017). In Australia, the Spectrum forms a basis for many state and federal government guides to community engagement (e.g., Department Environment, Land, Water and Planning (2015), Department of Primary Industries (2008) local government community engagement plans (e.g., City of Newcastle (2011), Latrobe City (2015)) and a range of other organisations. The Spectrum of Public Participation (IAP2) is presented in the table below.

Table 2.2 Spectrum of Public Participation (IAP2)

	Inform	**Consult**	**Involve**	**Collaborate**	**Empower**
Public participation goal	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions	To obtain public feedback on analysis, alternatives and/or decisions	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution	To place final decision-making in the hands of the public

Promise to the public	We will keep you informed	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision. We will seek your feedback on drafts and proposals	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision	We will work together with you to formulate solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible	We will implement what you decide

It is visible that, the further to the right of the Spectrum, the more influence the public has over decisions. However, each level is dependent of the context. There is no "right" or "wrong" and it should not be looked as stages of a process or steps towards the goal.

Depending on the issue's controversy and if it does or does not provoke passionate feelings, a lower level may be more appropriate, for example Inform or Consult. However, for issues which are complex and controversial, it can save time in the long run to choose a higher level, such as Collaborate or Empower (Hardy, 2015). Sarno (2013) and the United States Environmental Protection Agency (2017) suggest that the central question is "*How much potential influence on the decision or action are you willing to provide to the public?*". While this is a very important question, it is also important to consider how much influence the

community wants to have, and potential consequences of selecting various levels. As Hardy argues:

> *The level often needs to be negotiated, and communities have shown that they can challenge the level of engagement, especially when particular stakeholder groups have been overlooked in the process.*

Another thing important to note is that just like the development of problems can change, so can the chosen level of participation within the spectrum as well. It is also possible to use two different levels for the same issue, as some stakeholders could be more keen or capable for participating in one level than another.

Similarly, Junginger (2017) proposes a framework to describe creation and co-creation in public organisations and categorise their design practices (Figure 2.4). It visualises the choices in a matrix to either design *for*, design *with* or design *by* citizens and organisations.

Figure 2.4 Common design practises in public organisations

The 3x3 grid framework provides an overview of common design practices in public organisations, with designing for, with or by citizens on one side and by, with or for organisations on the other. Just like for IAP2, different situations, organisational settings and mindsets lead to a preference for one possibility over the others. This matrix also allows for

the location and categorisation of existing practices of public sectors around the world and it can be used to compare an as-is and a to-be state.

Of special interest for this thesis is the situation when design work is done jointly by citizens and organisational staff, when they **co-create and produce**. Only then do both parties have ownership of what is being created. This is the case of designing *by* organisations and *with* or *by* citizens.

2.5.2. The potential of co-creation for the public sector

The use and experience of public service is a rare direct interaction that citizens have with their public sector, and there are thousands of different kinds of services being provided to the public. Citizen's experience of dealing with authorities can determine the level of trust they have in them, as well as in democratic structures (Greenway et al., 2018).

However, most public organizations supply services based on the same blueprint, or governance paradigm, that has lasted for 30 years or more, while the population's educational level and access to resources, including new technology, have changed dramatically (Osborne and Brown, 2012; Hartley, 2005; Leadbeater, 2009).

On the other hand, public-sector innovation derives from the need of governments to boost and enhance the responsiveness of services **provided to meet** individual and local needs through services **tailored to meet** individual citizen and local needs. There is an obvious gap between the two. According to Bason (2018), the only way to meet and face these challenges is through the **co-creation of new solutions with citizens**.

The application of the S-D logic and the co-creation of value may present the public sector with a diverse range of innovation-related opportunities. Citizens may prove to be excellent sources of innovation, inspiring ideas in their position as the actual users of services (Bason, 2018; Bessant, 2005; Commonwealth of Australia, 2010).

What will be showed and reasoned throughout this thesis is that by utilising co-creation, public service managers can address rising societal issues as the process enables a truly open environment, ideal for creation of innovative ideas. In planning science, joint planning or co-creation between public planning authorities and stakeholders is regularly mentioned as the key for integral development (Forester, 1999; Heeres et al., 2012; Van den Boomen & Venhoeven, 2012; Arts et al., 2014). This again means and proves that the shift from current top-down approach to a citizen-inclusive governance is needed, and the time is right, as

previous research has indicated that the public sector is generally lagging behind regarding the adoption of value co-creating practices and tools, due to a lack of customer orientation (Cassia & Magno, 2009). This may not come as a surprise since public services are often not as pressured to focus on the customer as private services.

Nonetheless, public services in many countries are currently facing greater challenges as a result of a tighter restrictions on the amount of resources that are available to them. The co-creation of value can therefore be a tool for innovating public services, drawing on knowledge of citizens for improving service provision with fewer resources (Alves, 2012). I hope to prove the same along the development of this thesis.

2.5.3. Value of co-creation in urban public transport

The government offers plentiful of public services and the one which will be the focus of this thesis is **public transport**. This is the case because, as it was explained in Chapter 1.1, there is an ongoing momentum for seizing a new approach to strategic sustainable transport planning across Europe. A momentum so big that the European Commission has established a grounding co-creation principle stating that the public should be involved from the very beginning, instead of when plans are already largely completed. On the other hand, urban public transport is one of the most neglected areas in literature, compared to other areas of public policies and planning. This, combined with the rising urbanistic challenges we face today and in the future, have led to this choice.

One of few studies on the topic by Gebauer et al. (2010) show, based on a case-study of a railway operator, that value co-creation might play a strategic role in the urban public transport domain, with potential performance improvements as a result of the abovementioned transition from a goods-dominant towards a service-dominant logic. In like manner, they have demonstrated that a desired reduction of the environmental impact of transport can be achieved by encouraging "value co-creation by engaging customers in marketing activities, offering self-servicing opportunities, creating customer experiences, solving customer problems and co-designing services in collaboration with customers."

2.6. The relationship between

To discuss and understand how to strengthen co-creation process as a method in the public sector, after taking a closer look at how the worlds of design, governance and urban operate

individually through the summarisation of various academic discourses, we need to bring them together in order to understand how they operate mutually.

The three sections of this chapter explore existing theories and academic literature and establish the theoretical grounding for the practical work – the design of the co-creation model and the value mapping tool.

Firstly, the chapter describes the involvement of design in the public sector and how it is described in several schools of thought. It finds and makes the case for new areas of design which can be used in the public sector. The second section examines the connection between design and the urban experience. It explores how do citizens interact with the city and consequently how the city affects the experience of public services. The final section reviews all three presented areas together and recognises the role of citizen participation in the public sector, linking back to the urban experience.

2.6.1. Design and the public sector

As already mentioned, designers are increasingly engaged in solving large-scale societal issues. It could also be said that the interest in the potentially activist role of design is growing (Rosenquist and Mitchell, 2016). This means noticing, vocalising and (re)designing public services, as well as understanding the embedded societal values that lie within them.

In the governance literature, visions are considered to be governed by **values**. According to Kooiman and Jentoft (2009) and the idea of Interactive Governance, norms, principles and values "underpin all decisions since they inspire those who govern how to think and make judgements". These norms, principles and values sit at what they term 'third order governance' or 'meta-governance', which governs the governance activities that happen at first and second order. First order governance deals with day-to-day affairs. This is where problems are solved and opportunities created (Kooiman et al., 2008). The designed artefacts, experiences and environments through which citizens meet their government can therefore be seen as part of first order of governance, where the value mapping tool will belong as well.

Additionally, Tunstall (2007) states that it is through the design of artefacts, experiences and environments that citizens meet their government. Designers, with their ability to make the invisible explicit and a plethora of their emancipatory tools, are well placed to open up the

aforementioned three orders of governance for the potential redesign by people whose voices are most often not heard in public sector decision-making.

But, designing to date has been primarily problem-based. This means that each design project tends to have a stopping point. There is an end-product. But within problems situated in and around public services this can no longer be the case as we cannot approach solving this problem with a typical linear timeframe. That's why transition design explicitly locates itself within the domain of 'wicked' problems – it involves a kind of designing that 'stays with' a problem.

Tonkinwise (2015) nicely explains that a Transition Designer designs something not to be an end-unto-itself, a final solution to a problem, but to open up subsequent opportunities. Public services are not only **shared experiences**, but also happening in real time and continuity. It does not always encompass the same people with same backgrounds, experiences and culture. Consequently, the point is to always ask what new options are generated by the conditions that successful design generates, as these are moving pieces of the puzzle.

Though longer-term thinking is inherent to Transition Design, this practice is not like strategic planning. The multi-stage quality of it means that after each accomplishment, the way forward needs to be re-evaluated because un-anticipatable consequences will have arisen (for example, extreme migration with different cultural backgrounds). Tonkinwise creates a case for Transition Designers to seek to see round corners, moving in one direction not in order to get at the end point, but instead to discern other change – possibilities afforded by having shifted current conditions through the insertion of new designs and designed activities. This insight sets the foundation for the "rethinking by spinning" concept I introduce in Chapter 3.2.3.

2.6.2. Design and urban experiences

In his book "Making Cities Smarter", Martin Tomitsch (2018) introduced the concept of "city apps", examples of which include digital information screens, digital wayfinding sign and applications running on urban screens. As he metaphorically explains, city apps are built using the city, as it is, as an operating system. His notion draws on the idea that the city is providing the infrastructure on top of which city apps are built along with pre-existing input and output mechanisms. Types of input might include urban activities, such as traffic or

pedestrian flow, and environmental conditions, such as air-quality, temperature, light and so on. Forms of outputs include surfaces, such as the street or buildings, and urban furniture, such as benches, street lamps, and so on.

This metaphor which connects design with computer science shouldn't come as a surprise. In a time when design is used to shape everything from single artefacts, to related experiences, to systems and behaviours, up to large-scale systems (Di Russo, 2016), activities, goals and results do differ, but the underlying processes of mechanical engineers, software developers, business managers and designers actually have large similarities, but these groups are often unaware of each other's practices (Dubberly, 2004).

Additionally, this notion of the city as an operating system is similar to the idea of the relationship of environmental spaces, figural spaces and public services happening on top with citizens utilising them. The city located on the environmental plane provides the infrastructure for the figural plane to take place. On these two planes, the experience of using public services by citizens happens. The use is affected by the figural plane – the decision making, attitudes, preferences, emotions, values and beliefs of the citizens, while the public services are entities happening on top. This system also has a form of inputs and outputs – and that is value.

Even though the focus of his book is focused only on digital technology, and the scope of this thesis looks at both the digital and the physical world, Tomitsch rightfully states that we [the society] shouldn't use and push technology for technology's sake but rather to use it to improve the urban experience. That's because the best artefacts are not built around a feature, but instead focus on how people experience the city – which is in a large portion through public services, and more specifically, how to improve this experience, for all stakeholders. People navigate and appropriate the urban landscape to fit their opportunistic objectives, operating within cultural and social frameworks. Understanding their experience and background within the co-creation process, they become better informed and hence make smarter decisions and uses of own urban environment.

This happens because experience is shaped through hedonic qualities (Hassenzahl & Tractinsky, 2006), including the person's previous experiences, mood, and other emotions, which the designer has no ability to control. Just like not everyone experiences a product the same way due to the experienced interaction being shaped through emotions, attitudes, and feelings, not everyone experiences the city nor the service happening within it the same way.

Public services are shared experiences which serve as the facilitator. They are also real-time, continuous and designed by someone else than the consumer. This means that, currently, the citizen is going through the experience without owning the service serving him/her. By utilising co-creation, this concept changes as now citizens, as stakeholders, feel a sense of ownership of experienced public services. This concept will have significant impact on how the design of the value mapping tool will be approached.

2.6.3. Design, urban experiences and the public sector

It would be unreal to think of public services as a separate entity than the people using them or the urban environment they are happening within. Those environments are complex and constantly changing, with changing or even contradictory requirements (Rittel and Webber, 1973), which may just be a consequence of the changing or even contradictory behaviour of the people inhabiting it, as well as the nature of public service, which are situated upon the environmental layer (geographically). The reason to this is because citizens are rarely perceived as "real" stakeholders, if at all. Smart city solution providers see public organisations as end users and vice versa. It goes without saying that in both cases they are completely missing out on a crucial stakeholder, the very people using the services – the citizens.

This makes the case that both urban and social challenges are more multidisciplinary than ever before. Tomitsch (2018) argues that design and upgrade of cities are no longer the sole responsibility of architects, urban planners and engineers. Other literature review within this thesis also shows that neither it is the sole responsibility of the government to improve upon public services. On the contrary, the need for co-creation within the orders of the public sector and its citizens, revolving around urban spaces is happening, by Greenfield (2013), Townsend (2013) and Hemment and Townsend (2013), because the current top-down smart city solutions fail to address the local complexities of cities and the needs of citizens, whose role is becoming increasingly important. This is where design comes to play, and later on I will show how, with the use of transition design and existing design principles, both the co-creation process and the VMT tackle this.

With increasing use of the 'open' policies and this social shift for higher public engagement, the design of **experiences in future cities** is therefore no longer restricted. Governments around the world are increasingly acknowledging this shift and providing opportunities for citizens to co-create layers that make their cities.

Tomitsch (2018) argues that the city as an operating system is unstructured without a clearly defined application-programming interface (API). Conceptually, this metaphor adds to the emphasis on the citizen, not only as a user, but also as a **provider**. There is a distinct analogy between the aforementioned concept and **co-creation**, which allows citizens to co-create public services and governments to collect input from the local community. The API is, in this context, the value mapping tool which provides strategy guidelines and direction, serving as a compass – a tool with which the government meets its citizens and vice versa, together with defined value statements.

However, public participation on issues shaping the city is not in itself a new concept or responsibility. In many places, especially in the European cities of the old Member States, there are already policies and mandatory processes in place on how the public should be involved in major construction projects. **Involving communities in planning** is a **fundamental duty of local authorities** to **improve decision-making** and is also a requirement stipulated by EU directives and international conventions. Lindenau and Böhler-Baedeker (2014) state that citizen and stakeholder engagement are a precondition for sustainable urban mobility planning – a topic addressed within the scope of this thesis.

The argument made by scholars in the field is that, to successfully and sustainably address the challenges cities are facing, it is crucial **to empower the inhabitants of cities** by helping them to make smarter choices. We can empower the citizens if we allow them to engage with the government (*co-creation*) and if we put needed tools in their hands to do so (*value mapping*).

3. Development process and methods

To explore value co-creation in public services, this thesis reports on a multiple case study analysis conducted to start filling the knowledge gap and to identify differences across co-creation in public services around the world. The sampling process was conducted by means of a *theoretical approach*[7], as coined by Eisenhardt (1989) and later described by Eisenhardt and Graebner (2007), as well as Patton (2002). This approach led to the selection of Gent (Belgium), Singapore and China. The case studies are here to illustrate three different examples of co-creation to portray a picture of the current state.

Gent case study illustrates introducing transition management as a process which shares many similarities to the co-creation process and transition design principles. Individual phases applied in transition management of City of Gent can be mapped to proposed stages of the co-creation process in Chapter 3.1.6.

Singapore case study shows us how, when working closely with citizens and successfully recognising all stakeholders (as too often stakeholder engagement consists of agencies and service providers, instead of people with lived experience), significant measures and results could be achieved.

China's case study introduces the concept of *co-destruction* which could happen as a consequence to *co-creation*. The concept is described with regards to dock less bike-sharing systems (DBSS), which has risen to exist as a consequence of the appearance of the sharing economy. This case study is here to point out the possible negative connotations and outcomes which could come as a result of co-creation.

Additionally, building on the literature discussed through Chapters 1 and 2, this research taxonomizes five concepts: transition design, public services, co-creation, value mapping and urban public transport; from which I form the theoretical foundation for designing the value mapping tool. Each proposed concept and its possible sub-concepts are firstly conceptualized through an application of literature readings from a plethora of sources and followed by suitable citations in relevant literature to date.

[7] Case studies are not randomly selected but chosen as laboratory experiments "for the likelihood that they will offer theoretical insight" (Eisenhardt and Graebner, 2007).

Each of the five concepts have been validated through existent literature *individually*, whereas I aim to uniquely integrate the concepts together, using transdisciplinarity to provide new value creation. The different yet complimentary linkages between these concepts are aligned with respect to their use in public services and specifically within urban public transport.

3.1. Co-creation

As by Jansen and Pieters (2017), *complete co-creation* means actively involving end-users and other relevant parties in a development process, from the identification of a challenge to the implementation and tracking of its solution. It is foremost a *procedure* which may evolve into an *organizational principle*, and potentially even a *co-ownership*. It is the transparent process of **value creation in ongoing, productive collaboration** with, and supported by all relevant parties, with end-users playing a central role.

The central premise of complete co-creation is that neither the various organizations in a value chain – in our case, the government; nor the end users – in our case, the citizens, can reach the ideal solution to any challenge without collaborating. This is because the government and the citizens have complementary knowledge and skills, which they could use together. Also, as it was already stated, best results are not built around the government, or technology, but around people using it by meeting and satisfying their core needs. After all, the citizens themselves possess the key to their deeper motivations, dreams and fears, as well as what do they expect out of the city and its services. This means that, if all relevant parties – including citizens – will work together on a given challenge, the solution will not only optimally serve the citizens' needs but will also gain acceptance and involvement of all parties responsible for its success.

In today's world, it is important to realize and understand that citizens want to see how governments work and how do they create value for them. This arises from citizen's being obliged to pay taxes but not seeing or experiencing where has their money went. In many areas of the world, there is a disconnect of what do governments stand for and what do they actually do. Hence, (re)building citizen trust is becoming more and more important. Co-creation is one of the tools governments can use to get closer together and show their citizens that the way they are spending their tax money is benefitting everyone.

Hence, the accessibility of information today, by the majority of the population, about how governments view the world and their contributions to citizens' quality of life promote the realization that an **honest, value-driven attitude** is necessary for the future of humanity. As much of the focus is put upon **value**, it being a key attribute in the 21st century, is another reason why this thesis is working on creating a value mapping tool for enhancing co-creation. Everyone understands value.

Jansen and Pieters (2017) in their book "The 7 principles of complete co-creation" describe the shift from Power Paradigm (success is defined by economic growth) to the Co-creation Paradigm (co-creation as ultimate client-centeredness). Their Co-creation Transition Model illustrates how three important trends in our society lead the transformation of an increasing number of organizations from organization-driven to **value-driven**.

While designing the value mapping tool for enhancing co-creation, the 7 principles created by Jansen and Pieters will be taken as the base for the creation of the tool. This is because the principles describe the prerequisites necessary for the development process of co-creation. I have adapted these principles with regards to public services as follows:

1. **Together** – complete co-creation is based on equal collaboration between all relevant internal and external parties.
2. **With citizens** – in complete co-creation, citizens always play a central role.
3. **Ongoing** – just like public services, citizens, the government and other relevant parties participate consistently in every phase of the process.
4. **Productive** – complete co-creation leads to implementation of the co-created solution.
5. **Transparent** – in complete co-creation, relevant information is accessible to all participants.
6. **Supported** – complete co-creation is supported by all involved parties.
7. **Value-driven** – complete co-creation results in value creation for citizens, the government, and the planet.

It is also important to have in mind the key objectives of public participation. Glass (1979) identifies five of them: information exchange, education, support building, supplemental decision-making and representational input. Krause (2014) defines the targets and benefits of participation in planning processes as follows:

- It makes decision making processes more transparent.

- It raises mutual understanding between citizens and administration.
- It considers ideas, concerns and everyday knowledge.
- It improves the knowledge basis.
- It has a positive influence on planning processes as it increases acceptability.

Working with stakeholders is generally considered common practice – but in many cases only certain stakeholders actually have a say in re(development) or re(design) of public services. It is crucial to involve all different types of stakeholders throughout the process, addressing their specific requirements. As already mentioned, this especially concerns groups with less ability to articulate their concerns or requirements and prevail in comparison to other, more powerful groups. Examples of hard to reach groups are ethnic minorities, impaired people, young people and the elderly, people with low literacy and apathetic groups (Lindenau and Böhler-Baedeker, 2014).

3.1.1. The case for co-creation in mobility

In the developed world, urban transport planning in the 1950s and 1960s consisted almost entirely of top-down processes. Decision makers, often with planner/technocrat advice, made decision under the assumption that they alone had the best answers for the entire population (Lahiri-Dutt, 2004). However, available experience suggests that exclusive engagement has delivered few results.

Agarwal et al. (2019) deduct that this is primarily because the "solutions" prescribed by central government planners are often divorced from local problems and context. Often, such decision-making led to investments which did not address the root of the problem. In addition, decision makers that benefit from the current situation, irrespective of the level of government, are unlikely to be motivated to bring about reforms for the wider good.

This is also one of the reasons why more and more governments are making a shift from the traditional top-down approach to co-creation. Similarly, urban public transport has, to date, been focusing more on economic and environmental aspects. However, in order to achieve full sustainability, social buy-in needs to be integrated – this is now an essential step in the sustainable direction for mobility. This means making the understanding of people's everyday lives a priority, in order to mutually shift human behaviour and form collective value.

Consequently, involving citizens is one of the fundamental requirements of sustainable urban mobility planning. It embraces the idea that citizens and other stakeholders can articulate their ideas and concerns and can contribute creative and innovative solutions to transport problems. Furthermore, it encourages citizens to take ownership of sustainable mobility ideas, transport policies and projects. At the same time, it is an opportunity for city administrations to incorporate local expertise and feedback into their work thus achieving eventually the best possible outcome in terms of consensus finding (Lindenau and Böhler-Baedeker, 2014).

Therefore, it has come to be realized that at the heart of finding the comprehensive solution is a need to **recognize the people-centricity** of any policy prescription (Team E., 2010). The importance of working with people, communicating on a regular basis and incorporating their concerns and suggestions in the planning, design and implementation of a change and/or reform program on a project-by-project basis is seen as a **paradigm shift in creating sustainable and long-lasting impacts**.

3.1.2. Case-study 1: Transition management in Gent, Belgium

The City of Gent started to engage stakeholders in mobility planning from the 1990s onwards. Until the early 2000s, as in many other similar attempts, the communication was one-way, from the city to citizens. This comes as no surprise considering the traditional way of doing at those times was based around goods-delivery and the public sector imitating the private one. In IAP2 spectrum of public participation, this was the lowest level of participation – Inform. On the Junginger's matrix of common design practices in public organisations, this was designing *by* organisations *for* citizens.

Step by step, a two-way process of communication has evolved. The city began to consult citizens about their opinion on specific mobility projects, for example, by inviting them for discussion nights. The city of Gent has matured from the Inform phase to Consult phase on the IAP2 spectrum, now obtaining public feedback on drafts and proposals.

This change of mentality in the city administration started with the realisation that they had to move away from the "we know what is good for citizens" attitude to facilitating, instead of steering, transport planning processes. The city administration also needed to learn how to deal with the wide range of different opinions given by citizens and stakeholders. This

mutual learning process for both the administrative staff and also the groups involved needed much time to evolve (CH4LLENGE, 2013).

Little by little, the City of Gent tried various engagement techniques ranging from public consultation events and stakeholder workshops, to the use of social media and the approach of co-creation. The most recent governance approach in Gent is transition management. This term refers to shifts in structures, mind sets and practices by involving actors from a variety of levels and disciplines (Roorda et al., 2012).

The transition management process is structured in successive phases (see Figure 3.1). It starts with establishing a Transition Team and exploring a city's dynamics (Phase I-II). This is followed by forming a Transition Arena group that meets regularly and jointly envisions a sustainable city, drafts visionary images and develops transition paths and a transition agenda (Phase III-V). The visions' dissemination, the initiation of actions and enlargement of the network are the final steps of the transition process (Phase VI-VII; see Roorda et al., 2012).

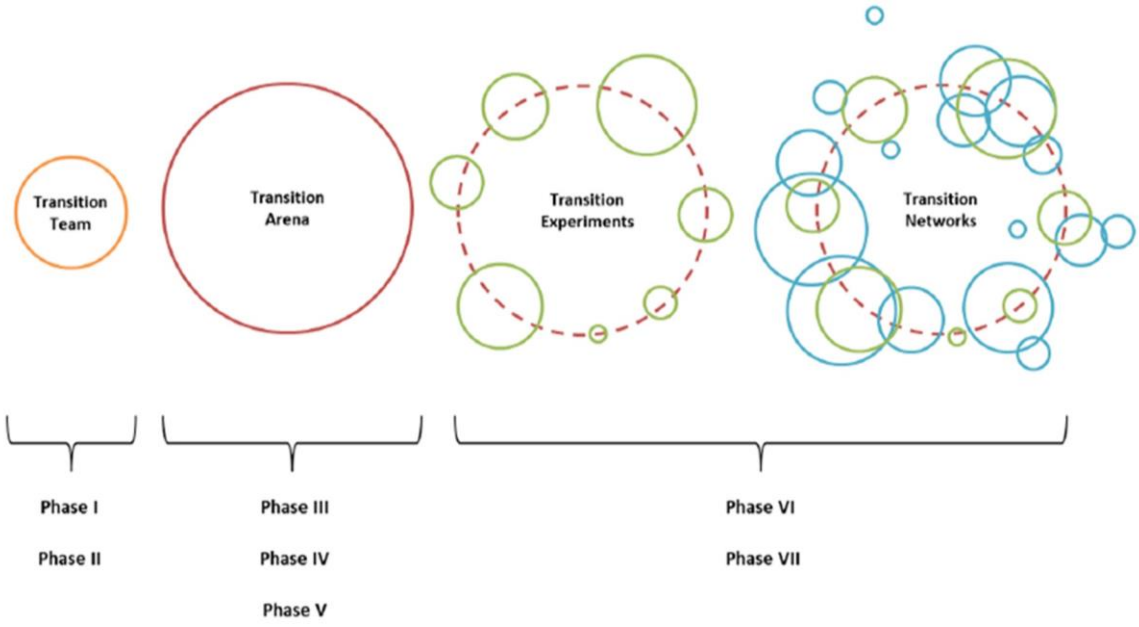

Figure 3.1 The transition management approach (Roorda et al., 2012)

This successive process resembles phases of the co-creation process which will be introduced and explained in Chapter 3.1.5.

The actual co-creation started by creating the Gent's Transition Arena – a group of about 25 creative people from various backgrounds including young entrepreneurs, citizens, architects and transport professionals. Their aim was developing fresh approaches to changes

in urban mobility, public space and people's awareness and attitudes in order to make the city more liveable city in 2050. Even though Transition Arena was initiated by the city's Environmental Department and Mobility Department; however, it was the participants who developed the ideas.

The success of city of Gent's effort to include citizens in solutions for urban mobility challenges is demonstrated with ten icon projects which were devised showing how Gent could look like in 2050, after one year of brainstorming. One of the visions is "The Living Street" which has already been tested by citizens in two streets. For one month the streets were cut from the road network and turned into a car-free zone allowing temporary street furniture and creating places for residents to meet. New forms of mobility were tested such as e-bikes and cargo bikes, as well as car sharing and home delivery. All activities were solely organised by the residents themselves. The icon project attracted significant interest from regional and national media. This case exemplifies how mutual collaboration is beneficial for both the city and its citizens. The citizens have felt a sense of both obligation and ownership over their ideas and have felt and seen with their own eyes own contributions to the city. This collective behaviour is also contagious as the results inspire others for similar undertakings.

Another important key takeaway from this case-study, aside from the value of implementing co-creation, is the notion of transition management method to tackle a wicked problem like this – another 'confirmation' that transition design is on the right path to solving many similar problems from a more creative, even though systematic, perspective.

3.1.3. Case-study 2: Transformation of Land Transport in Singapore

In 2014, Singapore Land Transport Authority (LTA) has published its new Land Transport Master Plan (LTMP) that sets out its vision for land transport in Singapore for the next 20 years, working towards a vision of a "People-Centred Land Transport System". The Master Plan (MP) is the statutory land use plan which guides Singapore's development in the medium term over the next 10 to 15 years and it is reviewed every five years.

The focus was on "Enhancing Your Travel Experience" by listening to the voices of people and putting them at the heart of the land transport system. The vision is that, by 2030, Singapore will have:

- 8 in 10 households living within a 10-minute walk from a train station;
- 85% of public transport journeys (less than 20km) completed within 60 minutes; and
- 75% of all journeys in peak hours undertaken on public transport.

In reviewing the changes from the Master Plan from 2008, LTA request feedback and had reached out to many Singaporeans, from public transport commuters to motorists, pedestrians, and cyclists, from youths to the elderly and less mobile, and from those passionate about environmental issues as well as academics. Views were sought on how best to improve travel experience by receiving feedback from 1700 plus contributors. Over 400 face-to-face meetings were held during five months in 2012.

Three key distinctions between the 2008 and 2014 MPs are:

1. Increased expectations of a better quality of life and correspondingly an improved travel experience,
2. An increased 'demand for transport', driven by a larger economy and greater population; and
3. Tighter land constraints.

Consequently, the themes of 2014 MP are:

- **More Connections** – even though rail transport will remain the backbone of the public transport system, the public transport network will be strengthened by more bus connections, more walkways and cycle routes;
- **Better Service** – this theme's contributing factors rely upon reliability of the public transport network, as well as tracking and replying to citizens' needs and demands by shifting of peak travel; and
- **Liveable and Inclusive community** – ensuring that the public transport system makes Singapore a more liveable city. This encompasses making public transport accessible to all residents.

The engineering team responsible for designing the stations had been wanting to take a different approach by thinking about how they could **design for commuter needs**. Previously stations had been designed with technical constraints as a starting point: what's the available land size? What number of fire exits are required? This was the traditional way of doing things – starting from the technical approach and building from limitations.

However, for the realisation of 2014 MP Singapore, as a challenger to many things and so in this one, wanted to make a change in approach. It was clear that in order to achieve what

they have wanted with the development of the MP was not going to cut it utilising only the technical approach. This time, they have instead decided to ask a different question: how would you start to imagine a future differently, using design? This has led them to a different landing point – that the **community needed to express itself** through the stations. The stations needed to have the right facilities to **respond to community needs** — childcare centres, bike parking, spaces for community collaboration and more. The process of exploring this has led to several key design archetypes for future stations that include these facilities and that will now guide their detailed design process (Nesta, 2017). The approach that Singapore had chosen to take demonstrates and clearly shows that indeed, at the core of public services success lies recognition and response to basic human's needs. This is also the foundation for the creation of any public value. Value, whether being co-created or not, is perceived subjectively and contextually, and the co-creation process itself is interactive, experiential and relational. This is what made the Singapore's change of approach so successful.

Today, comments from over 3,500 contributors are received daily. Online consultation took the form of surveys and discussion forums as well as an LTMP review email address to which Singaporeans could send their comments. Questions were posed to get the dialog going such as: "What would encourage you to travel off-peak to work? Would you be open to alternatives to owning a car, such as car-sharing or car-pooling? What would encourage you to walk or cycle to the train station or bus interchange?" Grassroots representatives also conducted their own workshops and surveys with residents and shared their insights and ideas (Agarwal et al., 2019; Land Transport Authority, 2014; PwC, 2013).

As 2019 marks the five-year period, a Draft Master Plan of 2019 is available on Urban Redevelopment Authority's website (a Singapore Government Agency). The Draft Master Plan 2019 (DMP19) focuses on planning for inclusive, sustainable, and green neighbourhoods with community spaces and amenities for all to enjoy. It also includes strategies that plan for the rejuvenation of our familiar places and to create capacity to meet our future needs.

The 2019 plan brings "Liveable and Inclusive community" theme, while also adding four new ones:

- **Local hubs, global gateways** – includes setting aside suitable land to support efforts in rejuvenating existing industries and the development of new areas of growth by

strengthening economic gateways, creating jobs within easy reach and formulation policies enabling innovation and growth;

- **Convenient and sustainable mobility –** enabling convenient and pleasant mobility through better connectivity for all – by expanded public transport and active mobility networks, easier access to work and amenities and harnessing new mobility technologies and business models;
- **Rejuvenating familiar places** – by retaining Singaporean's identity and sense of home, the LTA ongoingly includes stakeholders to keep the identity and build more shared memories of familiar places in various ways such as retaining and enhancing local identity through setting design guidelines for existing and new developments, protecting and rejuvenating built heritage and celebrating memories with the community;
- **Sustainable and resilient city of the future** – confronting new and emerging challenges by adapting to climate change, closing our resource loops and reduce the amount of resources consumed, and creating spaces for growing needs by employing innovative strategies.

The changes to be brought in DMP19 resemble the current global trends of sustainable urban mobility and citizen-centeredness.

The transformation of land transport in Singapore from the crude, informal public transport services competing on limited, poorly maintained streets and roadways in the 1960s to today's high-quality multimodal transport can be attributed to the paradigm shift in the formation of Land Transport Authority as well as close collaboration among multiple stakeholders – government agencies, land development, *all* land transport modes, the private sector and citizens. Naturally, this collaborative process continues today and marks the transition towards a co-creative and smart decision-making.

3.1.4. Case-study 3: Co-creation and co-destruction of value – Dock less bike sharing in China

Even though not (yet) a part of urban public transport provided by public services, the sharing economy platforms have gained momentum in urban areas around the world by offering the potential for efficient resource utilisation and novel value creation, as well as by fundamentally changing business practices, policy making and the everyday lives of urban residents (Ma et al., 2018). Meanwhile, increasing the sharing of traditional and electrified

and docked and/or undocked bicycles has been identified by many cities as an effective means of building a sustainable urban transportation system (Lin et al., 2018; Pucher and Buehler, 2017; Sun et al., 2018). China is one of the largest markets of bicycles due to the great number of users and its pervasiveness.

Yin, Qian and Shen (2018) investigated how users participate in value co-creation and co-destruction activities related to dock less bike-sharing systems (DBSS). The study is included to provide background on urban public transport **substitutions**, which can generate value co-creation, but as it will be explained below, value co-destruction as well.

The way how DBSS works is very simple and convenient. Users download an app that tells them where a bike can be found, and then they can unlock the bike by scanning a QR code on the bike they find. Different from the traditional public bike rental systems that are based on docking stations, users can leave the bikes wherever their journey ends (Van Mead, 2017).

One of the reasons why DBSS is now so commonly used is that it solves the last-mile dilemma in urban mobility and does so without consuming fossil-fuel energy and emitting carbon, and thus is readily recognised for its potential to facilitate a transition to low-carbon mobility contributing to urban sustainability (Qiu and He, 2018; Wang and Zhou, 2017). According to Mobike (2017), one of the leading DBSS service providers in China, the introduction of DBSS services led to the usage of cars in urban mobility dropping by 3.2% in China (approx. 170,000 cars off the road), while the use of bicycles (particularly the use of shared bikes) had doubled to contribute to 11.6% of the volume of urban mobility.

However, more recently, debate and controversy are emerging over the potential negative consequences of these innovative sharing-mobility platforms (Dreyer et al., 2017; Parguel et al., 2017). Only two years after the launch of DBSS in late 2015 in China, various unexpected negative outcomes that constitute public nuisance were reported, such as abuse of bikes by users, malignant competition strategies between service providers in the bike-sharing market, excessive numbers of bikes on pavements, difficulty of refunding deposits, and growing numbers of broken bikes that need to be disposed of, which poses significant concerns related to sustainability and damages the intended value of shared-transportation service.

Prior studies (e.g. Lan et al., 2017) argue that users of sharing systems are increasingly participating in the value co-creation process, together with their peers and service providers, either directly or indirectly. Meanwhile, researchers such as Plé and Chumpitaz (2010) also

note that understanding how value is co-destroyed (i.e. identifying, analysing and potentially remedying the value co-destruction) is as important as understanding how value is co-created. While most research on value co-creation and/or co-destruction is derived from the supplier–customer perspective (Ramaswamy, 2011; Vargo et al., 2008), understanding remains far from sufficient in relation to the consumer-centric experience of value co-creation and co-destruction, particularly in the context of the sharing economy, where there are a growing number of highly interactive sharing product–service systems (Camilleri and Neuhofer, 2017).

Using two of the largest DBSS firms in China (as well as in the world), Mobike and Ofo, as a research case, Yin et al. (2018) in their study identify the principal consumer and firm resources involved in practices that may transform consumers between being value co-creators and value co-destructors in the adoption of an innovative shared-transportation service. They used a thematic analysis of social-media tweets addressing user experience and observation of these two bike-sharing systems throughout the period from April 2016 to December 2017, and developed a value co-creation and co-destruction framework involving customer and firm resources integrated into multiple practices to illustrate the opportunities and risks related to low-carbon shared-mobility innovations (i.e. DBSS in this study) to transition between value co-creation and co-destruction.

Within the case-study, they have focused on Mobike and Ofo as two key service providers in the DBSS market in China, together accounting for more than 90% of market share in December 2017, with a market value of US$2.6 billion (Trustdata, 2018).

The study results showed that, among all user practices in the core using process related to value co-creation, the practice of riding has the highest frequency, accounting for more than 70% of these practices. In contrast, less than 5% of the practices identified are related to app installation/registration and finding bike on the app. Prior literature on value co-creation related to DBSS (e.g. Lan et al., 2017) identifies a series of practices in core using process. Based on this stream of research, their analysis extended the understanding of the relative importance of different practices in the core using process for value co-creation.

What is distinctive for Yin's et al. (2018) study is that, while the existing literature generally focuses on the value co-creation process related to DBSS (e.g. Lan et al., 2017; Ma et al., 2018), their study also analyses the other side of user practices, that is, value co-destruction related to DBSS.

As Echeverri and Skålén (2011) note, value co-destruction occurs when different elements of practice in the core using process are incongruent or resources are mis integrated or do not properly integrate (Plé, 2016). For user practices relating to value co-destruction, Yin, Qian and Shen find that compared with value co-creation (where the riding practice is the dominant practice), a great deal more public attention has been paid to post- riding practice in the process of value co-destruction. Specifically, they find that the most typical problematic practices in riding practice in DBSS are illegal riding of the bike (e.g. adults carried little kids in the bike basket while riding a bike), riding accidents (e.g. having traffic accidents when riding the shared bike), and bike dysfunction that causes riding difficulties, while the most typical problematic practices in post-riding practice in DBSS are parking disorder (e.g. not parking the bike in the designated area), appropriation (e.g. taking the shared bike for own use only), payment failure or overcharging.

This study emphasizes the importance of looking at the wider picture, including the interrelationships of a full range of casual factors, in order to be completely ready to integrate findings into the value mapping tool.

3.1.5. The co-creation process

It is important to fully comprehend the co-creation process, as the value mapping tool – which should aim in enhancing it, **must not badly influence or direct** the future co-creation process by not recognizing co-creation drivers and barriers. In order not to set up the tool wrong, a complete understanding of how the co-creation process looks like needs to be understood.

In that manner, the co-creation process presented below is my own adaptation by a joined analysis of the approaches which Bason in his book "Leading Public Sector Innovation: Co-creating for a Better Society" (2018) and Jansen and Pieters in their "The 7 principles of complete co-creation" suggest, which are both individually explained. This unique analysis has for an outcome a new co-creation model which I propose within this thesis.

Joint analysis of The Five F's model and the 7 Activities model

Jansen and Pieters (2017) proposed "The Five F's" – a phase model for complete co-creation. It consists of *founding*, *finding*, *forming*, *fine-tuning* and *following up*. The *founding* element (phase 1) is fulfilled when all stakeholders are enthusiastic about co-creation. Giving participants an opportunity to share ideas and really listen to them is essential to overcoming barriers.

Combining this with Bason's methodology, I believe his "Project scoping", (a part of his first phase – *Framing*), should be fragmented into two parts. The reason for this is that Bason introduces two scoping activities – "Collating the necessary data" and "Establishing the core team". The former explains that the project team should include a diverse set of disciplines and profession – a mix of public administrators, professionals, social researchers and design thinkers. This should come as the predecessor of Jansen and Pieters phase 1 (*founding*).

One of Bason's phases is situated amongst two of Jansen and Pieter's phases. This time it is *Knowing*, which I believe happen at the overlap of phase 1 (*founding*) and phase 2 (*finding*). Knowing is all about seeing the world as other people experience it and getting to know the problem through a citizen-centred lens. This requires real curiosity and willingness to spend time with the people whom the service or policy concerns, as this co-creation activity is essentially about obtaining new insight through conversations with people. For all stakeholders to arrive from being enthusiastic about co-creation to verbalizing a key insight, it is necessary to really immerse in and suspend judgment to get the ideas flowing.

Collating the necessary data (from Bason's Framing) determines a baseline of the current value being provided by the organization or service to the target population (to the extent it is at all possible). This step should come before the start of phase 2 (finding), so the team has a clear baseline to start with before starting the discussion and generating key insights.

Both Bason (2018) and Jansen and Pieters (2017) agree that it is the best to keep the project teams very small – up to 8 people – to ensure optimal interaction and communication between team members, energising the creative process.

The *finding* phase (2) starts as soon as the co-creation team has been formed and ends when it has verbalized a powerful key insight. This step is similar to the double diamond characterization of the design process (Figure 2.1) as it utilizes divergent and convergent thinking, as it's the entire co-creation trajectory over time (see Figure 3.2 Complete co-creation process).

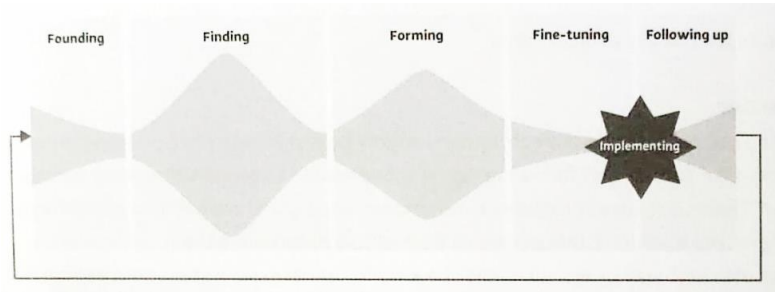

Figure 3.2 Complete co-creation process

In this phase, citizens play the roles of *informants* and *inspirators*. This phase correlates to Bason's phase 1 – *Framing*, especially its first part, "Challenging the problem". Bason (2018) states that innovation doesn't start with an idea, but rather with thinking in a different way about the problem or by identifying a new opportunity. This explanation complements the *finding* phase (Jansen and Pieters) by explaining what happens between "a team has been formed" and "the team verbalized a key insight". Furthermore, Gillinson et al. (2010) state that it is when individuals and organisations gain an entirely new perspective on their challenges – in particular through new insights and new customer understanding, that services can be redesigned to be different, better and lower cost, generating true paradigmatic innovation and savings. This means that the framing of the problem (Bason) has to start with people, their needs and the outcomes they are seeking.

In phase 3 (*forming*), citizens play the roles of *co-developers* and *evaluators*, whereas the output is the translation of the key insight generated in phase 2 to a conceptual solution by all stakeholders in various rounds. This phase correlates to Bason's stage 3 – *Analysing* – described as the analytical phase which is essentially about transforming data into structured knowledge. Bason states that even the process of analysing rich and qualitative data must be collaborative. Ideally, the team that has collected the data at first hand must also be the team that organises it into meaningful categories and expressions. This happens through *Pattern recognition* and *Visualization*. Bason highlights that within this stage, we try to reveal the deep underlying patterns and structures of belief, behaviours and experiences that the data holds and to recognize the findings that emerge. As Nachmias and Nachmias (1992) emphasize, this approach is inductive, not deductive and we must allow ourselves to be surprised by the data and patterns the approach reveals. The result of such a pattern recognition workshop is essentially a map of key clusters of statements, where each is labelled with some overall theme that addresses what the finding is about. This brings us about to *Visualization*, which is a key contribution of design in the co-creation process. It

helps decision makers to see citizens and services in context and facilitating collaboration across agency and professional boundaries.

Also, a portion of Bason's stage 2 (*Knowing*) – *Citizen-centred research* I would situate within this phase. In the research, we use collected data and generated key insights from phase 1 to chart existing knowledge landscape, data and evidence to identify the key blind spots that we may have. Another key task at this stage as by Bason (2018) is looking beyond the organization – checking whether other public agencies hold data that might be relevant, as information is often not regularly exchanged across government departments and agencies.

During *fine-tuning* (phase 4), the co-creation facilitator starts to make an implementation plan, while the citizens still play the same roles. This phase correlates to Bason's stage 4 – *Synthesising* – which is about growing, shaping and qualifying coherent, possible avenues or "tracks" for innovation. It is about recognising what the desirable future solution might look and feel like.

The last of the phases, *following up* (phase 5), focuses on keeping citizens actively involved in this phase to help prove the long-term success of solutions that are developed in co-creation. This helps develop a **sense of ownership in citizens**, as well as install the notion that **co-creation needs to be instilled in an organization**.

The joint analysis described above is presented visually on the figure below.

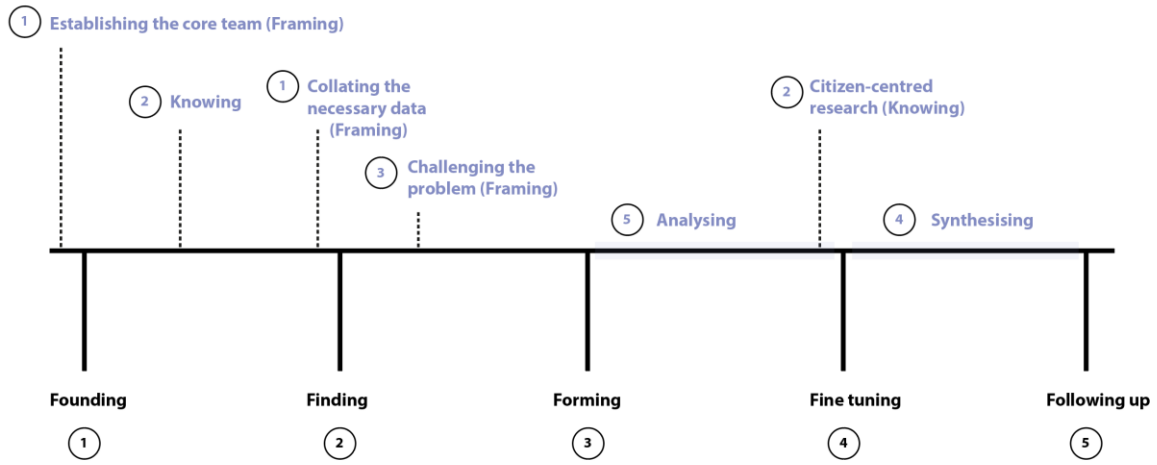

Figure 3.3. Joint analysis of co-creation models

Just like Jansen and Pieters's (2017) model reminds of the design process (see Figure 2.1), so does Bason's of the design thinking process (see figure below).

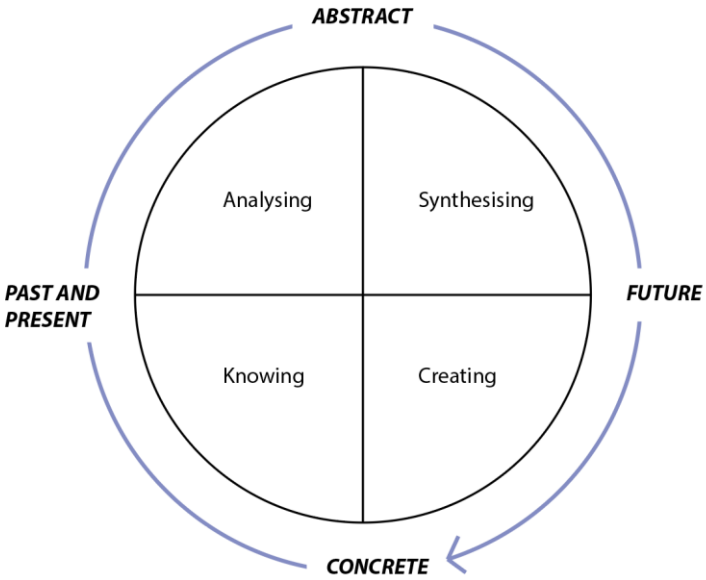

Figure 3.4 The design thinking process

This does not come as a surprise considering many similarities already drawn upon those two notions. Additionally, iterative process cycles, like the one demonstrated in the figure above, are common now as steps of policy making, implementation and enforcement in many countries. Just like in the design thinking process, an iterative policy cycle includes investigating a socially relevant problem (*Knowing*), understanding the context (*Knowing*), formulating a policy by analysing a problem (*Analysing*), setting goals (*Synthesising*), selecting instruments (*Synthesising*) and implementing and evaluating impact and effects (*Creating*) (Jansen et al., 2010). Although the idealised cycle appears similar, the policy design process does not involve citizens nor makes use of socio-logical techniques and methods (Junginger, 2016; Bason, 2017).

Co-creation also entails a continuous openness to the possibility that the order will shift or overlap, and that it may be necessary to revisit activities that have already been addressed once or twice (Brown, 2009; Halse et al., 2010; Polaine et al., 2013). So, as can be concluded, **co-creation is an iterative process overall** (notice the circling arrow in Figure 3.4).

3.1.6. Developing a new co-creation model for the public sector

As I explained throughout this chapter, even though multiple co-creation models exist, they are both similar and complimentary. Bason's model explains the actual process more, while Jansen and Pieters describe in detail the social aspects of it. To design new approaches that more powerfully address the desired results within wicked problems, we need to deliberately

orchestrate a process that is innovative on its own. The model I propose is shown on the Figure 3.5 below.

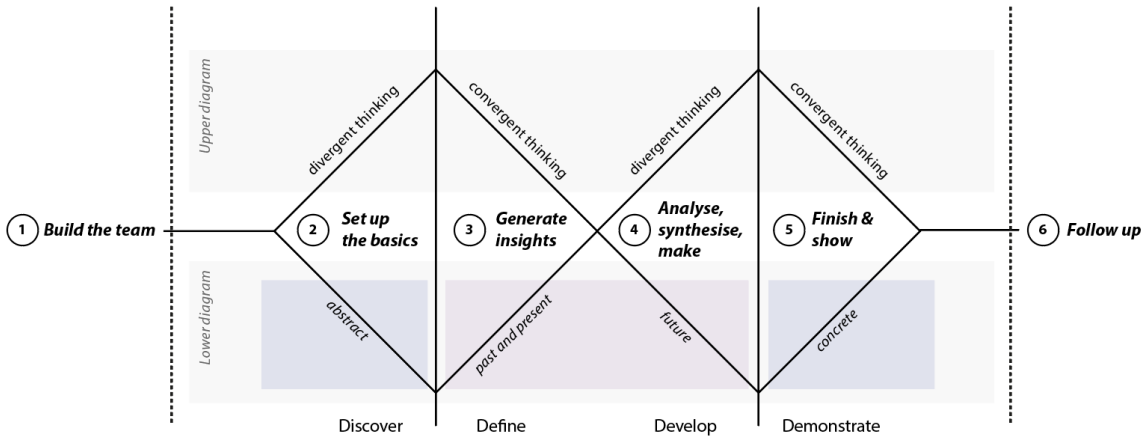

Figure 3.5 Proposed co-creation model

The model, as the Figure 3.5 shows, consists of **6 stages**:

- **Build the team** – ideally 6 to 8 people of different backgrounds[8] in an open environment and dismantled judgment across team members,
- **Set up the basics** – collect necessary data to create a value baseline**,**
- **Generate insights** – enter innovation mindset, generate and define key insights,
- **Analyse, synthesise, make** – analyse collected data, map key insights, collaborate with other public agencies,
- **Finish and show –** gather collected insights and generate deliverables,
- **Follow up –** continue monitoring or follow up on project's state as well as the stakeholders.

Each of the stages is elaborated below. Consequently, this model I propose follows divergent and convergent thinking (upper diagram), and all the stages can directly be mapped to double diamond design process activities, where "Build the team" comes as step 0 – the pre-requirement for the entire process to happen, while "Follow up" comes at the end (see Figure 3.3). Also, the lower diamond axes consist of design thinking process attributes: abstract, past and present, future, concrete.

Therefore, the proposed co-creation model is a **hybrid of double diamond design process** and **design thinking process**. It is also, just like service design, explorative and iterative.

[8] see "Choosing stakeholders" for more guidance

Because the co-creation process is created to (re)design services it resembles the same principles – it includes experimentation, constant evaluation, and iteration with variation to determine the most usable, feasible, and viable implementation.

1. Build the team

The first activity in the co-creation process starts with building the team (choosing the stakeholders). This is the prerequisite to every co-creation process, as without properly chosen actors, the process cannot be continued. Even though it can technically be under the "Discover" process, in this sense "Discover" refers to new insights, environments and opportunities, which can only be done with a team already established. Hence, building the team is the required first step.

Establishing the core team is key, as this identifies the overall group of stakeholders that must be part of the co-creating process, whose collaboration and connections lead to new ideas. What is particularly important to balance in determining this wider involvement is essentially two needs: to include the stakeholders who are crucial to ensure ownership and implementation throughout the process (Attwood et al., 2003; Ackoff et al., 2006) and the people who can help to increase divergence through the diversity of backgrounds, experiences and expertise they possess.

Because the exact list of relevant parties depends on the challenge, it is necessary for the co-creation facilitator to immediately ask questions like:

1. **Why** start a co-creation trajectory? What is the *problem* at hand? Why is this important?
2. **What** should the co-creation trajectory deliver? What is the *objective*?
3. **How** to solve the challenge?
4. **Who** needs to solve the challenge? Who are the *stakeholders*? *Whom* does it affect?

Just like writing a project plan or a company strategy help guide towards the objective, answering these questions at the beginning of a project will provide clear guidelines and be sure to involve and get the right people on track.

During the co-creation process, this team will meet regularly to discuss progress and possible solutions, develop opportunities and key insights, determine next steps and operational or contextual gaps and own the results, just like Gent's Transition Arena presented in Case-study 1: Transition management in Gent, Belgium.

The team's diverse actors' input will vary throughout the different stages of the process, as different stages have different intensity and frequency. Each of the individuals will have their own strengths which will cater to the diversity of the team contributing to the project.

As it was already stated, in order to be flexible, yet diverse, the ideal size for a co-creation team is six to eight people.

Important thing to have considered is **activating citizens**. This can be done by engaging them in interesting assignments and acknowledging the value of their input. A step prior to this is successfully choosing the right citizens to work with on a specific problem – do not include people who are not passionate about, for example, healthcare, in a redesign of a public hospital. Or do – but have a clear argument statement *why*. This way, all active citizens will feel involved and more likely to participate. In many cases, attention, appreciation and sometimes – presents, will suffice, especially when their time investment as a resource is 1) not wasted or, 2) relatively small. However, when it does require a lot of work or they are adding significant value, it is important to prevent participants from feeling unappreciated or disengaged.

2. Set up the basics

You've built the team, now what? Set up the basics. There may be some constraints you may run into when working with public organizations (see Chapter 3.1.7. Designing in (and with) the public sector and Chapter 3.2.1. Design principles). In this phase, we use *divergent thinking* (looking wide) to produce *abstract* ideas. With these ways of thinking, it is easier to address important constraints as, in order to set up the basics, the team needs to be able to see the world as other people experience it.

Public managers and civil servants in the team need to be able to see the problem through a citizen-centred lens. Because of this, in this stage it is important to build the team spirit and create an open environment, by everyone spending time together in order to obtain new insights through conversations. Any stigma, stereotypes and scepticism need to be left in front of the door. The transformative character of the co-creation process, and consequently – service design – comes to light during this phase. Not only will it in the end bring change to, or affect to change, core process in the public sector systems, but it is predispositioned to change culture, mission and paradigm within.

3. Generate insights

This step consists of multiple resources. The first of it being already existing data, from which a baseline of the current value provided needs to be created. The team needs to become aware of what is currently in place in order to ideate what could be done differently, and in which ways. This activity is necessary to pinpoint to current unutilised touchpoints, to identify current process gaps and opportunities for service redesign.

Second resource is a collaborative discussion in innovative fashion, as thinking differently about the problem at hand produces innovation. The team must also collaboratively arrive to a completely new perspective on current challenges. This is where diversity comes into play and where framing the problem starts with people – their needs and outcomes they are seeking.

Third resource is moving to another layer of collaborativeness by extending to other public agencies and requesting their data. Sometimes public agencies don't communicate with each other and could hold relevant data.

The outputs of this activity are new insights gained, generated and verbalized. Both new insights and collected data are charted on existing landscape to, as previously said, identify the key blind spots. All these insights are produced utilising *narrow* (*convergent*) thinking and focusing on the *past and present*. These insights now form a starting point for the next stage.

4. Analyse, synthesise, make

In order to make sense of the data collected at step 2 (*Set up the basics*) and identified opportunities in step 3 (*Generate insights*), it's important to map them together and translate them to a conceptual solution. Insights might not yet be grouped nor thematised, whereas in this step that knowledge will be structured.

Once the structuring process is finished, pattern recognition can begin. Now every stakeholder, considering own background and generated insights, can contribute to finding deep underlying patterns of each insight (e.g. finding out that a job seeker cannot get a job not because employer doesn't have enough time to rightfully access its skills but rather because it is driven by business capitalism). The more diverse the team is, to more structures of belief, behaviours and experiences it can arrive to. This process is characterised with *divergent* thinking of the possible *futures*.

The output is a map of key clusters of generated insights with recognized statements of structures, mapped to relevant data and (optional) thematised.

5. Finish and show

By arriving to this phase, we are once more *looking narrow*, focusing on our intended and wished for picture by producing *concrete* deliverables. These deliverables are based on all social, behavioural, analytical and situational data and evidence collected in the previous phases and forms the first artefact of the co-creation process.

Naturally, this deliverable is not a one-off nor should it be thought of it like that. It is also possible to go back and iterate on the previous stages. Because of this, this is not a final phase of the co-creation process. There is follow up!

6. Follow up

This stage utilises the power of feedback with which the result of the co-creation process could be additionally improved upon. It also facilitates a sense of pride and ownership with the stakeholders.

The tool for strengthening co-creation in public services for the model described above is presented in Chapter 3.2.3 (Designing the tool) and Chapter **Error! Reference source not found.** (**Error! Reference source not found.**).

Co-creation core principles

Co-creation stages are underpinned by co-creation principles. Within this model, I have defined seven core principles, which are as follows:

1. **Careful planning**: Ensure that the co-creation process serves the right purpose for all stakeholders alike.
2. **Inclusivity and diversity**: Build the team on the grounds of diversity – public sector represents democratic legitimacy and so should the team with different people, voices, ideas and information.
3. **Shared team spirit**: Support aligning all stakeholders towards the purpose of the process. Create groundwork for cross-team and cross-organisational collaboration.
4. **No stigma**: Facilitate an open environment where all stakeholders equally listen to each other and explore new ideas together, unconstrained by previous experiences or predetermined outcomes.
5. **Transparency**: Be transparent and open about the process by providing open records of the project and the co-creation process to all interested audiences.

6. **Impact and ownership**: Ensure that each stakeholder's effort and time invest has a real potential to make a difference. Work on creating awareness of that potential so all stakeholders and other citizens are aware of it.
7. **Sustainable engagement**: With consistent follow ups, feedback and ongoing projects, promote co-creation culture across organisations and communities.

These principles are here to ensure rightful stakeholder selection and process facilitation and are directly linked to the process' success.

3.1.7. Designing in (and with) the public sector

As this thesis and tool are intended for designers who want their work to have an impact on social issues and thereby enter into a relationship with public organisation, it is important to describe how to work with public organizations.

Amazing and detailed work on this topic has been done by André Schaminée in his book "Designing With and Within Public Organizations".

Applying design and co-creation in public organizations may seem very promising, but that doesn't mean it's easy to do. Many public organizations have resisted change, which is partly due to not being enthusiastic about wicked problems (no one entirely understands them after all) and partly because they have not been working with designers often, if at all. This means that designers who aspire to work with the public sector need to break down the barriers between current policy processes (because they impact public service delivery) and innovative design processes. To do so, see Vermaak's and De Caluwé's (two leading change management experts) 'five styles of change management' (2003).

Schaminée (2018) supplements Vermaak's and De Caluwé's meta-theory with his own experiences of using design when working within the public sector. He concludes that designers prefer placing people in a learning situation and making them [the people] more aware and more capable through a development process. This third style of change management places learning centre stage, helps those involved to look at an issue in a new way and reach solutions in a process of co-creation. The proposed co-creation model and the value mapping tool which I present below supplement this style of change management. It facilitates an open environment which in turn enables collaborative, non-judgemental learning.

Complimentary to styles of change management, De Jong (2016) notes three roles a public organization can have: directing, partnering and facilitating. The one most suited for dealing with wicked problems and enabling co-creation is the *facilitating role*. In the case of the facilitating role, a connective approach is taken, where both the public organizations and citizens are motivated to contribute to solving the wicked problem, because results and/or goals are not being forced (no one knows them – they are wicked problems after all).

This joined type of coalition is characterized by closer and looser relationships which change in composition and over time – just like the roles of different stakeholders change over time in the co-creation process. The public sector staff should not emphasize their functions or positions, as motivations are key. After all, the guiding thought of this shift is starting with the citizens and their needs. Such environment is perfect when dealing with wicked problems, as it facilitates the creation of ideas, developments and movements that had not been thought of previously and would not have been provided for. The Gent case study illustrates this example perfectly.

For more in-depth and hands-on knowledge of building bridges between public sector innovators and designers, see Schaminée's book "Designing With and Within Public Organizations" (2018).

3.2. Value mapping tool

Now that the co-creation process is explained (and hopefully understood), and the co-creation model is set up, the value mapping tool design process can continue[9].

Many of the published case-studies on the topic of public participation (citizen co-creation) show us how the projects were **improved upon with public participation**, not many were actually **planned with citizens**.

This also means that, in the creation of the value mapping tool, I am actually reverse engineering the entire procedure as the VMT should serve as the catalyst for enhancing co-creation **from the beginning** and create value from the start. Additional value can be then brought upon by improving and redesigning existing services by using the tool as well and, lastly, value is created when service is finally delivered and experienced.

[9] The word continue is purposefully used here, as the understanding of the co-creation process is a prerequisite for the design of the VMT, so hence the design process does not start now, as it has already started.

3.2.1. Design principles

Concepts throughout this Chapter will be looked through the lens of public transportation as a public service, followed by additional explanation in Chapter 4.

As discussed earlier, urban public transport, like many other public services, are wicked problems, because there is no clear solutions and solutions on their own might raise new, unforeseen problems. To answer this, an iterative approach or rather **phases of thinking** must be integrated within the value mapping tool to cater to the complexity of wicked problems in urban environments. However, the risk here being is an infinite number of iterations, which will again be of no good. Because of this, it is important to define constraints and metrics that help to evaluate whether the achieved solution is adequate in a certain period of time and the given situation, as well as define time plan for further iterations if it is not – or is predicted that it won't be forever – after all, there is never an end to public services, nor innovation. Currently, even the governments utilising designerly way of doing did not substantially research on which value of complexity based on Buchanan's four orders of design (see Figure 2.2) are those (re)designed service operating, nor the impact that they have possibly made.

Additionally, the sense of place develops through the interactions people have with the environment. Consequently, it is crucial to understand the **sense of the place** in which the intervention will take place and how this sense might be affected (positively or negatively). Be reminded that, in case of Singapore, for their 2019 Master Plan they are integrating local identity through setting design guidelines for their future developments.

At the end, what the tool must aspire too is to understand the **flow of people** and ensure that any intervention, which is a result of a value co-creation workshop, does not negatively affect how people experience the urban space.

Design constraints and enablers

As this tool is made to strengthen co-creation in public services, given the open-ended nature of innovation in public services and wicked problems, there are **obviously limits to how precisely the tool can be scoped**.

In the beginning of the co-creation process, idea generation happens. One of the most important principles of idea generation, already mentioned earlier, is suspending judgment. Being in the public sector, we are already up against a challenge. Why? In the analytical-logical world of many public organisations, who are used to tackle social problems from

analytical, logical and technical perspectives, suspending judgment is almost counterintuitive. Almost as a professional deformation, all civil servants share a note of professional scepticism, weighing arguments for and against, assessing cases and managing risk. This means that, while designing the tool we must have in mind the analytical-logical approach that is natural to public managers so the tool at start caters to it, but that it later leads them to innovative approaches for solving open-ended problems. This is partially done by adhering to the known and used shapes of similar models, which then institutes the feeling of familiarity. Even this small facet of design is enough to break down the initial barriers and unlock innovation.

3.2.2. Understanding who the stakeholders are

In a design process, users (in our case – citizens) and other stakeholders represent a source of data from which the designer can deduct understandings. Before choosing the methods for collecting data, it is important to identify the relationships within stakeholders and the project (Tomitsch, 2018). This is important as many current pain points are situated around complexity of relationships within. Tackling this, we reduce complexity and ambiguity while creating a holistic view of government-stakeholder relationship and issues.

Stakeholders are "individuals or organizations who stand to gain or lose from the success or failure of a system" (Nuseibeh and Easterbrook, 2000). In the scope of urban public transport, naturally, all citizens are stakeholders and therefore have a stake in co-creation of it. Most of them have developed a strong sense of ownership due to being financially invested by the means of paying taxes. This also means that they are more negatively affected if changes are made without being consulted.

It is also important to notice that not only the actual users of the public transport itself, but also less clearly visible parties, like workers cleaning the stations or nearby restaurant or shops owners, even the homeless person using the station chairs to sleep, are also stakeholders. Consequently, some stakeholders might be a source of data or take the role of active projects partners. Naturally, some might take both – the restaurant owner might live nearby and not take the public transport, hence he/she is not its user, but he/she can contribute to the project.

Final remark is that, even though understanding and "selecting" who the stakeholders are happens in the early phase of the project, it should be later revisited, as the definition might

change and could hence might require reduction or addition of "new new" stakeholders. This is enabled by the iterative nature of the proposed co-creation model explained in Chapter 3.1.6.

Citizens, users, or both?

I should note that of course, a difference between citizens and users of urban public transport exists: not all users are necessarily citizens, and not all citizens are necessarily users. Users may be represented by people passing through the city without living or working there, such as tourists or other visitors, which usually have completely different goals and needs than citizens do.

Public services are provided by the government (or its agencies), which could make the case that the value mapping tool should include only the citizens, as they are "the most relevant" (because they are the taxpayers).

However, as this paper is concerned with **complete co-creation** in public services, which includes **all relevant stakeholders**, I do not exclude users. The reason for this decision is real examples of Zagreb's public transport, each time there are construction works happening and the tram station is either suspended or its location is changed. There are either no visible signs or written (physical or digital) information at all, or there is an A4 paper, taped to the light pole, where the information is written *only in Croatian*, to which I always think "how can tourists know this?". There is also no spoken information by the tram driver, which results in surprise of the passengers inside. Because of this, I believe that it would be a mistake to only include the citizens, at the expense of users, who could also contribute, as well as provide a broader context.

With this, we can be sure that we are getting a complete picture, as we have representatives from each of the groups. This inclusivity can yield valuable insights on aspects that possibly work for citizens, but not for all users (such as the Zagreb public transport example), and consequently how they are linked to people's frustrations and other emotions that define their experience.

3.2.3. Designing the tool

Setting the stage

Working tools in every age, are the hallmark which attest to the degree of skill attained by any society or nation. If we critically asses what (any) tool does, on its own, and how it's

viewed in today's society, we will get a different picture across cultures. By looking at the tool phenomenologically, we can discuss about the symbiotic and holarchic relationship between the part and the whole.

It would be false to conclude that tools are used only when something is broken. If my desk leg is standing on five screws and one of them gets loosened, the desk is not broken, I just need to strengthen the leg. Even though that one screw is loose, considering the desk has four legs, I can still use the desk without any obstruction. I might not even realise the screw is loose in the first place.

Let's take another example – a rear tire of my bike was deflated the last time I wanted to ride it. Technically, the bike is not broken as I can still ride it. The wheels do indeed turn, and I am moving in the given direction. However, the experience is not as it was designed to be.

If we do not pay attention to these small changes and don't involve all system actors, the end result can become a challenging problem. By not strengthening my desk leg screw and inflating my rear bike tire, I risk a system failure with serious consequences (e.g. my monitor and laptop falling and breaking). On the other hand, by being proactive and seeking opportunities for improvement, not only can we avoid situations like these in the first place, with small tweaks we can improve the overall experience (e.g. inflating the front tire as well, even though it was not *as deflated* as the rear one).

Translating these metaphors to real life and this thesis – for the public or project manager, the key challenge is how to **effectively facilitate to co-creation process**, recognising that 'the entire journey from ideas to results is fraught with danger' (Eggers and O'Leary, 2009). It could also be hard for an ambitious public manager to "sell" the idea to higher management or get the resources needed. But as case studies and other literature have shown us, rising citizen expectations and involvement ask for collaborative processes. There already are successful case studies of collaborative efforts yielding great results, such as in Gent and Singapore.

However, even with the rise of successful cases, opting for co-creation today is still a special challenge as the majority of public initiatives revolve around *Inform* and *Consult* (see Table 2.2 Spectrum of Public Participation (IAP2)), which allow for either none or very little citizen engagement, and if they do, it's a one-way street. Nevertheless, this approach will only become worse and worse, as citizens can create perceived value from past, current and imaginary experiences with new ways of doing business in the private spectrum is changing

their habits and value perception. Today, the citizens expect much more from their governments than they did a decade ago.

Hence, in order to live up to the citizens' expectations, achieve possible goals and tackle complex problems, **complete co-creation must take place**. This is about creating partnerships and sharing power, with clear two-way processes. These processes need to be interactive, with opportunities to explore issues in bigger depth, as "required" in order to realistically tackle wicked problems.

Designing in layers

As problems the public sector is dealing with are complex, layered problems, it only makes sense that the tool itself is based upon more layers. Moreover, as the problems are interconnected, so should be the solutions, as the tool should demonstrate a certain dynamic. This is due to the nature of the problems within the public sector which are rarely static. The problems, their actors and attributes can and do change over time, while the problem resolution is still in progress. This also symbolises the two holistic levels: of sustainability and of service design. Sustainability is concerned with environmental, economic and social, while service design connects the public sector, its operations and processes and links to a wider ecosystem of actors.

Also, as already discussed, complex problems call for iterative approaches. The circle shape suggests an iterative approach (symbolised with the arrow) on a time scale (*present* to *future*). Considering everything researched, known and already elaborated, I believe that the circle shape is the most appropriate for this tool, as shown on figure below.

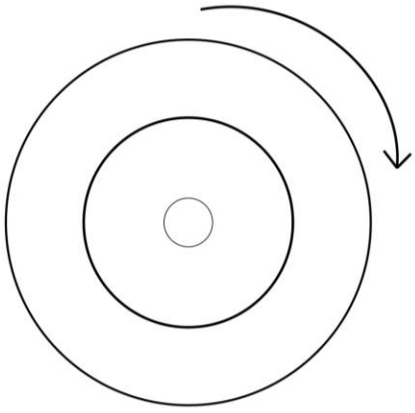

Figure 3.6 Proposed tool shape

Just how it was explained in literature background (see Chapter 2.2), as well as the Gent case study (see Chapter 3.1.2), transition design is well suited for dealing with complex problems

within the public sector. It is defined by *niche*, *regime* and *landscape*. Opposed to the current top to bottom approach, the tool utilises the bottom-up approach starting with *niche.* After defining the niche, it moves to *regime* and lastly to *landscape*. The niche represents the core problem at hand. It than expands to regime, which collects attributes connected with the niche (e.g. bus schedule for public transport niche). Landscape compiles of actors, situations, layers, feelings upon which the niche and regime take place. It relates to figural spaces and is concerned with highest levels of abstractions (e.g. linking climate to congestion regime of public transport niche).

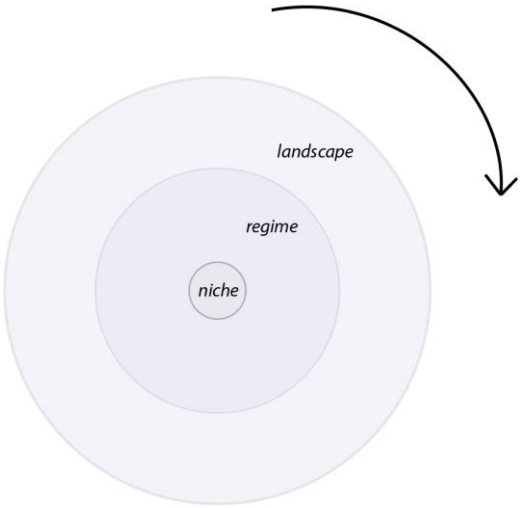

Figure 3.7 Niche, regime and landscape

Within those concentric circles characterised as niche, regime and landscape, factors contributing to the issue at hand (connected with a certain public service, of course), and how they influence each other, are mapped. This connectedness is due to the possibility of regime level factors **contributing** to landscape level factors, as well as vice versa where landscape level factors **reinforce** regime factors (congestion causes climate change, and consequences of climate change cause congestion). This means that it is possible to move between the boundaries of all, niche, regime and landscape, which also symbolises the nature of services and actors in real life.

Another important thing to notice here is that niche happens in *convergent thinking* while, by moving up the layers, we utilise *divergent thinking* to end up at landscapes. With the same move, we also span across different levels of *abstractedness*, starting with niche and being very *concrete* by arriving later to higher points of *abstraction* (see Figure 3.8).

Additionally, within each of the levels of the concentric circles, it is possible to define emerging themes and patterns that cut across all levels (e.g. climate change across public transport, congestion and climate). This practice allows us to provide additional social context to mapped values within the multi-level perspective by joining similar or cause/consequence actors together, drawing in that way current contexts. Moving through the tool clockwise, or counter clockwise, with these emerging themes recognised, we can observe and examine the happening trends.

The number of iterations will depend on the complexity of the problem – just like there is a scale of simple, complicated and complex problems, so do the complex problems have a scale of their own. It could have only two stages, and there could be ten, or none. In the figure below, a value mapping tool with four stages is shown (four circular slips). I believe the number of these stages comes naturally throughout the workshop, depending of the problem at hand and the group participating, as well as the stage in the process. In first iteration there might be zero stages and in the next one there could be more.

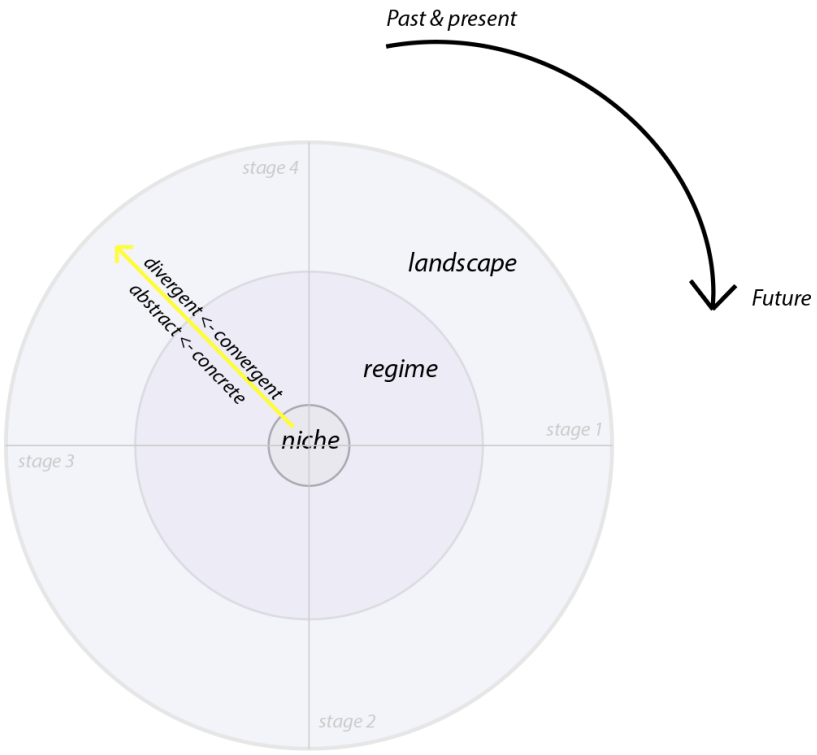

Figure 3.8 Development of the value mapping tool (1)

Notice that once again I've mentioned familiar concepts: *convergent thinking*, *divergent thinking*, *past* and *present*, *future*, *concrete*, *abstract…* which constitute double diamond design process and design thinking process, and are fragmented, but embedded within the

value mapping tool. This link serves as another confirmation that the introduced concepts blend well together and as a result, produce a valuable tool which spans across disciplines in order to bring value to the public sector.

Outside the borders

In order to connect this to a spatial attribute, the environmental spaces, within this tool I introduce the concept of and focus on **spatial service touchpoints**. They may have been already defined and differently named by public managers, or never considered before, but from the citizen-centred perspective, these are **points where citizens experience a public service**. The spatial attribute is assigning them a **location entity,** e.g. spatial service touchpoints of public transport consist of bus, tram and train stops, as well as other places where public transport artefacts are situated (for example digital arrival/departure displays).

From a design perspective, each touchpoint is an opportunity to engage with the citizens and to make a good or bad impression. Because of this, public organisations must ensure that they are providing a valued service at each point of interaction, but also owning the experience of delivering the service, as explained on the example below.

Touchpoints could be altered by social and cultural interactions, e.g. the police might, for example, give insurance advice by saying "Oh, your laptop was stolen? Don't even bother calling your insurance company". There are multiple of situations where other stakeholders can intertwine and skew the perception of a service delivery, which then consequently can influence acquired impression. This is the consequence of socially transmitted value creation.

By creating one holistic experience and by utilising co-creation, these kinds of negative situations might (should) become obsolete. The reason to this is that both the citizens and the government will take ownership of the public service and hence will take both pride and responsibility in any interactions around it, as well as have trust towards the organisation providing it.

These spatial touchpoints are situated at the outskirts of the value mapping tool and serve as diagnosed points for improvement with regards to mapped niche, regime and landscape. These work in harmony with the principles of transition design, which advocates rethinking of entire lifestyles, with the aim of making them more **place-based**, social and in harmony with the environment.

Once niche, regime and landscape have been defined and spatial touchpoints identified, next step is creating **interventions** based on the interlinkages of it all. For example, if "*trams*" are niche, "*congestion*" is the regime and "*geography*" and "*urban development*" are landscape, then the spatial touchpoints are "*congestion cluster points*" and the intervention would be, for example, "*dedicated tram lanes*".

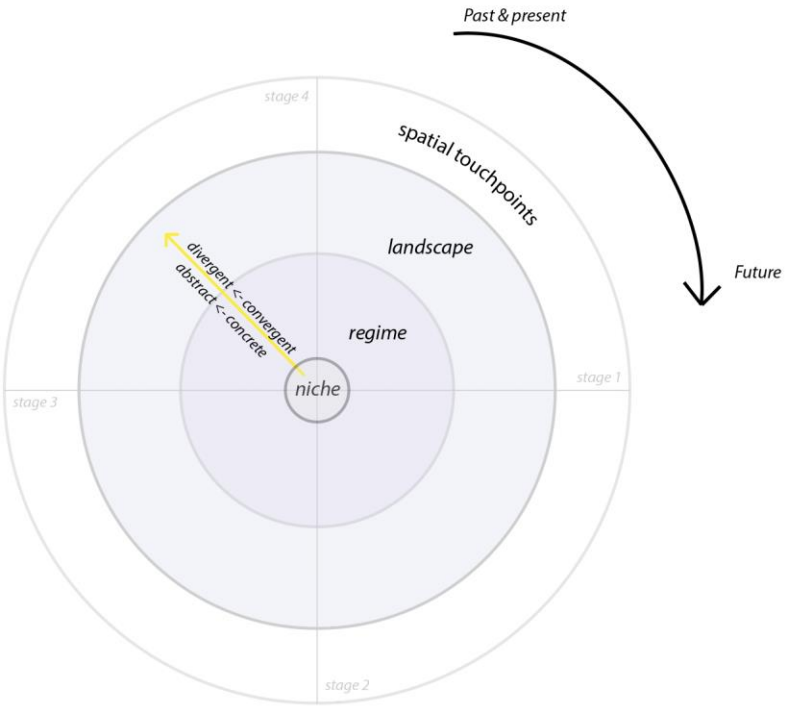

Figure 3.9 Development of the value mapping tool (2)

Once the final stage is reached (no matter its number), the process is not over. The transition designer always needs to look beyond corners and end goals per se, as problems which we are trying to solve are open ended. Because of this, the 'dynamic' attribute of the value mapping tool is its **rethinking by spinning**. After a full circle is done, what used to be the end point is now the starting point for the next iteration. This feature is important as it facilitates innovative and future thinking. It also pushes some institutional boundaries and personal sceptics within, all in favour of unlocking complete co-creation to support smart decision making within the public sector. This is where artefacts, when carefully designed, bring real value imagined for its use. Additionally, as service design needs to be adaptive to the circumstances it is applied to, the tools and methods need to be repurposed, adapted or recombined (Stickdorn et al., 2018; Moritz, 2005). The link can be drawn to the McLuhanian idea that **people shape their tools and in return, the tools shape them** (Culkin, 1967).

At the end of the use of the tool, the output are spatial touchpoints. However, these are to be seen as actionable points, not something where the process ends. To provide meaning and give a closure to the co-creation workshop, **value statements** are created. They:

1. Represent acknowledgment of the ideas born and presented throughout the process, citizen's needs and wishes,
2. Provide a vocalised, detail-specific output, and
3. Yield actionable approaches and roadmaps of delivery.

In order to encompass everything said in the tool throughout all layers, we need to provide **context**, **value** and **testing**. The three value statement elements with their skeletons are shown on the figure below.

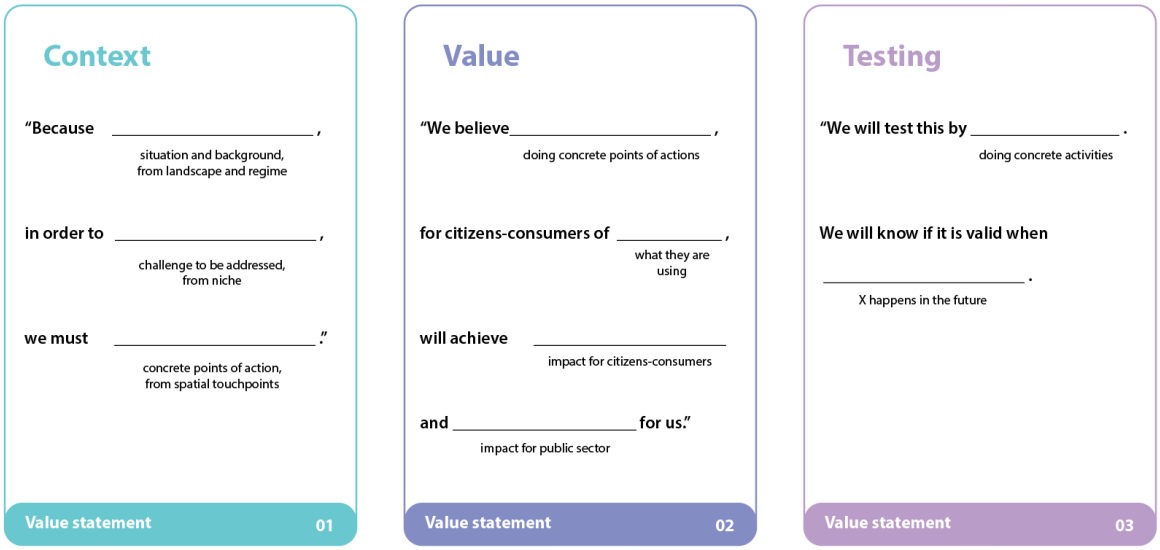

Figure 3.10 Value statement cards

4. Findings and results

This section presents the result of the literature background, accumulated knowledge and own experience, which is the developed value mapping tool. By extending the literature that describes double diamond design process and design thinking process separately and embedding them into a co-creation process, as well as a value mapping tool, I identify potential new practices (with new tools) in applying design methods in the public sector, engaging in co-creation while also contributing to the sustainability of the practice, as the tool embeds all levels of sustainability and engages all relevant stakeholders.

The "final"[10] version of the tool is shown on the figure below.

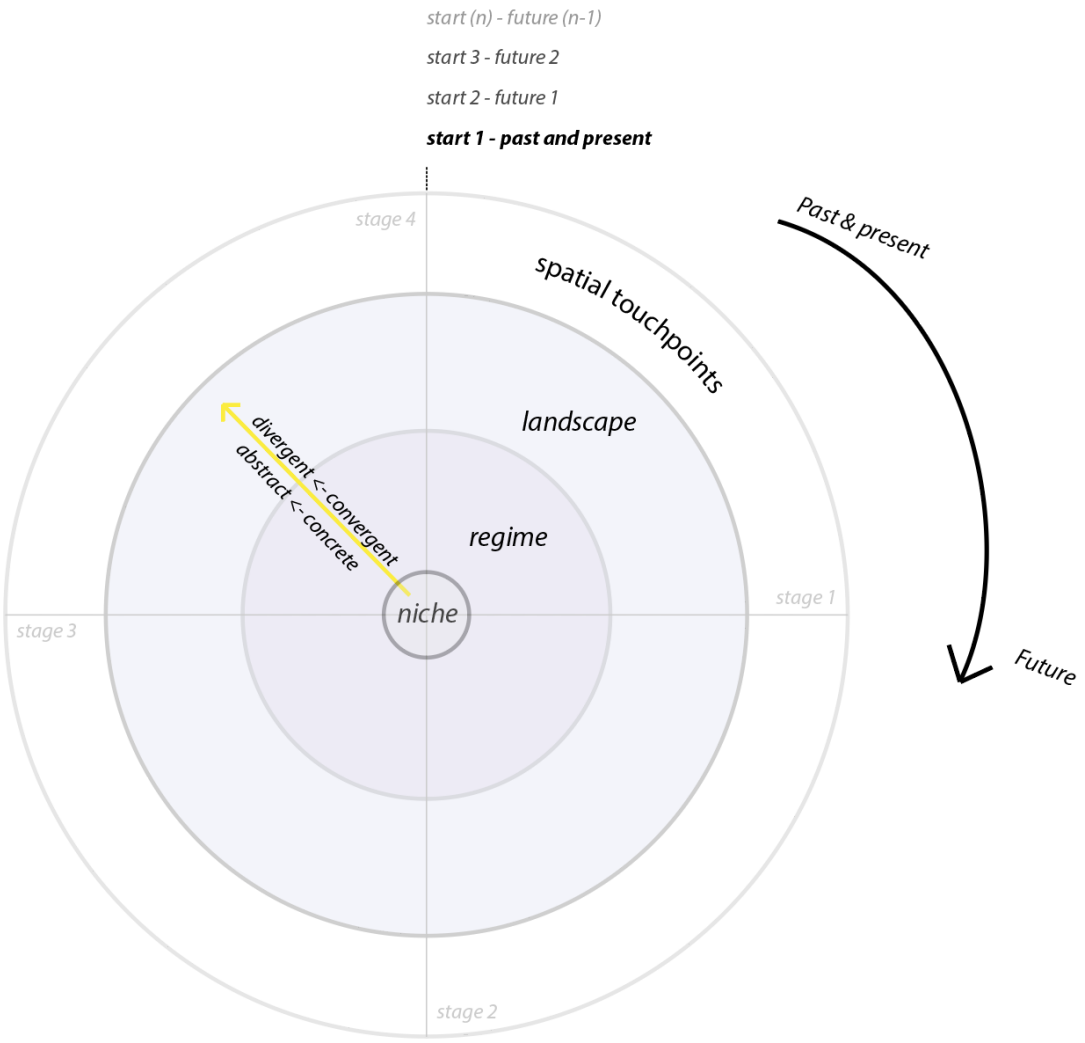

Figure 4.1 Proposed value mapping tool

[10] This is put in parenthesis as the work is never actually final, this is just the latest version of it.

The novel design aspects of the tool include:

1. Embedding both double diamond design process and design thinking process, creating in that way a **hybrid model** within the tool,
2. Resolving the spatio-temporal scale of wicked problems by introducing the concept of **spatial touchpoints**, as well as the **"Past & present to future**" **timeframe**,
3. Giving specific **points of action** with the concept of spatial touchpoints (eliminates or lowers resources for additional analyses or brainstorming sessions),
4. Embedding **six service design principles** within the tool,
5. Produces **context-specific interventions**, which reflect urban state and citizens' needs,
6. Resolving the complex nature of wicked problems by integrating **stages**,
7. Embedding futures thinking by integrating the "**rethinking by spinning**" concept,
8. Ensuring sustainability by integrating transition design and multi-level perspective modelling,
9. Tracking occurring **trends through time** by affinity mapping social contexts within the *niche-regime-landscape* layers,
10. Facilitation of **bottom-up thinking** and doing opposed to current top-bottom approach in the public sector.

Complemented with the proposed co-creation model, which lowers the barrier of design entering the public sector by integrating design methods into the model, this framework introduces a powerful practice which could be utilised to capitalise on the rising need of the governments to engage citizens in co-creation, realising its "aim" to strengthen co-creation in public services.

4.1. Using the tool (intended use)

In these exemplar cases, I will present the usage of the tool in the context of public transport.

When defining the niche, you could be as abstract or concrete, broad or narrow here, as the **tool allows further refinement of the concepts** in the following iterations, as explained at the end of this chapter. Ideally, for full-on use, niche should be as concrete and narrow as possible, for example: *mobile fare payment*. However, when this is not possible, the tool provides ways to arrive to it, as explained at the end of this chapter.

The first case examples how the use of the tool would look like when there is no narrow niche defined and outlines successful outcomes of the process. Even though in the beginning there is "no specific problem" that's being addressed, by utilising the proposed co-creation model and being in a brainstorm-y environment, the tool delivers actionable insights. Example 1 illustrates broad use, while example 2 illustrates a more concrete niche within public transport – fare payment.

4.1.1. Example 1: Public transport, overall (broad)

So, public transport has factors like *trains, trams, busses, transit apps, schedule, delays, ticketing* as **niche**. In the current state of things, we could also say that factors like *Uber, ride sharing, bike sharing,* and *electric scooter sharing* belong in the niche as well, as many are using them to complement the public transportation. As many cities are moving towards the "green economy", *green busses* could also be a part of our niche.

Now we arrive to **regime**. This could include a number of factors, for example: *policies, bike lanes, bus/train/tram schedule, bus/train/tram routes, congestion, ticket payment, access to bus/train/tram stations,* etc.

Lastly in our multi-level perspective is the **landscape**. This is the imagined place of concepts and topics where factors of niche and regime take place. Based on factors I've defined so far, landscape could be: *age friendly map design, assistance in last mile, short distance trips, confidence to use public transport, stigma against public transport, climate, public transport network, bike/electric scooter sharing network, city layout…*

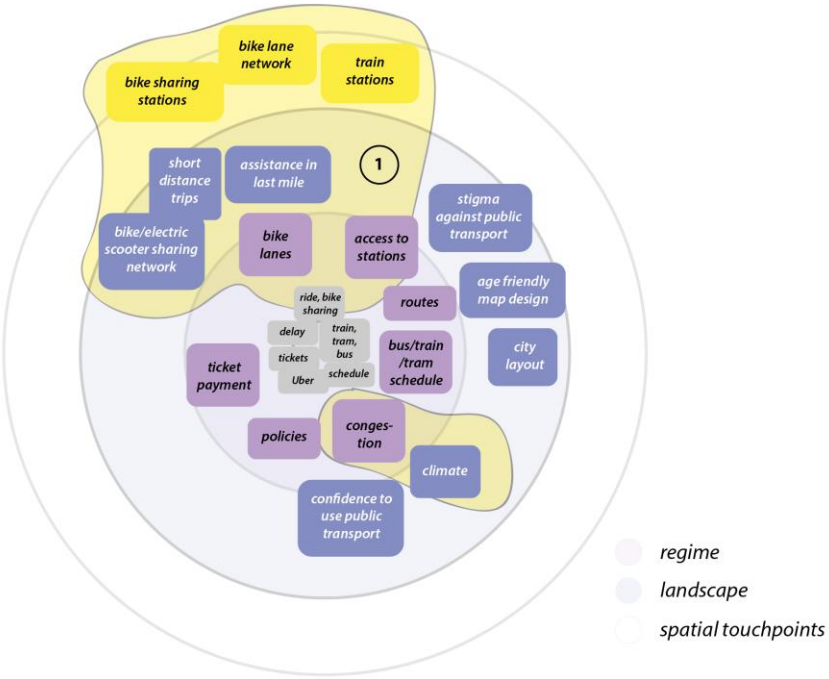

Figure 4.2 Public Transport Value Mapping

Now, we've filled our multi-level perspective and we could map certain factors together, e.g. *bike sharing*, *bike lanes*, *buses*, *public transport network* and *bike sharing network* (see the circled "1" on the figure above). This would bring us to further thinking about usage of bikes, so people get from, for example their homes to the train station, which is much more sustainable than doing so with their car – it also effects *climate* and *congestion*. In many examples like this one you will see the inner interlinkages of concepts and problems, ideas and solutions. Sometimes it won't be the case that one concept solves multiple problems but creates new ones. Even though the greater concept is *biking*, the social context is *commuting*, which can be broken down to, for example, *getting to work*. There are numerous additional insights to be derived once more spatial touchpoints and niche, regime and landscape factors are mapped in.

The spatial touchpoints of this example would be current *bike lanes* or rather its *network*, as well as *train stations* and *bike sharing stations*. Overlapping these two we could immediately identify gaps of 1) non-existing bike lanes in routes it would be beneficial they exist, 2) non-existing bike sharing stations on places it would be beneficial they exist.

Furthermore, to solve the number 2 (non-existing bike sharing stations), a collaboration between the public organisations and bike sharing providers would need to come in order. This represents the ripple effect the initial co-creation process will have the possibility to create, which can then further be resolved by additional, cross-organisational or cross-sector

co-creation processes. In like manner, this additionally enhances the value of the value mapping tool for strengthening co-creation in public services.

As it was already said, the spatial touchpoints are to be seen as actionable points, not something where the process ends. After their derivation, value statements are created. They consist of **context**, **value** and **testing**.

For example, in this case **context** would be: "*Because* many people travel with a bike either around the city or to the train station, *in order to* optimize public transport, *we must* optimize existing bike network with regards to the location of the train stations.

In similar way, to vocalise created **value**, I propose the following: "*We believe* that creating additional bike lanes or parking in close vicinity to train stations *for citizens-consumers of* public transport and bike lanes *will achieve* less daily frustration (unexpectedly closed bike routes and no alternatives, missed trains for work or home) and optimised travel experience, *and* higher public satisfaction *for us [public sector]*.

Last but not least, **testing** needs to be acknowledged and vocalised as well. This could be done by: "*We will test this by* overlapping existing bike network routes and train stations and identifying gaps. *We will know this this is valid when* there are less reported issues regarding bike routes and trains, as well as bike congestion decreases.

Figure 4.3 Value statement cards (Example 1)

4.1.2. Example 2: Bus and tram ticket purchase (narrow)

To illustrate this example, the current state of Zagreb's (Croatia) public transport – busses and trams, will be assessed with regards to fare payment.

Zagreb's trams cover 15 daytime lines and 4 night-time lines, whereas there is 143 bus daytime lines and those same 4 night-time lines. There is also funicular which operates daily. What about geographic and demographic situation? In short, Zagreb spreads across ~650km^2 and has around 800,000 inhabitants, exceeding 1.1 million with the metropolitan area.

You can buy either **paper tickets** or get a **prepaid card** for both trams and busses. The tickets can be bought either at a newspaper stand or directly from the bus or tram driver.

There is no SMS, web or mobile-app options to purchase the ticket nor to top-up the prepaid card. If you are purchasing the paper ticket directly from the driver, cash is the only payment option, whereas if you are purchasing it on the newspaper stand, well – it depends. Some stands offer card payments, some don't, and sometimes even the ones who do might refuse you card payment for low amounts. The prepaid tickets can be top-upped only from the newspaper stands (or official Zagreb's public transportation office).

The amounts for daytime and night-time tickets also differ, but while daytime tickets have multiple time interval options, the night-time ticket is valid throughout the night (from the moment of purchase until the public transport is active). Overview of the prices is shown in the table below.

Table 4.1 Zagreb's public transportation fares

Type of ticket	**Tickets purchased on the newsstand (in HRK[11])**	**Tickets purchased from the driver (in HRK)**
Daytime, 30 minutes	4,00 HRK	6,00 HRK
Daytime, 60 minutes	7,00 HRK	10,00 HRK
Daytime, 90 minutes	10,00 HRK	15,00 HRK
Night-time	15,00 HRK	15,00 HRK

Additionally, there are one-day and multi-day tickets available, as follows: 1-day (30,00HRK), 3 days (70,00HRK), 7 days (150,00HRK), 15 days (200,00HRK) and 30 days (400,00HRK). There are no discounts for quantity (e.g. when buying ten 30-minutes daytime tickets at once).

[11] At the time of writing, 1 HRK = 0.14 EUR

The prepaid cards work either as a top-up or as a monthly or yearly subscription. If you get the top-up type, each time you enter the bus or the tram you need to validate the card and choose your preferred ticket on the digital screen (which, unfortunately, often does not work). The amount deducted from your prepaid card is the one of the ticket you chose, according to Table 4.1, column 2.

However, if you got a monthly or yearly prepaid card, the process is different. For the yearly card, you pay at once (or in automatic instalments), and you don't have to worry about it again (unless you lose the prepaid card). The difference in the price is that you get "2 months free" when you purchase the yearly card versus the monthly one. Additionally, if you pay with cash one-off, there is an additional 10% discount.

For the monthly prepaid card, at beginning of each month you need to top it up. The fares depend on the socio-economic status, as illustrated on the table below.

Table 4.2 Zagreb's public transportation monthly fares (prepaid)

Socio-economic status	**Monthly fare (in HRK)**
Elementary school students	90,00HRK
High school, college, university students, retired and low-social people	100,00HRK
Adults	360,00HRK

The payment gets additionally complicated as Zagreb-area is divided into multiple zones, because busses go to nearby cities of Zaprešić and Velika Gorica. For this exercise, and because the fare data for the other zones is not easily accessible, it will not be applied later on.

So, our **niche** is **bus and tram fare payments**. I've discussed its context up until now, and you can deduct that it offers multiple type of fares and payments, which change depending on each other, so I'll jump straight to the regime.

Regime in this case would be *bus routes*, *tram routes*, *busses [as ticket-purchase spots]*, *trams [as ticket-purchase spots]*, *newsstands, official Zagreb's public transportation office (ZET), banks/ATMs*. These are not exhaustive and are naturally dependent of change – other

participants could contribute other regime factors to those listed here, and same goes for landscape elements and spatial touchpoints listed below.

Lastly in our multi-level perspective is **landscape**. As I've said earlier, this is the imagined place of concepts and topics where factors of niche and regime take place. Based on factors defined so far, as well as contextual background I've provided, **landscape** elements are: *accessibility of ticket purchase/top-up, city layout, crowdedness during commute hours, wish for a cashless society, fear of not having enough cash on you, accessibility of ticket purchase/top-up, ZET/newsstand working hours, bank working hours/ATM functionality, new ways of purchase and payment, contactless card payment in-vehicle, accessible mobile app for ticket purchase.*

Derived from this are a number of **spatial touchpoints**: bus and tram route intersections, busses (as purchase spots), trams (as purchase spots) and newsstands, station intersection with newsstands, newsstands city network, vicinity of ATMs & ZET/newsstands, ZET office/newsstands/ATMs with bus/tram stations overlap, fast-track newsstand ticket purchase or top up, ticket purchase from parking machines, automatic top-up stations, in-vehicle payment machines.

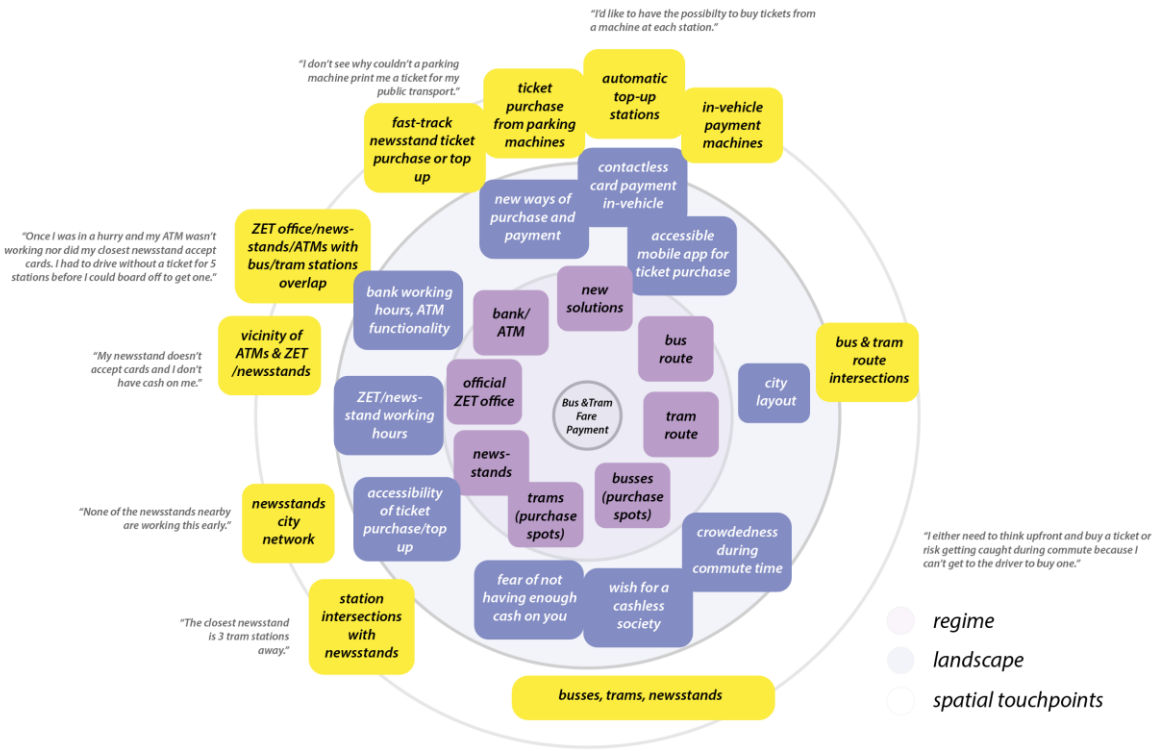

Figure 4.4 Bus & Tram Fare Payment Value Mapping

The example of defined value statements for some of the elements mapped on the tool are displayed on the figure below. It is upon the co-creation facilitator to decide, whether by

prioritisation or other principle, which elements will be used for the creation of the value statements, dependant on group atmosphere and time left available.

Figure 4.5 Value statement cards (Example 2)

4.1.3. What comes after the tool is used?

Because the spatial touchpoints have been derived following the niche-regime-landscape and are mapped onto social contexts, it is clear that instead of traditional product or project-based approach, in order to solve issues defined during the co-creation process, a shift to a **contextual-based approach** happens.

It is also a question of what happens once the value statements are created. From this point, those value statements are plugged into ongoing public sector processes (by the public service manager) and are being distributed across departments. If they ought to be additionally prioritised, ideally, the public service manager would inform the stakeholders of the co-creation project. After all, the recommendation is to keep all documents publicly available.

To conclude, the process of co-creation with value mapping tool utilisation would look like this[12]:

1. **Preparation** – stakeholder finding and invitation, workshop preparation
2. **Facilitation** – workshop introduction, discussing and mapping out niche/regime/landscape, creating social contexts and deriving spatial touchpoints

[12] Not excluding previously designed steps in the co-creation process

3. **Valuation** – creating value statements, finishing the workshop

What are the exact steps after finishing the workshop and how exactly does the tool plug in to existing public sector processes I cannot judge at this moment, as I'm sure almost each agency, department or other have different processes established. However, this is a great future research opportunity, where working together with public sector managers, we could find direct openings in the public sector processes to plug in findings of the tool, as well as create a streamlined process for implementation. This would then make an end-to-end process come in order, which is beneficial for workflow optimisation.

What is found is that the tool also makes possible is instead of using stages in a temporal scale at the beginning, the stages could be used to join similar topics together (e.g. car pools, carsharing, ridesharing, bike sharing) in the first iteration (when making a full circle). This is especially useful if the beginning topic is too broad to be put within a niche, so hence filtering needs to happen first. This way, the tool is firstly used to narrow down the context specifics until the underlying problem is reached. This is done by ditching the stages at first (not having at least two as usual, but none). Everything related to the topic is firstly mapped only on the corresponding concentric circles and then joined together in narrower topics, for example "*Commuting*" or "*Picking up kids from school*". Once this is done, then the earlier described process (see Chapter 3.2.3) begins with the niche factors being the results of the previous filtering session. Each of the results of the filtering session could (and should) be mapped on separate value mapping tools for best (most accurate) results. The narrower the niche is, the more precise the interventions are.

4.2. Ethics

As it was already mentioned, the way we engage the citizens and who we engage with is vitally important for this process.

From literature provided and analysed within the scope of this thesis, I depicted six values which underpin co-creation within the public sector for the proposed co-creation model (see Chapter 3.1.6). As the value mapping tool is created to strengthen co-creation in public services, the values are applicable on it as well. The six values are, in no particular order, as follows:

1. Government-citizen co-creation process lies on the belief that those who are affected by decision making and public services have a right to be involved.

2. Within the co-creation process, it is ensured that the information needed for citizens to participate is distributed and communicated in a meaningful way.
3. The co-creation process includes and should deliver the promise that citizens' feedback and contribution will have an influence of any kind.
4. The co-creation process adopts a multiple stakeholder view and a significant understanding of the drivers of human behaviour of all participants.
5. The co-creation process promotes smart decision making by incorporating a holistic model with all three dimensions of sustainability (social, environmental and economic).
6. The co-creation process communicates retroactively to stakeholders to inform their how their input had affected decision making.

These types of values need to guide our work, as only by creating amicable environment can the process of complete co-creation actually begin.

5. Discussion

The designed tool intends to assist governments in better understanding their overall value proposition, both positive and negative, for all relevant stakeholders in the value network, considering a more holistic model that incorporates all three dimensions of sustainability (social, environmental and economic) within co-creation, with the emphasis on the importance of design strategies in shaping the future of business.

The tool adopts a multiple stakeholder view of value and a significantly deeper understanding of the drivers of human behaviour and social change and how to affect them with regards to the spatial touchpoints by adopting the multi-level perspective, joined with socio-technical contexts. The tool considers how and when the efforts of the government can be better aligned with the motivations, resources and efforts of citizens, and introduces a novel way to conceptualise value within spatial interactions of co-creation.

5.1. Theoretical contributions

The following co-creation model and value mapping tool enhance public participation research by separating the process from the tool, identifying key steps and formats while also making them highly complementary, as they are based on the same types of thinking.

Firstly, the proposed co-creation model proposes a synergy of the double diamond design process and the design thinking process. With this, I've contributed to the co-creation/public participation literature by creating a model which utilises two types of design processes into a hybrid one. Specifically, I present a model which brings an all-round picture to the table and which can be used within many design thinking workshops as it has it as its base.

The value mapping tool, on the other hand, facilitates the synergy of transition and service design for solving complex problems within the public sector, while also utilising the double diamond design process and design thinking. Both the co-creation model and the value mapping tool together build the foundation for a transparent and cohesive structure. I believe that this value-formation, which utilises transition design, has important implications for creating holistic and sustainable public services. With this in mind, I believe that with the utilisation of the proposed co-creation model and the value mapping tool, it is made easier

for any designer to approach the design of public services, as it uses familiar design concepts while facilitating all-round innovation.

Additionally, the tool's setup of the three layers – niche, regime and landscape, including the spatial touchpoints, is meant to encourage designerly way of knowing and thinking through the stages of being inspired, through observation in combination with reflection, ranging from abstract to concrete thinking, to finally plan and focus on creating tangibles based on action points defined in the spatial touchpoints. The spatial touchpoints serve as input-points to happen on the environmental spaces and present a novel way to combine urban concepts with design and the public sector.

The tool is based on the premise of multi-level perspectives (MLP), and in this it is similar to MLP modelling within transition design. By having stakeholders experience, to learn and understand different viewpoints, knowledge is generated to inspire action for innovation.

The value mapping tool works as an iterative discursive co-creation process, using existing exploratory and transition design methods as well as established creative and design led methods (e.g. visualization, design thinking). Additionally, the tool is enhanced with the future studies concept by introducing the "rethinking by spinning" approach, which specifically helps unlock futures thinking in public organisations, who have been mainly functioning and working in the "past and present" landscape so far.

Lastly and most importantly, the thesis contributes to new discourses of public service management literature by formulating that the value creation is not happening as value-in-delivery or value-in-use. It novels the notion that value forms much earlier – as it is heavily dependent on context, past experience and the social environment – it formulates as a value perception even before the service was delivered or experienced. I argue that value is created upon first contact with the service – among any channel possible. Advertising and connectivity have made it possible for citizens to "experience" and form an opinion (and consequently value perception) much sooner before actually experiencing the service, and hence, value creation happens at that very moment.

5.2. Initial intended uses and practical implications

So far, the value mapping tool has been applied in an unprofessional setting, in order to test the ideas and build an exemplar case – public transport. It is intended to be used within public organisations or by designers or other experts working with public organisations, who want

to test, try or introduce co-creation in the organisation. It would also be conceivable to apply both the co-creation model and the value mapping tool in other settings and environments. Both of these cases will be key aspects of future research.

When applying the co-creation model, a first step for the public service manager would be to initiate the method and engagement of all stakeholders. Then, the model follows the stages defined in Chapter 3.1.6. The results of each of the stages would need to be evaluated according to their possibility of realization, as well as their preferability among stakeholders, which is an iterative process. This all works well once it is decided that co-creation is the way to go, but one of the key hurdles is actually choosing the right method. Co-creation won't always be the way to go and it is important to carefully make that decision having appropriate objectives in sight.

Another challenge known to all public participation formats includes the selection of stakeholders for each phase. Who facilitates the sessions? In this process, co-creation facilitators, mostly designers or sometimes public service managers, facilitate and organize the discourse. As the tool encompasses theoretical design principles, it would be logical that the designer is the facilitator. However, I would argue that designers should not define futures for everyone alone, but to include in the process external experts and stakeholders, including ethicists, scientist, economist or anyone relevant to the area at hand, to generate encompassing knowledge for transformative action and have designed design act as a catalyst for public debate and discussion, about the kinds of future people really want.

Integrating design methods into the co-creation process and creating tangibles and artefacts in the form of the value mapping tool, should enable participating stakeholders the chance to experience their images of the future. Critically, both of the models seek to adhere to scientific standards and generate data that is a viable foundation for further research, as explained below.

By using the tool within a certain context and environment, the outputs of the tool can be depicted and translated to a **value system**. The reasoning for this is that, if stakeholders have been chosen on the diversity premise (as explained in Chapter 3.2.2. Understanding who the stakeholders are), the values they map on the tool can be looked at uniform values of the representation of the community. This should be tested in further research as it could bring additional value for project development, for example a "value system library" which could then be shared across projects and organisations. This would lead to a key advantage in the form of a **networked capacity**.

Other than the tool intended use (strengthening co-creation), and other listed practical implications, it is important to emphasize its interconnectivity. Just like I've mentioned in the beginning, design and spatial science could be used for enhancement for public services through co-creation. This is not only limited to the spatial touchpoints as the output of the tool – it can have a much broader context. Our spatial touchpoints from Chapter 4.1 were *bike lane network*, *bike stations* and *train stations*. With the use of 'traditional' spatial science (e.g. GIS), we could analyse spatial layers of interest in order to arrive to specific points for improvement. This could be done, for example, by inputting a buffer saying: "In 200m proximity of a train station, a bike station should be located".

5.3. Notes on applicability – things to have in mind

For even more detailed and focused value mapping tool application, it is important that the co-creation facilitator properly understands how people use the predominant styles of change management styles mentioned in Chapter 3.1.6., as when dealing with wicked problems, it could actually be beneficial to apply several styles of change management at the same time. Even though beneficial, areas of organisational design and related theory are outside of the scope of the thesis.

Other than this, the co-creation facilitator should also recognize the coalition roles (directing, partnering, facilitating), as described by De Jong (2016), which describe the roles that a public organization can play. Their understanding helps to properly anticipate and recognize how a workshop should be positioned. Ideally, and as discussed in this thesis, public organization serves a facilitating role, but that may not always be the case. In that type of coalition, the facilitator needs to **ensure that people continue to have a connection** and connective ambition. De Jong also warns that the facilitating role presents the co-creation facilitator with the question of how to connect the organization's in-house obligation to deliver results with the spontaneous effects outside the organization.

People interested in being co-creation facilitators are invited to thoroughly read Schaminée's "Designing With and Within Public Sector Organization" (2018) and "The 7 Principles of Complete Co-Creation" by Jansen and Pieters (2017) as obligatory reads, followed by Bason's "Leading Public Sector Innovation: Co-creating for a better society" (2018) for the detailed background story.

This paper also did not discuss **institutional barriers to participation**, as it is another individual topic, which could easily be a topic of another paper considering its scope, but it's one important to recognise. However, it is extremely valuable to recognise barriers like political context and funding problems exist. Luckily, there are many both traditional and creative consulting companies tackling this journey of a thousand kilometres challenge. To achieve full capability, I believe the culture within public organizations should transform to be fully stakeholder-centric. Not only that, but fully citizen-centric, as in most times citizens are not even considered stakeholders, or if they are, they come in last place after public service providers and others.

Similarly, there are multiple academic papers published on the topic of selecting appropriate **involvement techniques** in mobility planning (see Lindenau and Böhler-Baedeker, 2014; GUIDEMAPS, 2004; Rupprecht Consult, 2014; UN-HABITAT, 2001).

5.4. Who is this tool for?

This tool (and the entire thesis) is intended as an educational and thought-provoking reading material for designers (social, service, transition, civic, policy…) who want their work to have an impact on social issues and thereby enter into a relationship with public organisation.

It is also intended for public sector staff experimenting with (or intending to do so) new tools and methods, as well as incorporating design into day to day operations. Hopefully, it will give them a better understanding of how to facilitate co-creation for public services or spark new ideas.

Thirdly, it is intended to people like me – working in the fields between design and public sector, or other disciplines, which aim to "translate" citizen needs to the government and governments undertaking to the citizens. Those are also the people who know design has the capacity to change environments and processes to serve humanity and the public in a more efficient way and have made it their own mission to demonstrate to public organizations the value of implementing design.

Last but not least, it is intended to anyone interested in the topic, with the hope it will awaken a new type of thinking and inspire own exploration of this disciplines, like many other authors have inspired me to do so.

As already mentioned in the Introduction, this is the first layer of the encompassing topic and the first iteration of the tool. This means that the tool, even though lying on firm theoretical background, needs to be iteratively practically tested and improved. It can be used as-is now, but in an open environment – ideally where design as a method is currently being experimented so the tool can be tested and prototyped.

After all, this is, in its essence, a tool – and as for any other tool, the person using it needs to know how to handle it. In its current state, it possibly more than ever requires firm theoretical understanding, especially from design, as well as futures way of thinking.

I believe anything can be learned, so just by picking up this thesis, the person interested should be able to grasp the presented concepts (if they are presented well) and be able to use the tool. However, this is unlikely to happen without any prior knowledge. I would judge this is because of the complexity of the presented topics – just like you don't necessarily need to read a manual for a screwdriver, but you wouldn't be confident in using a CNC machine straight up.

What is not covered within the thesis in details but is of uttermost importance is facilitator's soft skills – a person who ever held a workshop will know. It requires social, organisational and leadership skills, as well as not being afraid to be assertive when needed, intentionally provoke debates, highlight dilemmas and spark participants' imagination.

5.5. Transferability of results

Applicability of this tool is shown on the example of public transportation, but it is designed for any public service – ranging from environmental protection to social services. The value of the tool lies in the people using it, no matter the topic.

It is up for discussion could the tool be used for projects and services outside the public sector – possibly yes, firstly with companies who provide public service complements or substitutes. This would be, for example, private hospitals.

Second order of transferability could happen within the realms of co-creation within a private company, where the process of co-creation would take place between the employees and users of the service or product. This would be particularly useful if the company is in a transition process and needs strategy and focus. The employees would then fill out the niche, regime and landscape according to their expertise, as it would need to have a broader set of

contexts given the differences within the private sector, while the users would provide ideas and feedback for future direction setting.

Third order of transferability is actually facilitating co-creation between the private and the public sector. Uber, a popular ridesharing solution provider, has already started working with public transit to create solutions and fill in gaps in existing public transportation services. This opportunity can, when acted upon, provide many preferred outcomes defined by sustainability. This would generate either an expanded or doubled overlapping co-creation model, as we should not forget the citizens as the primary users of both services – ridesharing and public transportation.

As already said, the value of the tool lies in the people. This means that as long as the stakeholders are chosen wisely (as explained earlier), the tool would find its use. I would identify that step in the process as the crucial first which determines will the use of the tool be a success or a failure (with the assumption that the facilitator is knowledgeable and/or trained), whether within the intended use (only public sector) or in any other orders of transferability (both public and private sector, only private sector). Every other facet of success or failure also relies on people – their behaviours, political aspirations, what do they benefit from, how is their day or week going, and many other things. This is why I've highlighted change management as an important "skill" to be acquired (see Chapters 3.1.7 and 5.3), as well as choosing stakeholders.

5.6. Further research directions

As this intersection of topics is also closely related to futures thinking – and as the tool itself could not only be used for (re)designing current services but also imagining new ones – the relationship between these concepts and possible subsequent models will be explored within the participatory futures concept relationship.

Future research publications will also refer to the question of an appropriate formulation of other co-creation tools and exercises used, especially when given to non-experts. As design methods and participatory formats have been proven to work in transformative processes (Candy & Kornet, 2019; Ramos, 2013), a framework to combine the two with regards to the public sector could be created. This would utilize the ongoing inspirational momentum of co-creation as a design method within the public sector and measure up to scientific

standards of reproducibility and transparency, to allow for others to integrate the framework in own workflows.

Planned future testing in a range of sectors, companies, non-profits, social enterprise would help to understand the wider applicability and versatility of the tool and improve the process, as suggested in Chapter 5.5. Transferability of results. It is also planned to create what comes "after" the use of the tool, or more specifically, work out in detail the drafting of the value statements explained at the end of Chapter 4.1, as well as research other complimentary methods which could be implemented. This would, then, form a framework.

All of this will and needs to be well documented. Intended as a public tool, the future facilitator's toolkit will be made open and collaborative, so anyone using the tool will have the opportunity to contribute own findings, struggles, challenges as well as ideas and tricks. For a model and a tool which utilise co-creation, it seems only natural that the improvement of the tool is of collaborative nature too. This will in return strengthen co-creation not between citizens and the public sector, but the public sector itself, or designers and the public sector, or anyone interested in doing this facet of work. The design community in the public sector is still something that is 'just starting' and for this very reason it is extremely valuable to have an understanding network of people who share the same challenges and set-backs and to be able to provide support to each other.

Conclusion

It is definite that we are living in uncertain times. With the rise of wicked problems such as climate change, as well as others much more directly connected to public services (even though climate change is too – just the connection isn't as visible as it is for, for example, urban planning), effectively engaging stakeholders and citizens in understanding the problem and identifying possible responses is becoming a key part of government strategies.

The catalyst for this is the rise of the sharing economy, which as a term did not exist ten years ago. Today, we are sharing more goods and services in our day to day life than ever before. People are brought together through these services by their utilization. By turning those experiences into real inputs for co-creation, people are brought together again, this time with a sense of responsibility, ownership and trust.

At the beginning of the thesis I have set up two research questions. The first one was: "*How could design be implemented within the public sector?*". This was answered by examining the relationship of service, transition and urban design with the public sector. It was made clear that urban design is important because on its grounds are the public services being experienced and it affects their experience. A link was drawn between transition design principles and aspirations of today's citizens. This resulted in the creation of the value mapping tool, which is built upon double-diamond design process, design thinking, transition and service design principles, while linking it directly to urban spaces with the introduced concept of spatial touchpoints. This way, by creating a value mapping tool which is to be used in the public sector, and which consist of many design principles, design is indirectly implemented within the public sector.

The second research question was: "*How to strengthen co-creation in public services?"*. To arrive to the answer to this question, firstly I have explored existing co-creation processes as well as showcased current applications of co-creation in public services within the case studies. Backed up with strong literature background indicating that a shift to a collaborative governance is imperative, throughout the thesis I have shown that co-creation strengthens as more citizens are involved in the creation of public services, as they are already connected to the public services provisioned to them because they pay taxes to the government and that their collective sense of ownership would replicate when engaged. However, important distinction which has been made is that the co-creation needs to happen much earlier in the

process than it is happening today, which means that citizens need to be included already when plans are just being discussed and not already made. A demonstration of this is the Gent and Singapore case studies presented in Chapters 3.1.2 and 3.1.3 respectively.

The answers to these two research questions complement each other as the co-creation process shares many similarities with presented design principles, which has been demonstrated within this thesis. This means that a fellow designer can easily pick up on the co-creation process and utilise it during a workshop while also using the tool. This way, this thesis also contributed to lowering the barrier for designers wishing to enter the public sector space.

However, co-creation shouldn't be seen as "just another method" or a "design trend". In fact, it has the potential to address some of the world's most complex problems. Designing by co-creating, as an iterative process, includes constant reassessment of results, as well as the responsibility of one's actions for all stakeholders included in it.

The balance between macro- and micro- factors (landscape and niche), as well as analytical and creative steps, are planned to take turns and mutually ennoble and refine each other. As in other participatory approaches, the actual realization of one's own idea is an important motivator for change (Ramos, 2017) and should be kept as one possible objective in the co-creation process. It supports the idea of empowering stakeholders to become creators of their future and take ownership of their experience of the delivery of public services.

However, even with the use of the tool and co-creation as a method, this comprehensive focus and strategy need to act as pillars of innovative and flexible dealing with problems, within which tolerating uncertainty and accepting the need for a long-term focus are considered the norm. The tool is only as valuable as the people using it, hence the "governments of tomorrow" should recognise complexity and have a commitment to social justice, instituting trust and responsibility across the organisation in order to live up to citizens' expectations.

This tool should not be viewed as a static map, but rather as a compass for navigating new sets of direction and values. As already stated, the design is not the solution. It serves as a medium for thinking through our own beliefs, values and priorities. It is decision making through design, rather than through traditional models, and using the language and structure of design to engage people, awaken imagination and enable collaboration between designers, public sector and the citizens.

No one can predict the future, but anyone can shape it – so let's inspire citizens and public organisations to rethink the way we live, with regards to our urban environment and governance, and discover how co-creation can help solve some of our biggest challenges. This tool is only one of the tools in the toolbox aiming to help achieving just that.

List of abbreviations

VMT	*Value Mapping Tool*
VGI	*Volunteered Geographic Information*
S-D L	*Service-Dominant Logic*
LTA	*Land Transport Authority*
LTMP	*Land Transport Master Plan*
DMP19	*Draft Master Plan 2019*

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Attachments

Attachment 1. Co-creation model

Attachment 2. Value mapping tool

Attachment 2. CD with the Final thesis

ALGEBRA
VISOKO UČILIŠTE

DESIGNING A VALUE MAPPING TOOL FOR STRENGTHENING CO-CREATION IN PUBLIC SERVICES

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