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THE CO-CREATION AND CO-DESTRUCTION OF VALUE OUTCOMES:

A CLIENT PERSPECTIVE ON SERVICE PROVISION IN PROJECTS

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DECLARATION

The final word count of this PhD thesis is 88, 216 words. This excludes the title page, acknowledgments, abstract, impact statement, table of contents, list of figures/tables/abbreviations, declaration, references and appendices.

I, Marcos Eliut Gonzalez Fuentes, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

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ABOUT UNIVERSITY COLLEGE LONDON

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ABSTRACT

Many client organisations act as project sponsors, owners, and users in project settings. Thus, they organise themselves across the project to configure, design and deliver valuable outcomes for the long-term. However, research in projects has shown that many projects fail to meet mandatory objectives and ultimately to accomplish the project vision in the long-term (Morris 2013). Some projects, rather than creating value, they destroy it, directly affecting organisational business models and other societal aspects (Fuentes et al. 2019). One of the key problems behind this lack of focus on the value for long-term has been that, historically, projects have focused upon engineering value through manufacturing and production. While these aspects are relevant, a complementary perspective is necessary to design and deliver valuable outcomes for the long-term. Thus, the purpose of this research is to offer an alternative perspective on how to co-create valuable outcomes for the client organisation. From a theoretical approach, the Service-Dominant Logic (SDL), from marketing, is to date the most relevant and modern framework to explore how value outcomes can be co-created for the long-term (Vargo and Lusch 2016; Grönroos 2017). Thus, SDL is taken as a starting point, yet this study critically analyses SDL to understand what aspects can be used in the business of the project. To this end, this research used six qualitative empirical project case studies of two public sector client organisations in England. The results originally offer a process by which value outcomes are co-created. The process shows: (a) eight key-value interactions to co-create value; (b) four key-generative mechanisms to facilitate an organisational structure to co-create valuable outcomes; and, (c) a set of five types of integrated value outcomes, which emerge on the long-term. This research, therefore, may provide a set of principles for project practitioners on how to co-create value outcomes across the project lifecycle.

Keywords: Benefits; Business Model; Co-creation; Co-destruction; Outcomes; Service-Dominant Logic; Value.

IMPACT STATEMENT

Based on this research, this section addresses five key impacts for both inside and outside academia:

- Project practice has been characterised for looking at short-term benefits, particularly the financial benefits for supplier organisations. This research can have a direct impact on client organisations in the public sector as this research sets out how to manage project value outcomes both in the short- and in the long-term for client organisations. This research provides a set of five types of value outcomes, which appear in the long-term, including Environmental, Social and Operational outcomes. This set can be used in future project undertakings during the initial development of business cases and projects. While previous research in benefits management has generically addressed value, this research sets out key managerial actions on which value can be managed.

- Project practitioners face complex and uncertain situations. This research can have an impact on public client organisation as it provides eight managerial actions that can be used across the project life cycle to both face complex challenges and ensure value outcomes in the long-term. The nature of these interactive management actions is highly interactive among other key stakeholders, including the end-user, who ultimately benefit and/or suffer from the project. This research provides both strengths and weaknesses in undertaking these types of interactive activities. This research includes management tensions that need attention to defend the value and avoid its destruction in project settings.

- Project practitioners create and deliver project value outcomes. Yet, people and projects are highly dependent on the structure of the project organisation. This research can have an impact on client organisations because it provides four social generative mechanisms that may allow project leaders to facilitate the co-creation of value outcomes.

- Many projects often fail to meet mandatory objectives and others destroy the project and societal value. This research can have an impact on client organisations because it provides an overarching process, by which value outcomes (for the long-term) can be co-created. The process is original because it treats the management of value outcomes as a functional process. This means that different stages are considered in this process, which shows how value outcomes evolve. The process considers contextual, organisational, and relational aspects. This process may aid in the achievement of internal organisational goals, as well as helping to address wider societal agendas (see the 2050 Vision from the World Business Council for Sustainable Development or the 2030 United Nations Agenda for Sustainable Development).

- This research has generated complementary outputs in various forms as part of the dissemination process:

- One journal publication featured in a special issue of ‘Delivering value in projects and project-based business’ from the *International Journal of Project Management* (see in Appendix 1).
- One journal publication in a special issue of ‘Service innovation through linking design, construction and asset management’ from the *Built Environment Project and Asset Management* (see Appendix 2).
- One conference publication in the Association of Researchers in Construction Management Conference (ARCOM) (see in Appendix 3).
- Three public presentations held in two Finnish universities: Åbo Akademi University and University of Turku; and one held in a French university: SKEMA Business School.
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LIST OF ABBREVIATIONS

£	British Pounds
A2A	Actor-to-Actor
APM	Association of Project Management
B2B	Business-to-Business
B2C	Business-to-Consumer
EU	European Union
HPC	High-Performance Computing
NPD	New Product Development
PM	Project Manager
PMO	Project Management Office
PM1	Project Management
PM2	Programme Management
PM3	Portfolio Management
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
ROMI	Return-on-Marketing-Investment
RQ	Research Question
UK	United Kingdom

CHAPTER 1: INTRODUCTION

This chapter provides the foundations of this research. Firstly, the chapter addresses the connection between project practice and theory. Then, the problem statement is set and connected with relevant literature, mainly from the project, marketing, and overall management discipline. The chapter then presents the research aims and questions. Later, the chapter briefly introduces the research strategy applied to answer the research questions at stake. In the last part of this chapter, the key theoretical and practical contributions are initially articulated. Overall, the chapter aims to provide theoretical and empirical foundations of this research.

1.1 Overarching problem statement

Projects were, are and will be in the heart of yesterday, today and future’s businesses. Throughout history, people have taken on many project undertakings with great determination. Some of these projects have become a source of strategic value outcomes not only for organisations, sponsors and financiers but also for societies. For example, the value outcomes of early civilisation's constructions have become symbols for diverse countries, such as the Mexican pyramids or the Great Wall of China. There are modern-day equivalents of ‘successful' projects in the long-term for their sponsors from the Sydney Opera House to Canary Wharf in London. In particular, the Sydney Opera House project incurred in high-cost overruns and delays during its construction (Flyvbjerg 2017), yet its value outcomes appeared in the long-term both in a subjective manner, such as being a national icon and in an objective manner, such as directly contributing to the Travel and Tourism sector. Therefore, one of the lessons learned from this set of undertakings is that projects produce ultimately value outcomes to a range of stakeholders in the short-, medium-, and long-term.

Other projects have produced negative implications. Some projects rather than creating value, they have destroyed it in different forms, for example in environmental, social or financial terms. An example of this is the mining industry in the global south, where contractors unethically extract minerals at the expense of destroying the environment and living communities around the mining site (Brust and Liston-Heyes 2010). Thus, project teams need to design and configure value propositions not only for the benefits of a few, such as financiers and shareholders but also for the benefits of other (weaker) stakeholders, such as end-users (Freeman 2016).

The creation of value in projects needs key attention, particularly as projects are an important part of the worldwide economy activity (Scranton 2014). According to the McKinsey Global Institute, the world needs an annual investment of around $3.7 trillion in different types of projects to meet societal demands (Woetzel et al. 2017). Thus, this incremental projectification around the globe (Midler 1995; Packendorff and Lindgren 2014) need to have strong working principles and values.

Morris (2013), one of the founding fathers of the discipline, mentioned that *"there is something the 'why' and 'how' one does projects; hence, 'to what end?"* (Morris 2013, p. 257). He called this the project management ethos. This project ethos, therefore, directly refers to how projects produce value outcomes not only in the short- but also in the long-term.

According to Smyth (2015), project teams need to address three key pillars to manage successfully a project. The first pillar is *value*, which refers to the benefits designed at an early stage of a project (front-end) in order to define and deliver a project. The second pillar is *context*, which refers to the social system and structures where the projects are socially embedded. The third pillar is *impact*, which refers to the (positive) usefulness of a project for a range of stakeholders.

These three pillars are interconnected and contribute to the realisation of *value (outcomes).* This study considers there are three types of value in a project: (a) value outcomes; (b) value outputs; (c) value inputs. These three types of value are interconnected and play different roles in the realisation of value. For example, value outcomes in this research are defined as the strategic result of a project, which may appear in the medium- and long-term (Grönroos 2017). Value outcomes may enhance not only the parent organisation but also other actors outside the boundaries of a project. Therefore, this research explores the dynamics of value outcomes. To date, the emphasis on value outcomes is scarce in both research and practice. The major emphasis has been on both value outputs and inputs (Smyth 2018).

In this project, value outputs are considered as the tangible products and systems that come out as a result of a project. This study considers that value outputs are a function of the value inputs, which are initially designed and planned in the early stages of a project. Value inputs of a project are represented in the form of, for example, requirements, leadership, business cases, project strategy, and most of them create the initial value propositions of a project (Williams and Samset 2010; Edkins et al. 2013). Lastly, value propositions can be defined as the promises that can be extracted by relevant stakeholders during the realisation of a service (Skålén et al. 2015).

While the three types of value are different, they complement each other to realise the value outcomes in the long-term. Project undertakings in practice frequently fall short of meeting and designing the three types of value: outcomes, outputs, and inputs. Traditionally, projects have focused on meeting short-term criteria, such as time, cost and quality (Atkinson 1999). However, projects constantly fail to address and configure value outcomes for the long-term (Artto et al. 2016). Therefore, this research has taken on the challenge to explore how value outcomes could be (co)-created for a wide range of stakeholders. This research is originally focused on the client organisations (in the public sector), who plays the role of sponsor, owner, and user within the same project, and who ultimately benefit and suffer from the results of a project (Fuentes 2019).

1.1.1 Overarching problem in public client organisations

Public client organisations undertake projects to enhance their business position in the market. Thus, they face the task to create and deliver valuable outcomes to a varied group of stakeholders. In doing this, clients encounter multiple challenges to meet their own goals but also to achieve the fundamental pillars of a project: value, context, and impact.

One key issue explored in this study is the implications of value in the long-term. Exploring this issue, two quotations[1] are exposed to provide a further understanding of the problems encountered in the project-level perspective. One participant from a Project Management Office (PMO), acting as a client representative, provides (narrow) views on the delivery of project value:

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[1] The quotations are part of the dataset of this research.

"A good Project Manager can keep projects on time and budget and our job is to deliver, our mantra is to deliver, find the routes to deliver, and we might lose friends along the way"

Senior Project Manager

The above evidence shows there is a strong focus on the performance and delivery of the project, in terms of meeting time-cost-quality/scope criteria (Atkinson 1999).

Then, the evidence provided below, from a Senior Project Manager, indicates that the implications of projects are highly disregarded by the PMs:

"The PMs [Project Managers] don't care about what they get out of it,
as long as they get something out"

Senior Procurement Manager

Explaining further these quotations, the Project Manager expressed his idea of (traditional) project success, which is about meeting project criteria based upon time-cost-quality/scope. These criteria are focused on the performance of the project in the short-term (Shenhar 2001). This perception of project success is driven by project management methodologies, such as the PMBOK Guide (see PMI 2013) and PRINCE2 (see OGC 2009). These methodologies: (1) are focused on short-term perspectives: project execution and delivery, and disregard long-term implications; (2) consider projects as successful when they manage to meet the traditional criteria: time-cost-quality/scope (Morris 2013); (3) assume projects are an island, with little connection to other strategic, organisational and societal goals (Engwall 2003); (4) have a lack of consideration of the early stage of a project as the strategic place to design and configure value (Morris 2013). While recent revisions have been made to these project methodologies, their core is still rooted in short-term perspectives: time-cost-quality/scope.

Overall, these two quotations show key problems in the management of projects, such as the strong emphasis on the delivery of tangible value outputs in projects; the short-term perspectives used by practitioners in projects; and the lack of emphasis of implications of a project in the long-term. These problems are highly connected to the reflections provided by Winter et al. (2006)[2], who suggested that the product focus juxtaposes the focus on the value outcomes in the long-term.

This study takes the challenge to explore the value outcomes (without completely disregarding the value inputs and outputs, as they both help to render a service and achieve the value outcomes). To address this, the study takes modern perspectives of value, coming from marketing, which is to date the most advanced school in terms of value creation (Grönroos 2011; Vargo and Lusch 2016).

1.2 Research context: key challenges in projects around value creation

Project client organisations need to organise themselves to deliver the required project benefits. In this process, client organisations encounter demanding challenges by relevant stakeholders for creating, delivering and realising value outcomes. Key challenges in projects are explored in this section:

The first key challenge is that client organisations tend to focus on the short-term aspects of projects. This focus has a strong emphasis on the financials and engineering inputs and outputs coming from the supply chain and the internal resources of a firm (Smyth 2015). However, many project researchers (Kim and Wilemon 2002; Williams and Samset 2010; Edkins et al. 2013) have widely criticised this view on projects. Unfortunately, to date, the project practice is still rooted in these traditional practices (Papke-Shields et al. 2010).

George (1997) and Smyth (2015) indicate that using a short-term approach in projects may be insufficient to meet a project vision and wider strategic expectations. In addition to this, by focusing on the short-term, the traditional approaches may inadvertently end-up destroying value for a range of stakeholders, including financiers, sponsors, and users (Mills and Razmdoost 2016).

To defend and create valuable outcomes, project organisers may need to reconsider the way they configure and design value propositions with a focus not only in the short- but also in the long-term. These long-term outcomes can be designed in the front-end stage. This is the stage of a project where most of the implications in the long-term of a project are being formed (Edkins et al. 2013). Thus, it is a strategic phase, where value can be collaboratively designed and constructed (Morris 2013). However, evidence has proved that the creation of value outcomes during the front-end stage has been overlooked both in theory and practice (Aarikka-Stenroos and Jaakkola 2012; Smyth 2015).

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[2] This research was a result of a UK initiative to provide direction of project research.

Another key challenge in the creation of value is the inadequate creation of value outcomes (for the long-term) at the front-end of a project. This might be due to a manufactured and production-oriented approach undertaken in projects (Winter et al. 2006). Historically, many supplier organisations have adopted this industrial approach to capture financial revenues disregarding the implications in the long-term (cf. Porter 1985; Barney 1991; Davies 2004). This type of industrial approach primarily aims to enhance the competitive advantage of the supplier organisations, financiers, and shareholders, disregarding other actors such as the end-users (Freeman 2016).

While some authors in the management of projects (cf. Shenhar and Dvir 2007; Morris 2013; Chih and Zwikael 2015) have started to consider aspects beyond the manufactured and production-oriented approach (at front-end), the perception and realisation of value (-in-use) in the long-term remains widely unexplored in the project literature. In addition to this, the connection between the value outcomes with the value proposition at the front-end has been overlooked.

One relevant challenge around the research on the front-end stage (see Ward and Daniel 2012; Morris 2013; Edkins et al. 2013), is the strong focus upon the effective definition of the: (a) *value inputs*, such as the development of the business case; the selection of the right project; and the management of the technical specification; (b) *value outputs*, such as the measurement of system performance, considered as project benefits. While these aspects, including the design of value inputs and outputs, are -critical and still important- for the creation of value, these management approaches largely disregard the value in terms of outcomes for the medium- and long-term. Value outcomes, in contrast to value outputs, are considered as the strategic result of a project. These value outcomes, which appear in the long-term, may have wider negative and positive implications, hence the importance of adequately configuring those at the front-end.

Overall, a potential solution to address these challenges might be to take an intense process of co-creation of value. This may allow us to configuring and designing value propositions across the project life cycle in order to achieve value outcomes for the long-term.

1.3 A potential solution to address key challenges in projects

The challenges described above in projects need addressing and management. Discussions in the management of projects literature are strongly focused on improving the competitive advantage of supplier organisations (see Davies and Hobday 2005). However, there is a need to look at the client perspective. Brady et al. (2005, p. 9) argued that "*providers have to understand how value is created through the eyes of the customer*". Yet, in this view, the main perspective of value is still coming from the provider side. Other theoretical lenses need to be used to assess the creation of value *from and with, rather than through*, the eyes of the client organisations.

The marketing discipline, which is outside the management of projects, has been addressing some of the key issues of creating value for client organisations. Yet, marketing has been outside the radar of project researchers (e.g. Pinto and Covin 1992; Turner 1995; Cova et al. 2002). This means that some of the theoretical constructs in marketing can be originally applied in the project business.

A key aspect to recognise is that the majority of the perspectives in marketing come from high volume products and services set in Business-to-Consumer (B2C) settings, thus there is a need to translate some constructs into project settings.

The literature of marketing, primarily represented by Service-Dominant Logic (cf. Grönroos 2011; Vargo and Lusch 2016) might inform how (client) project organisations could design and configure value outcomes (Grönroos 2011). Using the SDL lens, value is ultimately determined by the client organisations (Bettencourt et al. 2014). This may suggest that value outcomes could be co-created among relevant key stakeholders, but led by client organisations. Thus, client organisations may play a crucial role, in a Business-to-Business context, in co-creating the required value for themselves and others (e.g. end-users). The SDL literature provides an alternative perspective of value from the client perspective rather than from the supplier organisations (cf. Davies and Hobday 2005). As a result, clients may not only secure the value outcomes for themselves but also may avoid the destruction of value (Echeverri and Skålén 2011).

The key concept in SDL is the co-creation of value outcomes. The co-creation concept may be referred to as an intensely collaborative and interactive process, which aims to improve the usefulness of the value outcomes in the long-term, from the perspective of the client organisation (Grönroos 2011; 2017). Value co-creation in this study is considered per se a process, rather than a discrete activity. This suggests that the process of co-creation is functional and developed across the project life cycle.

The concept of value may have different meanings in the management literature (Lepack et al. 2007). *In this research, the concept of value is perceived in terms of its usefulness (value-in-use) to the client organisation*. This view is not per se new in literature. For example, Aristotle already considered a perspective of value in terms of the utility of things (Gordon 1964). The views on use-value, were later employed, for example in political economy (e.g. Bastiat and Huszar 1964; Marx 1867). More recently, these views were adopted in marketing, in which the concept is linked to functionality and usefulness of a service/project (see Grönroos and Voima 2013; Grönroos and Gummerus 2014).

The importance of considering value, in terms of its usefulness, is that it may directly address the key challenges on value creation in projects, as discussed in the previous section (see Section 1.2.). While this concept of value-in-use is key to explore these issues, the reality is that most of the research in the co-creation of value (outcomes) has remained largely at a conceptual level. Some researchers, for example, Wright and Russell (2012), have strongly criticised the literature in SDL for being broad, prescriptive and normative. In the same vein, Grönroos and Voima (2013), for example, have mentioned that researchers could provide key managerial principles to operationalise the concept; otherwise, it remains abstract. Therefore, one of the key tasks of this research is to mobilise and operationalise the concept of value co-creation by providing a key, critical and balanced direction on how it can be used in real project settings.

The concept of value co-creation has been operationalised in other sectors, for example in hotel management and tourism, where the service experienced produced by the value outcomes is more evident (see Shaw et al. 2011; FitzPatrick et al. 2013). However, this mobilisation is rooted in repetitive services (Leon and Davies 2008), rather in unique project undertakings (Geraldi et al. 2011). In project research, a few empirical studies have been undertaken to mobilise the concept of value co-creation, thus this is a key gap to address in this research (see Cova and Salle 2008; Aarikka-Stenroos and Jaakkola 2012; Chang et al. 2013; Liu et al. 2014; Jacobsson and Roth 2014; Mills and Razmdoost 2016; Smyth et al. 2018; Luotola et al. 2017; Fuentes 2019).

The research in projects, in terms of value co-creation, has been varied. For example, some research has focused on the macro-levels of national value (Chang et al. 2013), while others have focused on the micro-levels aspects, for example exploring activities undertaken in projects during the shape of the contract (Luotola et al. 2017). Other authors, for example, Leroy et al. (2013); Storbacka et al. (2016); Foss and Pedersen (2016) conclude that the concept of value co-creation in the micro-level needs further exploration. This might be a complementary perspective, as research in co-creation has widely focused on macro-levels (Vargo and Lusch 2016).

A key problem in focusing on the macro-level is that the concept of value co-creation may remain too abstract to implement by (project) managers. Thus, another key task in this research is to explore the micro-level aspects of the co-creation of value to provide managerial direction for real scenarios. This, in turn, may contribute to new knowledge, particularly in the literature of projects.

One major aspect that remains unclear in the project literature is the process by which desired value outcomes are being co-created by different stakeholders in a project level, particularly using the client organisation as a central role. While the previous literature in relationship management, collaboration management have addressed value creation and collaboration, key managerial actions to co-create value remain unclear (cf. Prahalad and Ramaswamy 2004; Ballantyne and Very 2006; Smyth and Pryke 2008). Furthermore, some of these collaborative approaches claimed to have used collaboration through relational contracts, yet Kumaraswamy and Anvuur (2008) argue that they are still highly transactional practices. Thus, another key task in this research is to find key management value interactions that actors may undertake to co-create value outcomes in project settings.

Furthermore, the management concept of value has been historically perceived in financial terms only (cf. Smith 1776; Porter 1985). Vargo and Lusch (2004; 2016) have strongly problematised this approach. Instead, they conceive value in terms of experiences, whether for example this is perceived as pleasure or profit, delight or debt derive from the service the project provides. Yet, other forms of value outcomes can take place in the long-term, but to date, there is not a definite set of integrated value outcomes in projects. Thus, another key task in this research is to explore to what extent value interactions influence and contribute to achieving different forms of value outcomes.

Furthermore, the social context of the process of the co-creation of value outcomes is important because projects are embedded and influenced by the social system (Engwall 2003; Konstantinou and Müller 2016). In fact, one major weakness in the current literature of value co-creation is that the social context has been insufficiently explored (see Edvardsson et al. 2011). Projects are opened systems rather than closed systems. This suggests that the social reality cannot be automatically configured. Instead, organisations and project teams may only generate the adequate social conditions (mechanisms) to enable the co-creation of value. Bhaskar (2008, p. 42) defines a generative mechanism as "*nothing other than a way of acting of a thing. It endures, and under appropriate circumstances is exercised, as long as the properties that account for it persist*". Generative mechanisms may provide the conditions and may explain "*why observable events occur*" (Blom and Morén 2015, p. 1). This means that the generative mechanisms are not considered in social sciences as mechanical instruments, instead they are considered as the conditions that enable a phenomenon to emerge. Thus, another key task in this research is to explore how the social system, through generative mechanisms, may enable and constrain the co-creation of value outcomes. This means that this thesis will unpack the social dynamics that surround the phenomena of value co-creation to understand why events occurs at the project level. This may shed light on the type of organisational structure and properties that need to be in place to enable the co-creation of value.

In addition to this, the literature in co-creation has been widely considered as a positive construct. Yet, the mismanagement of the co-creation process may lead to a co-destruction process (Echeverri and Skålén 2011). Thus, another key task in this research is to explore key tensions around the management of the co-creation, which may raise the attention of Project Managers, not only to create but also to defend and avoid the co-destruction of value.

From the above discussion, key tasks have been identified from the current literature in projects. Based on the above analysis, the following section presents the research aims, objectives and questions for this study.

1.4 Research questions, objectives, and aims

This research is set to continue the exploration of the fundamental pillars of a project: value, context, and impact (Morris 2013). Key challenges in project settings have been identified in previous sections, which need further exploration: (a) the short-term focus on projects towards meeting the minimum requirements: time-cost-quality/scope; (b) the insufficient attention to create and deliver value for the long-term; (c) the lack of emphasis at the front-end to configure and design value proposition to achieve value outcomes.

The above challenges can be theoretically tackled with the Service-Dominant Logic (SDL) (cf. Vargo and Lusch 2016; Grönroos 2017), which is to date the most relevant theoretical perspective to explore the co-creation of value outcomes. In SDL, researchers (see Karpen et al. 2012) claim the key concept of the co-creation of value can be used to maximise the value in the long-term, particularly from the client perspective. Thus, this concept requires further exploration, which may enable mobilisation and operationalisation in project settings. Overall, these service-related concepts may provide a different, yet a commentary perspective and potential solutions on how to address value issues in the project business.

While these service-related concepts, particularly from marketing, serve as a departure point in this study, they are critically examined in this study to understand what aspects can be used in projects settings.

The overall literature from SDL is characterised by three aspects: (a) it is largely conceived upon a Business-to-Consumer setting, different to projects where Business-to-Business settings are often employed; (b) it uses high volume (repetitive) products and services settings, in contrast to projects where settings and solutions are more unique; (c) it uses sales as post-completion activity, while in projects this occurs at an early stage of a project. These key aspects allow to problematise (Alvesson and Sandberg 2011) some of the key constructs of the literature of SDL.

Having built the context around this research, the *primary aim* of this research is to understand the process by which the value outcomes are being achieved from a client perspective. In contrast to previous studies on value (see Davies and Hobday 2005), the focus on the creation of value, in this study, is from the client perspective, as it remains largely unexplored (Smyth 2018).

The role of the client organisation, in this research, plays a critical role in the co-creation of value with two other relevant stakeholders: the suppliers and end-users. This means that this research is set in a Business-to-Business context, where the client organisation, acts as a project sponsor and financier. The client organisation in this study comes from the public sector. More specifically, two Higher Education Institutions have been explored as client organisations, which use different supplier organisations to provide the required products and services to the end-users: students, academics, and professional services staff (which form part of the Higher Education Institution).

This study aims to explore the process by which value outcomes are achieved through a co-creation process. To achieve this aim, four key objectives have been identified in this research:

1. To *identify* key-value interactions that contribute to generating the value outcomes in the long-term across the project life cycle. This may help to understand what types of project interactions occur on the micro-level. This may also show what value co-creation means and looks in the ground in project settings.

2. To *explore* the different types of value outcomes that appear in the medium- and long-term of a project. This may help to address value outcomes as heterogeneous, rather than as homogenous entities. Thus may provide a better understanding on how value outcomes could be envisioned from an early stage of a project.

3. To *explore* how the social system may influence, either enabling or constraining, the co-creation of value outcomes. This may help to understand how the process of value co-creation is highly dependable of the project features and its social environment.

4. To *mobilise* and operationalise the concept of value co-creation, which may help to establish gaps between current theory and practice. This mobilisation might come with a critical exploration of the concept of value co-creation, including their positive and negative implications, such as the co-destruction of value.

This research seeks explanations (including the general and the particular) around the phenomenon of value co-creation (Smyth and Morris 2007; Bhaskar 2008). This research *does not* aim to provide generalisations (rules) of the phenomenon at stake. Instead, the exploration can be used as an initial point of reference on how value could be co-created.

Overall, this exploration may help to move forward – theoretically and empirically – the concept of value co-creation in projects settings, as it has been widely rooted both in abstract, conceptual and positive terms (Wright and Russel 2012). This, in turn, may provide comprehensive managerial directions, particularly for public client organisations, project teams, and project leaders, on how to operationalise, mobilise and manage the process of co-creation of value outcomes.

Considering the key aim and four objectives presented in this section, one key research question, and three sub-questions are subsequently set:

Firstly, the overarching key research question is:

RQ1: From a client perspective, what is the process by which project value outcomes are achieved?

The rationale behind this key question is to explore the process by which value outcomes are being formed, delivered and realised in project settings. While value can be independently created, this research explores how value outcomes could be co-created among relevant stakeholders. While the process itself takes into consideration the perspectives coming from the supplier organisations and end-users, the process itself is being built from the client perspective, as they sponsor the project and benefit and/or suffer from the implications of the value outcomes (Vargo and Lusch 2016). The client perspective has not been fully explored in the in co-creation literature yet, thus this may provide a solid contribution into both project research and practice.

The key research question is being supported by three sub-questions:

RQ 1.1: From the client perspective, which types of value interactions occur across project life cycle?

This sub-question aims to explore the key-value interactions that generate the value outcomes in the medium- and long-term across the project life cycle. The reasoning behind this question is to explore the micro-level aspects of how value is being co-created and how this process looks like in the ground (project level). While the front-end stage is considered as a critical stage in the configuration of value (Morris 2013), the process in this study also considers the execution and delivery phase. Thus, the formation of value is being re-visited across the project life cycle, including the post-completion phase. This helps in understading how value is being shaped across time. This may create a holistic view on how outcomes are being identified, configured, delivered and managed over time.

The next sub-question aims to understand the (positive and negative) implications of value in the long-term. In the sub-question RQ1.1, the key idea is to explore how the value interactions look like in the ground within the project life cycle. In sub-question, RQ1.2 the idea is to explore the implications of these value interactions in the long-term. To date, value outcomes have been treated homogenous and as separated units of analysis. Thus, the idea on this sub-question is to understand how value outcomes look like in the long-term so that they can be properly managed during the early stages of a project and monitored during the post-completion.

RQ 1.2: To what extent do these value interactions contribute to achieving the client value outcomes? What do value outcomes look like in the medium- and long-term?

The last sub-research question is linked with the idea that projects are not an island (cf. Engwall 2003; Edvardsson et al. 2011). Thus, it aims to explore how the social system and its structure both enables and constrains the co-creation of value outcomes. The exploration may also help client organisations to understand how they need to organise themselves to create, deliver and defend value at the organisational level through generative mechanisms.

RQ 1.3 What are the contextual generative mechanisms to achieve desired value outcomes?

What makes it happen?

The analysis of each of the above research questions is set to bring evidence-based challenges to the value co-creation concept of SDL, as the concept itself remains largely (empirically) unexplored in project settings (Fuentes 2019). Thus, the analysis may address the means by which any gaps can be bridged and current value co-creation (SDL) assumptions can be challenged in the context of a project.

1.5 Overall research strategy

The analysis of the above research questions is primarily to be examined through the lens of co-creation of value outcomes from marketing and service-related literature (Grönroos 2011; Vargo and Lusch 2016). Particularly, this research has adopted the approach from Grönroos (2011; 2016); who recommends using the Actor-to-Actor (A2A) micro-level interaction as the key unit of analysis. According to Grönroos (2016), the A2A interactions take place only through direct interaction, for example through dialogue meetings, rather than as an all-encompassing process as proposed by Vargo and Lusch (2016). While the examinations of some A2A interactions may occur at different levels: programme or portfolio level, the process is being mapped primarily for the interactions taken at the project level.

To explore the deeper level of reality of the phenomenon, this study uses Critical Realism (CR) to explain the rationale, effects, consequences, and the overall particular theoretical explanations of the co-creation of value outcomes in projects (Danermark et al. 2002; Bhaskar 2008). This exploration of the process of co-creation is set across six case studies in the UK public sector. Two client organisations (Higher Education Institutions) were used as a central role, in the co-creation of value among supplier organisations and end-users. This deep examination on the client organisation goes in line with the principles in SDL (Vargo and Lusch 2016), which focuses primarily for clients, rather than for supplier organisations.

While the Educational Sector may look exceptional, projects undertaken in this sector resemble the ones undertaken in the private sector. Nevertheless, a major difference was found that the sponsor of the project (the Higher Education Institutions) formed part of the user community so these institutions (universities) were interested in securing the value outcomes not only for the end-users but also for themselves, as the outcomes create a sense of brand reputation in the market (Roberts and Dowling 2002).

I adopted a multiple-case strategy, exploring six case studies (Denzin and Lincoln 2000) to understand, compare and contrast practices among cases studies. Among the six cases studies, different sectors have been used: IT, Construction and Waste Management. This variety has been taken in order to create a wider understanding of the creation of value outcomes across different projects (Denzin and Lincoln 2000). The key common characteristic among all project case studies is that they are all set within the same sector: the Educational Sector.

From the analysis of the six cases studies, key emergent themes are presented in the results section. An emphasis has been given to the key emergent themes in the results sections, as they form part of the contribution to knowledge. This might differ from other approaches, which are based on case by case study. However, as an alternative view, a cross-case comparison of the theoretical explanations was undertaken to visualise the practices and challenges around the six cases studies (Eisenhardt and Graebner 2007).

The examination of the project context and process was undertaken through qualitative exploration. While all the cases were taken using a qualitative method, five cases were studied in retrospective, and one was studied in prospective mode. The reason behind this selection is because: (a) the retrospective studies allowed me to understand the implication of value co-creation in the long-term (as I was able to observe the value outcomes primarily from the perspective of the client organisation and end-users); (b) the prospective study allowed me to understand the dynamics of the co-creation of value at the front-end of a project in real-time. The prospective study allowed me to gain an understanding of the phenomenon and the organisational context, where the majority of projects (five out of six cases studies) were undertaken. This allowed me to take into account the role of the context and other causalities (Smyth and Morris 2007; Wynn and Williams 2012).

By using a prospective study for over one year, it allowed me to (formally and informally) interact with some actors from previous projects, such as the Head of Procurement and Procurement Manager, who participated in both the prospective and the retrospective studies. The qualitative method used in this study allowed me to explore the context, and understand the process by which the value outcomes were being formed and delivered. Some researchers (see Sayer 1992) argue that the examination of the context could not be possible with other methods, such as the quantitative method (under positivism), which highly ignores the context where the phenomenon is taking place (cf. Sayer 1992; Yin 2017).

The contributions of this thesis are initially addressed in Chapter 4 and 5, of the results sections, and articulated in Chapter 6 as well.

1.6 Outline of this thesis

The thesis has been divided into six chapters and a brief introduction of each is presented below:

Chapter 1: Introduction.

In this chapter, the main foundations of this research are introduced. Key overarching problems in project practice are addressed and in how those can be theoretically tackled, using the principles of value co-creation from SDL. This section contains the reasoning behind each of the key research objectives, questions, and aims. The chapter lays the research strategy and the potential contributions of this research. Overall, the chapter introduces the key overarching aspects of this investigation.

Chapter 2: Literature Review.

In this chapter, the literature is reviewed concerning value creation across different disciplines, including project management, marketing and service literature. This chapter provides the conceptual foundations of this research, as well as a critical analysis of the concepts around value.

Chapter 3: Research Design.

In this chapter, the main research design is presented, including both the research methodology and methods used for this research. The chapter provides an overview of the context around the client organisations explored during this research. Later, it is explained how the research was undertaken from a philosophical, critical and practical perspective. This chapter contains the theoretical framework used during the data analysis, as well as the methods to collect and analyse data.

Chapter 4: Findings and Discussion – Part 1.

The findings and discussion section has been divided into two parts (chapters).

The first part presents the findings around the process by which value outcomes are being co-created in projects (RQ 1). This chapter also addresses the types of value interactions that emerge across the project life cycle (RQ 1.1.). The chapter also presents the findings around the implications of value outcomes in the long-term (RQ 1.2). The second part of the chapter discusses the main findings against the previous related-literature.

Chapter 5: Findings and Discussion – Part 2.

In this chapter, the second part of the findings section addresses how the social context around influences the process of value co-creation. This chapter shows different generative mechanisms that can be used to enable or to constrain the value outcomes in project settings (RQ 1.3). The second part of this chapter discusses the main findings against previous literature. This chapter completes the exploration of the process by which the value outcomes are co-created (RQ 1).

Overall, Chapter 4 and 5 explore all research questions set for this study.

Chapter 6: Conclusions, Limitations and Recommendations.

This chapter concludes and provides the key contributions to knowledge, as well as the implications for industry, particularly for client public organisations. This section also addresses the limitations and future research.

1.8 Chapter summary

Overall, this chapter has addressed the foundations for this research. The chapter started with an exploration of current challenges in project theory and practice. Based on recent challenges and theoretical discussions, the research aim, objectives and questions have been set for this study. The chapter provides an overarching view of the research strategy to use to answer the key research question. The chapter ends stating the potential theoretical contributions and implications to project practice.

CHAPTER 2: LITERATURE REVIEW

This chapter provides the conceptual foundations for this research. A deep examination of the literature concerning the key research question (which explores the process by which value outcomes are co-created in the project sector) is being reviewed. The first part of the literature review explores the creation of value in projects. Then, a full exploration of the concept of value is presented across the management literature, but with a key focus on the marketing and service-related literature. The literature of marketing is considered as the modern home of value co-creation; thus this theoretical framework is fully explored. Overall, the chapter establishes the foundations around the concept of the co-creation of value outcomes for this work.

2.1 Project context

Projects have formed part of our history in different endeavours, such as the construction of temples, ritual centres, defence and cities, and technological innovations. Some projects, such as the Mexican pyramids in Mexico or the Sydney Opera House, in Australia, have created value outcomes and benefits for a wide range of stakeholders. These two projects, for example, have directly delivered benefits to the economy through waves of tourism and social reputation.

Morris (2013) states that projects are key undertakings to realise a mission for the long-term. Many organisations are now using projects as a form to create and deliver value. However, the long-term perspectives of a project are widely disregarded in project research and practice. The majority of the project activities have a focus on the short-term, rather than in the long-term. Traditionally, the project success criteria in projects are about meeting short-term goals, such as time-cost-quality/scope (see Atkinson 1999; PMI 2013). These criteria are measuring the performance of a project in the short-term. Yet, some projects might produce implications in the long-term. For example, the Sydney Opera House was a disaster during the construction phase and faced high cost and programme overruns (Flyvbjerg 2017). Yet, it has become a national symbol in Australia in the long-term. While this is a positive example, there are other examples that instead of having created value from the long-term, they have destroyed it (Mutti et al. 2012; Smyth et al. 2018). For example, Mutti et al. (2012) argued that mining practices, undertaken by large organisations, have destroyed the environment in rural populations in Argentina.

Some projects might not only destroy value for the stakeholders involved in a project. Miller et al. (2017) argue that destruction of value has even affected economies at large. For example, Ren (2017) presents evidence exploring how the Chinese government finds itself in deep debt due to the overinvestment in (mega) projects. Yet, some of the value outcomes from these projects present limited benefits for Chinese society.

Thus, one key lesson from this initial argument is that project value outcomes are critical for any type of project, including small, medium and mega-projects. The evidence suggests that real project management success needs assessment, not in the short-term, but in the long-term (Shenhar et al. 2001). In this way, projects are set up to create long-term missions (Morris 2013) addressing both organisational and societal challenges (Mazzucato 2018). Unfortunately, evidence around global activities show that organisations are often self-interested and avoid addressing wider organisational and societal goals (Clarke 1998; Freeman et al. 2010).

The research community of projects started to reflect on this and other modern project issues. For example, Winter et al. (2006) set up an agenda to address some of the project issues. They provided five directions for future research. For example, the authors argued that projects need to move from an instrumental process towards a social process. Winter et al. (2006) argue that the prime focus in projects is around product creation. Thus, project teams may need to focus on the creation of value for the long-term, as a prime focus.

This thesis has combined the above-mentioned direction for research by using the Service-Dominant Logic (SDL) framework (Vargo and Lusch 2016). This theoretical construct regards people, and their skills and knowledge, as the key source of strategic value in the social construction of value outcomes. One originality of this framework is to focus on the (co-)creation of value for the medium- and long-term from the client organisation perspective. This suggests that the framework places a stronger emphasis on the production and creation of outcomes, rather than in the production of outputs from the supplier perspective. Thus, the SDL framework might facilitate a novel contribution to the management of projects.

To critically understand further the reason as to why the project management discipline has a short-term and product creation approach, it is important to take a historical perspective in the discipline to see how it has evolved over time.

2.2 History in the project management discipline

Söderlund (2011) argues that projects are mainly created in order to fix problems of coordination and cooperation during a complex and risky endeavour. Yet, the focus on this integration is per se in on the development of the products, rather than in the valuable implications of a project in the long-term: value outcomes. This does not suggest that the technical aspects of project management are per se wrong; what it suggests is that other complementary foci can be created in order to meet both organisational and societal goals.

The most recent conceptualisation in projects argues that projects need to consider three pillars when undertaking any project activity: (a) value; (b) context; (c) impact (Smyth 2015). These pillars act as foundations to accomplish value for the project stakeholders in the long-term. However, previous conceptualisation of projects largely focused on product and technical aspects. To understand further the lack of focus on the long-term, it is essential to explore the different waves of knowledge around the discipline of project management, which is examined in the following section.

2.2.1 The waves of project management

While many projects have been undertaking across our history, project management emerged as a formal discipline by 1950 (Morris et al. 2011). Throughout the formal history of this discipline, several schools of thoughts had been created to offer a deeper understanding about how to manage projects and their institutional contexts, such as the Decision School, Factor School, and Contingency School (see Söderlund 2002; Geraldi and Morris 2014). For example, the Factor School has been developed to determine why projects do not finish within the original specification and why projects present overall poor performance.

Historically, project performance has been ruled by meeting the elements of the Iron Triangle: cost, time, scope/quality (Atkinson 1999). However, these elements may not intrinsically lead to project success for the long-term– as narrowly presented by the Project Management Institute (PMI). To reveal PMI's weaknesses, Morris and Hough (1987) carried out a research, examining around 1,544 projects, and found that the major difficulties and challenges of projects were not around meeting Iron Triangle elements. The authors originally found the front-end stage, which is where projects are shaped and formed (Kim and Wilemon 2002; Cova et al. 2002; Williams and Samset 2010; Merrow 2011; Aaltonen et al. 2015) and most value can be configured for the short-term (Edkins et al. 2013) and long-term (Fuentes et al. 2019) through their value propositions (Smyth 2015).

In Figure 2.1, the modern and traditional approaches to the management of projects can be seen. In the yellow-shaded area, the traditional linear phases of the project life cycle are represented by five rhombuses: initiate, plan, execute, control and close-out phase (PMI 2013). Yet, these phases are mainly concerned with the project execution and delivery (yellow-shaded area) of a project. The traditional approaches on the first wave of project management (PMI 2013) miss the strategic front-end of a project.

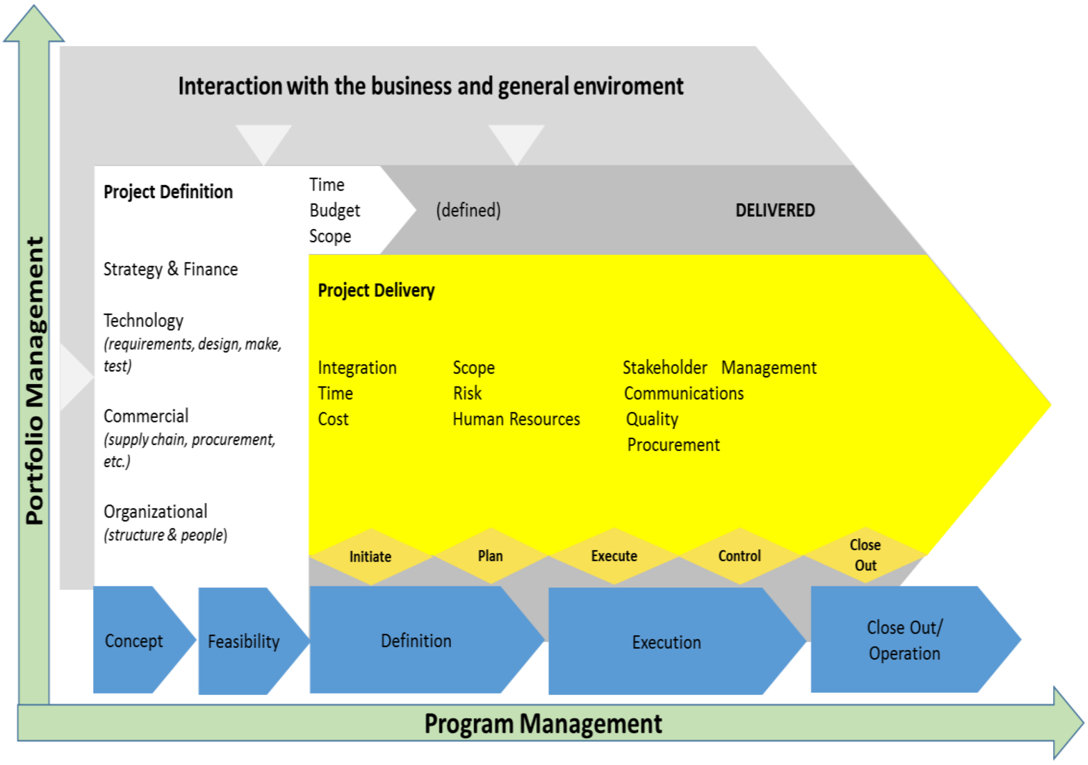

Portfolio Management
Interaction with the business and general enviroment
Project Definition
Time
Budget
Scope
(defined)
DELIVERED
Strategy & Finance
Technology
(requirements, design, make, test)
Commercial
(supply chain, procurement, etc.)
Organizational
(structure & people)
Project Delivery
Integration
Time
Cost
Scope
Risk
Human Resources
Stakeholder Management
Communications
Quality
Procurement
Initiate
Plan
Execute
Control
Close Out
Concept
Feasibility
Definition
Execution
Close Out/ Operation
Program Management

Figure 2.1. The Management of Projects (Source: Adapted from Morris 2013).

In Figure 2.1, the white-shaded area is the front-end stage, where most of the value as inputs outputs (Edkins et al. 2013) and outcomes can be configured (Smyth 2018). Morris and Hough (1987) found that the white-shaded area is critical for the management of the project and its externalities. Thus, the management of the front-end is important to achieve strategic goals both for the short- and long-term. This marked the start of the second wave of project management.

According to Morris et al. (2011), the management of projects discipline has evolved into three waves. A summary of the three waves of project management can be seen in Table 2.1.

The three waves of the Project Management discipline		
Wave	**Main Focus of Analysis**	**Comments**
First	Tools and Techniques	This traditional wave of projects is coming from operations management and is concerned with methods and tools, namely the Gantt chart; work breakdown structure; scheduling and planning: planning and evaluation review technique; and critical path method.
Second	Organisation Structure	In this wave, the front-end stage is considered as the key area to create value. This wave advances research in projects and new concepts in projects start to emerge, such as temporary organisations and contingency elements. This wave is primarily concerned with the design of the organisation structure, such as programme and portfolio management.
Third	The project and the management of the institutional context	The three pillars of this wave are set as value, context and impact for the long-term. This wave is concerned with a broader view of projects, namely the institutional context, politics, benefits, value, sustainability, and the market around the project business.

Table 2.1. Waves of the Project Management discipline
(Source: Developed from Morris 2013).

Overall, the first wave had a technical, instrumental and product-oriented approach. This narrow and limited view of projects was primarily concerned with project execution and delivery (Morris and Pinto 2004). Yet, the strategic front-end of the project was widely disregarded on the first wave of projects (Shenhar et al. 2001; Morris 2013). Global professional bodies, such as the Project Management Institute (PMI 2013), and the Office of

Government Commerce (OGC 2009) are highly rooted in the first wave of projects. While these methodologies have made progress, these (technical) methods on how to manage a project are largely normative and perspective standards, which disregard the front-end stage (Morris 2013) and other externalities of a project (Smyth and Morris 2007). Other professional bodies, such as the Association of Project Management (APM) and the Japanese PMBOK, are more concerned with the knowledge of how to manage a project rather than on the process of execution and delivery (Morris 2013).

The second wave of project management has a broader view of projects, compared to the first wave, because it takes into account the project front-end and the externalities. In the second wave, new concepts were addressed, such as temporary organisations and contingency elements (cf. Lundin and Söderholm 1995; Packendorff 1995; Shenhar and Dvir 2007; Winch 2009).

The discipline has recently entered into its third wave, which is primarily concerned with the project as the main unit of analysis. The third wave is primarily concerned with the project externalities and the institutional context (Geraldi et al. 2014). In this wave, there is a great emphasis on the management of projects as a business-driven discipline (Artto et al. 2011), looking at the strategic level: portfolio and programme management. In this wave of knowledge, projects are influenced by their context in which they are temporarily embedded (Blomquist and Packendorff 1998; Grabher 2002; Söderlund 2004; Davies and Hobday 2005).

In the third wave, Smyth (2015) argues that project needs to consider three fundamental pillars when undertaking a project: (a) value, which can be referred as in terms of benefits; (b) context, which refers to the externalities and institutional context where the projects are embedded; (c) impact, which refers to the usefulness and positive/negative implications of a project in the long-term. Smyth (2019) argues these three pillars need management in order to create a transformational change to address current organisational and global issues. One key weakness from these pillars is that they are largely conceptual. Evidence from current project practices shows that many projects fail to address these pillars (Papke-Shields et al. 2010; Fuentes and Smyth 2016). For example, Papke-Shields et al. (2010) found that project practitioners are highly rooted in the first wave of project management.

While research on the front-end (third wave of projects) has addressed some of the fundamental issues in the project business, there is still room for improvements as this is fairly a new discipline compared to others e.g. mathematics; biology. In the following section, key critiques, challenges and gaps around the area of the front-end are addressed. The project business can be referred as a business of "*specialist producers and service providers undertaking projects*" (Smyth 2015, p 2). This suggests that the literature on projects is taking a wider view beyond the project level. Smyth (2015) argues that the wider management of (construction) enterprises may ensure the value outcomes in the long-term.

2.3 Critical analysis of the front-end of projects

The management of projects has made substantial progress over the years, particularly due to the introduction of the front-end stage and the institutional context (Geraldi and Morris 2014). However, several key critiques have been made to the front-end and some of them are explored as follows:

a) Smyth (2015) argues that the management of projects has made a great emphasis on the client organisation, considering the client as the owner of the project. The author argues that projects are socially constructed, rather than independently created. Thus, the front-end on the supply side needs further exploration. The author argues that the interaction between the client and supplier organisation at the front-end remains under-researched.

(b) Artto et al. (2016) argue that the front-end stage needs to be connected with the back-end of a project. The authors argue that the front-end approach has still a short-term focus. The wider implications of a project are still disregarded at the front-end. Morris (2013) has discussed the benefits aspects, however he considers benefits as a function of the value outputs. Fuentes et al. (2019) argue that project teams need to backcast value outcomes from the perfect future (Pitsis et al. 2003) in order to address the development of the value propositions at the front-end of a project. Yet, there is little research as to what occurs beyond the project life cycle and how it is addressed during the front-end (Shenhar et al. 2001; Matinheikki et al. 2016; Smyth 2018).

In addition to this, Normann and Ramírez (1993) argue that actors continue the creation of their own value after the project has been delivered. Yet, the traditional perspectives in projects end at the point of delivery. This shows a (conceptual) fight between two disciplines: operations vs project management. However, they are not competing but complementary perspective in the wider enterprise management (Smyth 2019). Thus, research at the front-end needs to expand its focus on its analysis beyond the delivery stage.

(c) The front-end has been widely constructed using the New Product Development (NPD) framework. One of the key problems with the NPD model is that the focus per se is on the product, rather than on the value outcomes. In addition to this, NPD models are unable to capture the dynamics and interactions between the client and supply organisations (Tidd and Hull 2011). This interaction may lead to innovate a service offering. In NPD models, the main source of value are embedded in the products, rather than in the people (cf. Porter 1985; Vargo and Lusch 2004). Thus, people are considered as instruments, rather than creators of value. The use of NPD models in the front-end of projects positions the management of projects as a production-oriented discipline (Bettencourt et al. 2014). Thus, there a is a strong need to have complementary perspectives on how to address value outcomes at the front-end stage (Artto et al. 2016).

(d) The front-end of projects has an emphasis on the construction of value inputs (cf. Shenhar and Dvir 2007; Chih and Zwikael 2015). For example, the focus on the front-end is in choosing the right projects from the portfolio (Edkins et al. 2013); or creating an adequate strategy connecting the different levels of the project, such as PM1, PM2, and PM3 (Morris and Jamieson 2005); or designing the value outputs in the most economical and efficient manner (Kelly et al. 2014). While these are important aspects, the value outcomes create implications and pre-conditions for new or existing routines (Smyth 2018; Fuentes 2019). Zwikael and Smyrk (2012) argue that project teams often construct a flawed strategic definition of value for the long-term. In addition to thus, value outcomes are scarcely refined through flexible collaboration (Levitt 2011), to provide customer delight (Pryke 2017) during the execution of a project (Pinto and Rouhiainen 2001).

(e) Research on benefits management is widely focused on the creation of value outputs and the performance of systems outputs. For example, Serra and Kunc (2015, p. 3) presented a benefits model that considered project outputs as "*enabling business changes or directly delivering intermediate benefits*". While value outputs indeed enable changes (Smyth 2015), they are not the main source of valuable change (Vargo and Lusch 2016). Overall, the efforts around benefits management are widely assessing the performance of the value outputs (cf. Morris 2013; Serra and Kunc 2015; Chih and Zwikael 2015). Thus, there is a need to have a broader consideration of the value outcomes, not only as a function of value outputs but in wider terms, for example at the organisation level (Cooke-Davies 2002) and at the societal level (Martinsuo and Killen 2014).

As argued, there is still plenty of room for improvements in projects, not only at the front-end but also as to what happens after the project is completed. This research covers some key gaps in the literature of projects. For example, project research has been considered as highly transactional and output-oriented (Winter et al. 2006). Thus, one key exploration on this research is to understand how value outcomes can be designed and configured across the project life cycle.

In addition to this, human interaction is at the heart of any business today. Thus, another key objective is to understand how the value outcomes can be co-created among key stakeholders in a B2B context.

Furthermore, the traditional perspective on value has been widely built from the supplier organisations (cf. Porter 1985; Davies 2004). Thus, this research explores the perspectives of value from the client organisations.

Then, one can ask, how to address these sorts of challenges?

A recent conceptualisation of value in the school of marketing (SDL) shows that value is ultimately assessed by the client organisations and end-users, who ultimately benefit and suffer from the implications of value (Fuentes and Smyth 2016). Thus, this research explores the concept of value from marketing, where the concept of value has evolved the most across the literature of management (Karpen et al. 2012).

Service-Dominant Logic (SDL) is the modern home of the concept of value. SDL has been built in the latest school of marketing by Vargo and Lusch in 2004, with further revisions in 2008 and 2016. The authors claim that SDL is the most robust and advanced theoretical lens to explore the co-creation of value outcomes in the long-term. Thus, its key strength plays well against one of the key weaknesses of current project management issues: the lack of focus on the co-creation of valuable outcomes for the long-term.

In SDL, service is defined as "*the application of competencies (knowledge and skills) for the benefit of another entity or the entity itself*" (Lusch and Vargo 2014, p. 12). This framework suggests then that the key source of value are in the people's resources rather than in the products. This contrasts previous research in projects, particularly in the asset-specific sector, where the main source of value is in tangible assets (Bettencourt et al. 2014).

The key concept of SDL is the co-creation of value. Value co-creation could be referred to as an interactive and functional process, which aims to enhance the value outcomes for the client organisation for the long-term (Grönroos 2017). The co-creation of value is then a process that may take place, not only at the strategic front-end but also across the project life cycle and beyond (Vargo and Lusch 2016). Thus, the co-creation of value process aims to create a united and longitudinal process. This goes in line with the systems perspective taken by Artto et al. (2016), in which they were trying to connect both the front- and back-end as if value could be accumulated across the project life cycle.

Overall, this short section has made a historical exploration of the literature of project management. In conclusion, SDL is a complementary and alternative framework that may swiftly address some of the key issues in current project practice. Thus, SDL, and primarily the co-creation of value outcomes, has been selected as the initial theoretical lens to examine the co-creation of value in project settings (Karpen et al. 2012). In the following section, a full exploration of the concept of value is carried out, in particular within the Service-Dominant Logic framework.

2.4 Helicopter analysis of the concept of value across management

Organisations have been trying to find alternatives ways to create value, thus the concept of value has been one core concept in the literature of management. Value, in practice, might have different perceptions to the varied stakeholders, thus, the meaning of value has been diverse across the different kinds of literatures.

Woodall (2003) argues that due to the multiple and competing explanations of value, there is high ambiguity as to what actually value means. For example, value has been widely conceptualised as a financial perspective (Porter 1985), particularly coming from neo-classical economics (Smith 1776). Value has been discussed over the years. Aristotle, for example, considered the meaning of value closely related to the utility of things (Gordon 1964). This perspective has been recently conceptualised as value-in-use (Grönroos 2011). Other philosophers have used the same meaning of utility to challenge traditional concepts of the economy (see Marx 1867; Bastiat and Huszar 1964). The concept of value has also adopted other meanings, beyond the financial perspective. For example, starting the 1900s, the literature shows that the concept of value adopted other meanings, such as value in terms of benefits against sacrifices (Day 1990), or value in terms of the consumption (Holbrook 1994). In recent times, the meaning of value has been conceptualised in terms of experience (Vargo and Lusch 2004). All these conceptualisations are different and create elusiveness in the meaning of value (Carú and Cova 2003).

While the concept of value has many conceptualisations, the most adopted meaning has been the financial perspective. Traditionally, many researchers have created their value foundations in financial terms and from the supplier perspective (cf. Porter 1985; Barney 1991; Davies 2004). For example, Davies (2004) has widely focused on the creation of value and capabilities to increase the financial and operational suppliers' performance.

While research has argued that projects are moving towards a more client-approach rather than a product-approach, the majority of research assumes what the client wants (Luotola et al. 2017). For example, Brady's research et al. (2005) has taken into consideration neither client or end-user actors as part of their interview process, this may indicate that the meaning of value is constructed widely from the suppliers' eyes. Many researchers have proved that these supplier's approaches do not ensure the value outcomes for the client organisations (see Aarikka-Stenroos and Jaakkola 2012; Jaakkola and Hakanen 2013). For example, Jaakkola and Hakanen (2013) present evidence, where suppliers did not meet even mandatory requirements of the client organisation. Overall, the financial and supplier perspective has dominated the management on projects, in research and theory across the years.

In recent times, researchers have made calls for competing and complementary perspectives of value. For example, researchers (see Freeman 1984; Freeman et al. 2010; Huemann and Zuchi 2014) have been arguing that client organisations are widely considered as static and passive instruments. In particular, the literature of stakeholder management has been pushing the boundaries to take into consideration "*any group or individual who can affect or is affected by the achievement of the firm's objectives*" (Freeman 1984, p. 25). In the stakeholder management literature, Freeman (1984) and Donaldson and Preston (1995) challenged the traditional views, which considers the shareholders, supplier organisation and financiers as the only creators and recipients of value. While these conceptualisations have helped to conceptually addressed value for all key stakeholders, it has been reported that unethical behaviour and opportunism are common characteristic enacted primarily by supplier organisations (cf. Baumhart 1968; Werder 2011).

Across the wider management literature, the marketing and service-related literature have started to create a more comprehensive understanding of value creation, particularly under the theoretical constructs of Service-Dominant Logic (Vargo and Lusch 2016). However, it can be argued that some of these modern conceptions are extreme. For example, Heinonen et al. (2015) argue that the suppliers are not even part of the creation of value at all, suggesting that client organisations independently create their own value. Yet, there are plenty of financial and service exchanges between the client and supplier organisation during the service life cycle.

Many of the arguments around value creation from marketing and service-related literature are based upon bilateral perspectives. Lepak et al. (2007) argue that value has implications in the micro-level (individual), meso-level (organisational) and macro-level (networks and society) perspectives. In a similar vein, the literature of business models (see Osterwalder and Pigneur 2010; DaSilva and Trkman 2014) have taken a wider perspectives value, creating two types of value elements: value creation and value capture. Other wider conceptualisations of value have taken high-level approach. For example, Chesbrough (2003) explores how value is being co-created using platforms, where different organisations interact. In a similar vein, Moore (1993) explores how business ecosystems work among different players, including market competitors. Thus, the meaning of value has become more complex due to the different approaches taken at different levels of a business: micro-, meso-, macro-level (Bowman and Ambrosini 2010; Della Corte and Del Gaudio 2014).

Most of the literature on value has taken a positive approach. However, recent conceptualisations on value have started to explore both the positive and negative implications across the levels (Echeverri and Skalen 2011; Plé 2017). For example, Echeverri and Skalen (2011) explored a case study on public transport, in which the authors show that the formation of value is associated both with the co-destruction and co-creation of value.

From the above analysis across the literature of management, four key arguments are made:

(a) There are multiple meanings of value across the management literature. In addition to this, the analysis in the wider literature shows that different management streams do not talk to each other. For example, Ostrom et al. (2015) and Wilden et al. (2017) show the dispersion of service-related concepts. Overall, the school of marketing, with the SDL framework, emerge as the most robust and relevant literature of value across the whole management literature (Galvano and Dalli 2014). A key shortcoming from this literature is that SDL literature is highly rooted in repetitive solutions (Leon and Davies 2008). Thus, there is a need to adapt SDL into unique project settings.

(b) There is a great deal of discussion as to what the real meaning of value is across the management literature. Rather than creating a set of dimensions on the meaning of value, researchers have taken the challenge to create one unique definition, as if one definition would fit all markets. In this study, value is considered in terms of its usefulness (value-in-use), particularly from the perspective of the client organisation. In this form, this research explores what expressions of value outcomes emerge from the usefulness of a project.

(c) The concept of value has been widely rooted in positive terms (Plé 2017). Thus, there is a clear need to address the concept of value in a critical manner. In addition to this, the concept of business model, which considers both the creation of value and the capture of value, appears to provide foundations for project studies in a more holistic manner. Furthermore, the concept of value has been constructed from the supplier organisation’s eyes. Thus, it is important to explore the usefulness of the implications of value from the client perspective.

(d) A recent shift in the creation of value has moved from a transactional and independent narrative into a more interactive approach. This move started in the strategic management literature (Normann and Ramirez 1993), and in the marketing literature (Grönroos 1984; Prahalad and Ramaswamy 2004), but later refined in the Service-Dominant Logic constructs, such as the value co-creation from Vargo and Lusch (2004). Karpen et al. (2012) argue that SDL may provide more useful value outcomes, particularly to client organisations. Thus, SDL might be considered as a long-awaited model across the management literature in order to move away from neo-classical economics (Smith 1776).

Coming back to the main context of this study: project settings, in the following section, I have taken a closer analytical look at the concept of value in the project context.

2.5 Analysis of the concept of value in the project context

All organisations, including supplier and client organisations, are continuously trying to enhance their policy and their position in the market. Therefore, they need to develop and reinvent their business model in order to create value for themselves and for other relevant stakeholders (Laursen and Svejvig 2016). However, Smyth (2015) dispute that projects largely do not meet mandatory goals, and the overall value created is inadequate for the involved constellation of actors (Normann and Ramirez 1993). Thus, new forms to address value are necessary on project research and practice.

Value per se is not a new term in the project literature and it has been widely discussed. The traditional perspective of value in projects has been widely informed by the traditional instrumental methods of project management (PMI 2013). In their narrow view, the value of the project can be measured and accomplished by meeting the traditional criteria of projects, focused upon finishing on time, within budget and with the expected quality. While recent developments have been in the PMI´s PMBOK sixth edition, PMI has been widely criticised in project research (see Morris 1994; Shenhar et al. 2001; Andersen and Jessen 2003; Winter et al. 2006; Shenhar and Dvir 2007; Turner 2009). Winter and his colleagues in 2006 argued that value has to be examined beyond the transactional, short-term, and production-approach.

Recent research on value has focused widely on the creation of value at the front-end of projects. A great deal of consensus has been achieved in the research community to consider the front-end as a strategic stage (Kim and Wilemon 2002; Williams and Samset 2010; 2013), for the short-, medium-term (Edkins et al. 2013). While consensus has been achieved on this, the treatment of value in project practice has been widely considered product-oriented (Bettencaourt 2014), financial and supplier-oriented (Davies and Hobday 2005)

In a similar vein to the wider literature of management, the literature of projects presents different conceptions on value. Table 2.2 shows the asymmetry of the conceptualisation of value in projects.

From Table 2.2, four key conclusions could be drawn from these:

(a) the concept of value has been used interchangeably with the benefits and the value outcomes concepts. Yet, there is not a clear delineation on each concept. For example, the concept of benefits is highly connected to the performance of the value outputs, while the concept of value outcomes is linked to the strategic implications of a project in individual, organisational and societal level (Akaka et al. 2013);

(b) the meaning of value in projects has been widely related to the quality of the product. The focus has been on how the project value outputs function;

(c) there is no agreement as to what value means in projects. There are multiple definitions on it. The most used definition has a supplier and financial perspective embedded;

Key definitions of value, benefits, and outcomes			
Author(s)	**Concept**	**Description**	**Comments**
Winter et al. 2007, p. 643	Value	"The notion of 'value' as having multiple meanings linked to different organisational and individual purposes. This more complex understanding of 'value' also highlights the fact that the creation of value is often extended over long time periods, and cannot be defined and constrained by the mainstream concepts of project initiation and closure".	Value appears to have multiple meanings across the literature. In 2007, these researchers argue that projects need to have a focus on (value) outcomes rather than on outputs.
OGC 2009, p. 94	Benefit	"The measurable improvement resulting from an outcome perceived as an advantage by one or more stakeholders".	OCG considers benefits as a measurement of outputs and disregards the intangible benefits of a project. Recent literature in projects considers both tangible and intangible benefits.
APM 2012, p. 244	Value	"A standard, principle or quality considered worthwhile or desirable. In value management terms value is defined as the ratio of 'satisfaction of requirements' over 'use of resources".	In contrast to OCG and PMI, APM clearly defines value. Yet, the focus is coming from value management, which has been criticised in the literature of projects (see Smyth 2015, pp. 257)
PMI 2013, p. p33	Benefits	"An outcomes of actions, behaviours, products, or services that provide utility to the sponsoring organisation as well as to the program's intended beneficiaries".	PMI and OCG lack of precise definition of value. Instead, they do consider that meeting the traditional criteria, such as time, cost and quality, may lead to successful and valuable outcomes. Interesting to note that value is not defined in the glossary section (see PMI 2013).
Morris 2013, p. 83	Value	"Value can be defined as the quotient of function/cost or quality/cost, performance/resources or similar".	A traditional definition of value, which is considered as the ratio of two variables.

Smyth 2015, p. 8	Value	Value is perceived in terms of the benefits configured at the front-end and delivered during execution.	More recently, the literature in projects starts to make a difference between what value and outcomes are. The former being designed at an early stage of a project and the latter being perceived as the usage of the project resources in the long-term.
Smyth 2015, p. 8	Outcomes	Outcomes are about the use value of projects and what is needed to achieve impact.	
Other definitions of value in the wider literature of management			
Lepak et al. 2007, p. 181	Value	"Value refers to the specific quality of a new job, task, product, or service as perceived by users in relation to their needs, such as the speed or quality of performance on a new task or the aesthetics or performance features of a new product or service".	The literature in the mainstream management conceptualised value in two streams: use value and exchange value. The former is being defined in this box, with a clear focus on the performance of the new product or service. The latter is linked to the financial aspects of the service.
Grönroos and Gummerus 2014, p. 209	Value	"Value is defined as value-in-use. Value-in-use is the value for customers, created by them during their usage of resources. Value is both created and determined by the customers".	Grönroos defines value as the value-in-use, in relation to the utility of the service (project). This is the key definition being taken for this study.
Vargo and Lusch 2018, p. 67	Value	Value is derived from an active process in which a range of actors work together to co-create benefits for themselves and for others through the integration of resources.	The literature of SDL is now considered as the modern home of the concept of value. This literature has arguably made advancements in the conception of value. Yet, the meaning of value from Vargo and Lusch tends to focus upon experiential value only.

Table 2.2. Sample of key definitions of value, benefits, and outcomes (Source: Author's own).

(d) the most recent conceptualisation of value is taking a broader perspective, taking into account the implications of the value in the long-term (often referred as to value-in-use).

Overall, the concept of value in projects is highly rooted in value outputs, rather than in value outcomes. To close this gap, this study builds upon the definition of value from Grönroos and Gummerus (2014) that considers value in relation to the usefulness (value-in-use) of project resources in the medium- and long-term. In their view, value is determined and assessed by the actors who make use, benefit, and suffer from the implications of a project in the medium and long-term. Thus, this research explores how value outcomes are being co-created in project settings.

2.6 Analysis of value creation in projects

The research on value creation has been diverse in projects. Value has been presented with different faces across the years, such as project success, benefits management, and value management. The traditional project success criteria were based upon meeting time-cost-quality/scope criteria. Researchers then started to create new models adding new elements to the traditional criteria (see Norrie and Walker 2004; Van Der Westhuizen and Fitzgerald 2005).

Other researchers started to understand how to achieve project success (Shenhar et al. 1997; Shenhar and Dvir 2007; Morris 2013) and how it could be measured (Yu et al. 2005) beyond the transactional and short-term approach presented by the PMI. Pinto and Rouhiainen (2001) argued that project success was much more complicated than merely meeting financial numbers, schedule, and performance specifications. Recent research on projects has created a consensus that the project front-end is a key stage to create value (Edkins et al. 2013). For example, Shenhar et al. (2001) found that that project success is multidimensional and has a wider success criterion, including the success of the overall business success and the impact on the customer. This suggests that project success needs a complementary perspective including long-term perspectives.

In a similar stream of research to project success, research in benefits management explores how to achieve and secure project benefits in different levels of a project. For example, Cooke-Davies, (2002) explored how benefits could be connected with the wider organisational goals. However, research on benefits management has widely focused on the measurement and performance of the value outputs (Ward and Daniel 2012; Serra and Kunc 2015). While research on benefits management started to explore the importance of value outputs in the long-term, the benefits benchmark was widely disregarding the usefulness and implications of project value outcomes in the long-term (Smyth 2018). In addition to this, the focus on the front-end research has been largely driven to create value inputs, such as designing an effective business case. Smyth (2015; 2019) argues that the research on the front-end could be enhanced by exploring how to address value outcomes for the long-term.

One key stream in the literature of projects is value (engineering) management. This literature has been widely used particularly in the construction sector (Miles 1985; Kelly et al. 2014; Male et al. 2007; Bowen et al. 2010; Gillier et al. 2015). While this literature started to consider more in-depth the functionality of the value inputs and outputs, project practice has an emphasis on achieving a cost reduction in the materials used in the construction (Smyth 2015).

While efforts have been done to understand value creation, research on project success, value management, and benefits management, have widely disregarded the implications and perception of value outcomes in the long-term.

Another stream of research in projects started to explore how to design, deliver and realise value outcomes for the long-term. Turner (1995) argues that there are multiple stakeholders in a project, such as an investor, sponsor, customers, and operators, which benefit and suffer from projects in the short-and in the long-term. For example, evidence has been provided with the Sydney Opera House project, which shows that the construction phase was chaotic and resulted in a cost overrun of nearly 1,400% (Flyvbjerg 2017). However, this project has been considered a success in the long-term, which contributes to the tourism economy of Australia. Similar perceptions of value for the long-term can be evidenced in other projects, such as the Guggenheim Museum Bilbao (Del Cerro 2017). The Guggenheim Museum Bilbao created an urban revitalisation and radical transformation to the city of Bilbao (Hall 2002). Thus, these projects show wider economic and cultural impacts on the long-term. This means that project teams need to design and configure value propositions at the front-end in order to have positive implications in the long-term.

Research in projects started to use more constantly social approaches to address value for the long-term, particularly as the first wave of project management was rooted in an instrumental and engineering focus (see Winter and Szczepanek 2008; Ahola et al. 2008; Smyrk and

Zwikael 2012; Morris 2013; Laursen and Svejvig 2016). According to Winter et al. (2006), the creation of value is socially constructed across the project life cycle. For example, Winter and Szczepanek (2008) explored a large integrated food group in the UK, using the principles of the value-creating system proposed by Ramirez (1999). The authors found that temporary production was and is yet the main focus on projects. The authors concluded that an alternative temporary production perspective is to mobilise their user-stakeholders network so they can create their own value for the long-term. This shows that projects need to move beyond "*the traditional view of construction projects from that of producing mere physical facilities*" (Artto et al. 2016, p. 267) to create value for diverse stakeholders in the long-term (Fuentes et al. 2019).

Smyth (2015) argues that the research on the front-end has started to make progress to understand value outcomes for the long-term. For example, Artto et al. (2016) connected the design and operations phase in a shopping centre located in Finland. The authors found four key mechanisms to create multi-organisational value in the long-term. They argued that a coordinating body, established by the multi-actors within the operations phase, could provide valuable information at the front-end to understand how the service system will be used in future. This could then enhance the functioning in a multi-organisational system.

With a similar research, Matinheikki et al. (2016) found key project activities to enhance the creation of value within a wider network of enterprises in the context of a health care campus development project. One key activity found was allocating a network leader role to a key organisation in the project network. This role could enhance the centralisation of diverse actors in a network. This research also provided visibility on the management of an inter-organisational network in the project (cf. Matinheikki et al. 2016; Pryke 2017). Furthermore, Hellström (2017) claims that when organisations focus on synergies with other actors in a network, mutual benefits could be achieved in collaboration.

Other researchers have started to explore the implications of value in the macro-level. For example, Chang et al. (2013) explored three Australian defence mega-projects and showed how a project may help to build defence capability against potential wars versus other countries. In this way, citizens feel more protected and secured in their living countries, which might contribute to global social value. This demonstrates that some projects may have implications for a national level. In addition to this, the authors argued that value is subjective and dynamic across the years, particularly in projects which are executed and managed across many years.

The dynamics of stakeholders creating value outcomes for the long-term has been scarcely explored in projects (Liu et al. 2014; Jacobsson and Roth 2014; Smyth 2015; Smyth et al. 2018; Fuentes et al. 2019; Chih et al. 2019). For example, Liu et al. (2014) explored the construction of an Indian airport and found that there was a lack of engagement with the contractor in order for the client organisation to absorb the contractor's expertise. In addition to this, the authors found that different working attitudes are needed to allow the co-creation of value in projects, as some actors were not willing to co-create value. Jacobsson and Roth (2014), who explored the relationship between the client and supplier in a Swedish partnering project, presented similar findings. The authors argued that there is reluctance from project actors to co-create value. The authors called for a shift on the mind-set to allow value outcomes to emerge for diverse stakeholders in the long-term. The authors argued that the major elements of the reluctance to co-create value are based upon the risk and transparency when engaging with other actors (cf. Prahalad and Ramaswamy 2004).

As a form of summary, Table 2.3 has been created to show key papers on value creation that have used as foundations to build this research.

One key overall analysis of these papers is that the concept of value is varied and there is not an agreed definition as to what value means in projects. Most of the research projects have taken a supplier and financial perspective to analyse value (Davies and Hobday 2005). The overall analysis also shows that research on projects have started to move towards other perspectives of value (cf. Normann and Ramírez 1993; Prahalad and Ramaswamy 2004), which have a focus upon strategic value for the long- term from the point of view of the client organisations (Liu et al. 2014; Artto et al. 2016).

Research based upon marketing and service-related literature has started to gain momentum in project research (see Liu et al. 2014; Mills and Razmdoost 2016; Smyth et al. 2018; Fuentes et al. 2019; Chih et al. 2019). The theoretical constructs from marketing and service-related literature to date are the most relevant framework to analyse the (co-)creation of value outcomes for the long-term (cf. Edvardsson et al. 2011; Grönroos 2011; Vargo and Lusch 2016).

The literature on value creation, from marketing, is rich and varied, yet it has been widely off the radar from the project literature. Efforts have been made to integrate this literature across the years into projects (see Cova et al. 2002; Cova and Salle 2012; Smyth 2015). However, there is a need to integrate the recent advancements from marketing, as its key strengths may help to address theoretically key weaknesses in the management of projects.

The SDL framework (cf. Grönroos 2011; Vargo and Lusch 2016) has its key strength in co-creating value outcomes for the long-term from the perspective of the client organisations. Across the management discipline, researchers (e.g. Karpen et al. 2012) claim that SDL may provide, theoretically, premium value to client organisations and end-users in a B2B context. Marketing has traditionally focused on helping clients in service systems. Thus, SDL may help to address the lack of emphasis on value outcomes for client organisation in projects. In addition to this, the SDL framework has been revised across years (Vargo and Lusch 2004; 2008; 2016); and has created an agenda of research until 2025 (Vargo and Lusch 2017), which suggests longevity in academia (Ostrom et al. 2015). However, Leiringer and Bröchner (2010) warn the project community that trends from other disciplines, such as marketing, need to be carefully adapted for project settings, particular as projects present unique, uncertain and complex characteristics.

This research, therefore, aims to explore the literature in marketing in depth to understand what elements can be brought forward and how some elements need translation to project settings. This effort seems to be worthy as it may help to ensure the creation of value outcomes and avoid the destruction of value for the long-term (Echeverri and Skålén 2011). Thus, the following section makes a full analysis of the marketing and service-related literature, with a particular focus on the co-creation of value.

2.7 Marketing and service-related literature

This research is focused on the theoretical framework of Service-Dominant Logic (SDL), proposed in the latest school of Marketing by Professor Vargo and Professor Lusch in 2004; later refined in 2008, and 2016. SDL claims to offer superior value outcomes to key (project) beneficiaries, such as the client organisations and end-users in B2B contexts (Karpen et al. 2012).

Key conceptual work on value across disciplines			
Authors	**Discipline**	**Key conceptual contribution**	**Comments for the project business**
Normann and Ramírez 1993	Operations Management	The reconfiguration of key players' roles in the value-creating system. For example, the role of the customer is not a consumer but a co-producer of the process itself. This enables customers to create their own value.	This paper reconceptualises a project as a process of value creation. Key roles, such as the customers, may enable to mobilise value before, within and after the project lifecycle.
Prahalad and Ramaswamy 2004	Strategic management	The design of key experiences with the customers to obtain a competitive advantage. A system of co-creation of value is dependent on structuring an entity around four blocks of interactions: a) dialogue; b) access; c) risks-benefits; (d) transparency.	This may be seen as activities on how value may be constructed in the project and the challenges around the process of co-creation.
Grönroos 2011	Marketing	The customer and provider may together co-create value only of direct interaction occurs. Value is conceptualised as value-in-use. Value could be co-created, particularly, during the early stages of a service.	In projects, different types of interactions among multiple stakeholders. This contribution provides a managerial analytical lens to map the different forms of co-creation from a micro-level perspective.
Edvardsson et al. 2011	Marketing	The value co-creation process may be perceived as a social construction approach, influenced by social forces and structures.	The concept of value is now aligned to the project settings, where projects are considered to be embedded in a social context, rather than being isolated.
Echeverri and Skålén 2011	Marketing	The formation of value has been highly conceptualised as a positive construct, yet a more realistic perspective - value destruction- may allow reading what happens on the ground during the formation of value.	Many projects do not meet mandatory requirements; others are complete disasters. Thus the perspectives of co-destruction are in line as to what happens in some projects.
Vargo and Lusch 2016	Marketing	The co-creation of value occurs as an all-encompassing process in the micro-, meso-, and macro-level, generated by institutions and institutional arrangements.	The process of co-creation may occur not only in the micro-level as with Grönroos (2011) but also in other layers of the social system, assuming that co-creation occurs at all times in a project.

Shenhar et al. 2001	Management of projects	Project success goes beyond the traditional time-cost-quality/scope approach. This research sets four dimensions of success: (1) project efficiency, (2) impact on the customer, (3) direct business and organisational success, and (4) preparing for the future.	This research is key as it conceptualises success beyond the traditional short term-perspectives of success.
Davies and Hobday 2005	Management of projects	The customers are involved during the strategic engagement phase in order to understand their needs and priorities in the solutions. These inputs directly influence the project value propositions.	This research aims to unpack the strategic engagement across the project life cycle but from a supplier perspective.
Morris 2013	Management of projects	The front-stage stage is a key stage where most value can be configured and designed from the client perspective. Benefits delivery is considered as an output of the performance of these inputs (requirements).	The focus on front-end has been on designing the specification based on inputs rather as value outcomes for the long-term. More recently the back or tail end has received more attention (Edkins et al. 2013).
Smyth 2015	Management of projects	Marketing acts as a central function to backcast the project outcomes in the early stage of a project, so they can be translated into business requirements through a process of co-creation.	This research provides a client and service perspective at the centre of the project. Expanding Morris (2013), this research places a strong emphasis on building specification based on outcomes rather than solely inputs.
Artto et al. 2016	Management of projects	This research links the front-end with the back-end of a project. The research starts to expand how value can be created and designed as a multi-organisational system for the long-term.	As a system lifecycle, this research provides a connection between the project and operations phase with a focus on outcomes for the organisational level.

Table 2.3. Key conceptual work on value across disciplines, which strongly influenced this research (Source: Author’s own).

In projects, Smyth (2015) argues that projects do not meet mandatory value outcomes to client organisations. Thus, an alternative perspective to explore value creation is needed in the project business. Previous works on value creation in projects have taken a supplier perspective (Davies and Hobday 2005) and have assumed what clients need (Luotola et al. 2017), rather than working arm-to-arm with the key stakeholders within the service system. The SDL framework is, therefore, to date the most relevant framework to explore how client organisations co-create value outcomes, for the benefit of themselves and other key stakeholders. In addition to this, SDL considers that value is socially constructed, which goes aligned with project recommendations to move away from the instrumental and technical focus (Winter et al. 2006; Geraldi and Söderlund 2017). Before exploring the SDL framework in detail, an overview of the marketing literature is provided, as the majority of the roots from SDL are coming from this literature.

2.7.1 Overview of the schools of marketing

Market can be defined as *"the aggregation of all products or services which customers regard as being capable of satisfying the same need"* (McDonald and Dunbar 2004, p. 71). Thus, (projects) markets are constantly evolving according to the needs of the customers (Abolafia 2001). Markets are socially constructed and re-shaped particularly in the project business, where elements of uncertainty, complexity and competitions are intense (Smyth 2015; Pryke 2017). Thus, the successful management of the market may create a competitive advantage in the (project) business (Hamel and Prahalad 1994). Different efforts have been carried to improve the competitive advantage of an organisation across the years (cf. Porter 1985; Barney 1991; Teece et al. 1997). One key avenue of increasing the competitive advantage has been through marketing (Möller 2006).

Marketing has been defined in different ways. For example, the American Marketing Association in 2017 (p.1) defines marketing as *"the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large*". The Chartered Institute of Marketing (CIM) in 2015 (p. 2) defined marketing as "*the management process responsible for identifying, anticipating and satisfying customer requirements profitably".* In the academic domain, different conceptualisations of marketing have been provided (cf. Levitt 1983;

Kotler et al. 1996; McDonald et al. 2011; Vargo and Lusch 2016). For example, Levitt (1983, p. 135) defined marketing as "*the purpose of a business is to get and keep a customer. Without customers, no amount of engineering wizardry, clever financing, or operations expertise can keep a company going"*. Overall, the traditional roots and logics on marketing have focused on increasing customer satisfaction, and the quality of service provided (Parasuraman et al. 1985; Grönroos 1990; Cronin and Taylor 1992).

Overall, marketing is not a new discipline, but has been transformed across the years; from being a discipline of configuring products for mass consumer markets (cf. Borden 1964; Booms and Bitner 1981; McCarthy 2002), through adding-value through relationships (e.g. Gummesson 1994; Berry 2000; Grönroos 2000) towards the co-creation of value (Grönroos and Gummerus 2014; Vargo and Lusch 2016).

To explore the foundations and roots of marketing, one has to go back to the principles of Economics through Adam Smith in 1776. On his book '*An Inquiry into the Nature and Causes of the Wealth of Nations'*, he suggests that the wealth/value is fundamentally increased via the export of products. Smith's key idea was to produce and distribute more products (internally and externally) in order to capture more financial value. This type of (financial) earning logic was used at the heart of the Industrial Revolution (for mass production) during the XVIII century. This logic, of value being created during production and embedded in a product, highly influenced the foundations of marketing (Vargo and Morgan 2005). This shows that marketing has been used as a passive instrument to adequately position a product in the market (Kotler 1972; Porter 1985).

The first school of marketing was the 'marketing mix' approach. This traditional emphasis on marketing was on the selling process, and in adding value to the service and its offering (cf. Smyth 2000; 2015). This school was considered highly transactional, with a focus on the exchange of products (McCarthy 2002). Thus, in this paradigm, value was embedded in the products (and later in services), system or outputs. The main goal in this paradigm was on the increment of financial outcomes via the exchange of these products (value-in-exchange). Vargo and Lusch (2004) called this earning logic as Goods Dominant-Logic (GDL). In GDL, the key focus was on the goods or tangible products, often called operand resources.

In the GDL perspective, there is one creator of value (firms) during the process of production of tangible products and multiple destroyers of value (consumers) during the realisation of a service (Vargo et al. 2008; Vargo and Lusch 2011). People, in GDL, are considered as passive actors, and they destroy the value created by the supplier. To exemplify GDL, Figure 2.2 shows how value is created under the GDL lens. The supplier on the top side is trying to be efficient and meet the minimum requirements, as a key goal is to streamline the production phase. Once the product has been created, the customer enters into play at the last stage to consume, and destroy the offering (value).

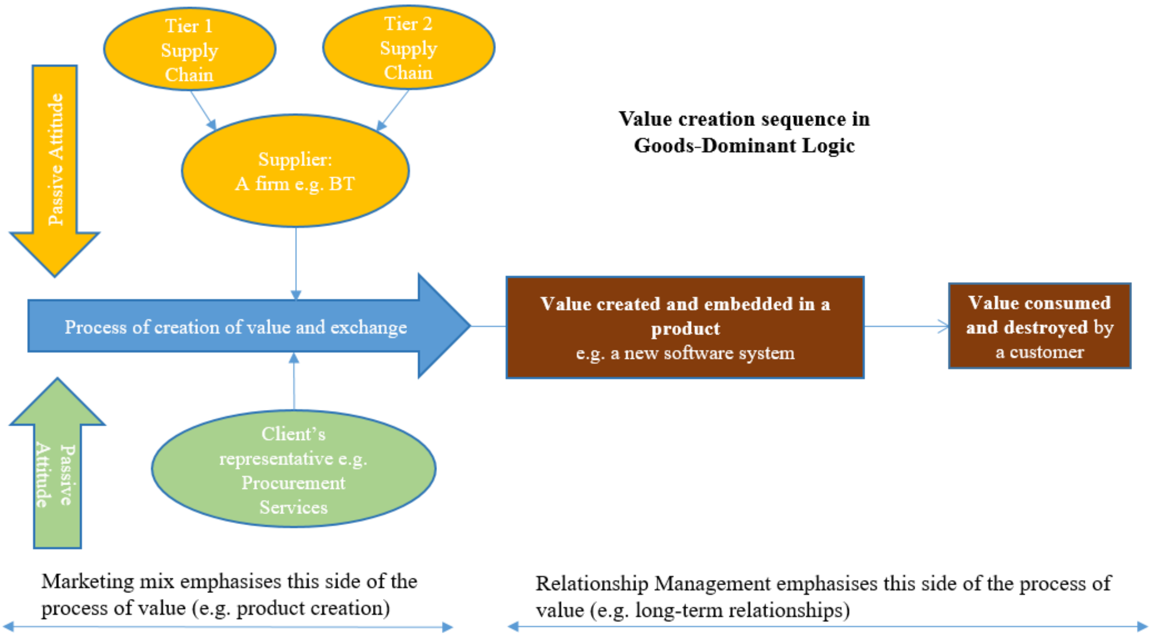

Tier 1 Supply Chain
Tier 2 Supply Chain
Passive Attitude
Supplier: A firm e.g. BT
Value creation sequence in Goods-Dominant Logic
Process of creation of value and exchange
Value created and embedded in a product e.g. a new software system
Value consumed and destroyed by a customer
Passive Attitude
Client's representative e.g. Procurement Services
Marketing mix emphasises this side of the process of value (e.g. product creation)
Relationship Management emphasises this side of the process of value (e.g. long-term relationships)

Figure 2.2. The Goods-Dominant Logic sequence to create value (Source: Author's own, influenced by Vargo and Lusch 2004).

The marketing mix approach, which is based on products and its value-in-exchange, started to receive plenty of criticism in the marketing research (Berry 1983; Berry and Parasuraman 1991; Sheth and Parvatiyar 2000; Håkansson and Snehota 2006). For example, Sheth and Parvatiyar (2000) suggested that the relationships among key actors in the whole process of creation and consumption of value were disintegrated.

A revised school of marketing: relationship management, started to gain momentum. This shift from a transactional into a relational approach was considered a paradigm in the marketing school (see Berry 1983 as the first author, who coined the term relationship marketing). Relationship management can be defined as the process *"to identify and* *establish, maintain and enhance, and when necessary to terminate relationships*" (Grönroos 2000, p. 243). In contrast to the marketing mix approach, where the users were passive actors in the creation of value, the relationship management school is considered as a proactive and relational form of management in the creation of value (Narver et al. 2004).

Relationship management was more systematic and about the process (Smyth 2015), thus internal and external relationship management was at the heart of the process (Grönroos 2000; Gummesson 2002). In particular, the relationship management focused on the long-term relationships and customer satisfaction more than on the value outputs (Parasuraman et al. 1985; Zahorik and Rust 1993).

One key strength in the relationship managements is the perspective on how to deliver value within a network (Grönroos 2000; Dubois and Gadde 2000; Gummesson 2002; Christopher 2005; Håkansson and Snehota 2006), but it is largely from the perspective of Porter's (1985) value chain. Another key strengths of this school is that it has a strong emphasis per se on the relationships during the creation of value, which had the corresponding weakness that resulted in a lack of emphasis on the outcomes coming out from this integration of resources (Vargo and Lusch 2016).

Most of the work around the marketing mix was focused in B2C settings. With the arrival of relationship management, B2B settings started to be explored (Jackson 1994), which resemble some of the project markets. Relationship management was then developed for projects to add value in the process (e.g. Hadjikhani 1996, Cova and Salle 2005; Smyth and Fitch 2009; Turner and Lecoeuvre 2017).

In Figure 2.2, one comparison is presented between relationship marketing versus marketing mix. The left-hand side of the process of value is aligned with the marketing mix approach, where the main focus was per se on the product creation. The right-hand side is aligned with relationship management, where the main focus was on how to manage the long-term relationships and the repetitive business.

Other streams of marketing have also evolved over time. For example, project marketing started as a subset of Relationship Management (cf. Lecoeuvre and Patel 2009; Cova and Salle 2012). In addition to this, Entrepreneurial Marketing has evolved over a long time and is still doing so (cf. Morris et al. 2002; Gaddefors and Anderson 2009; Ioniță 2012). However, it is the relationship management school, which has been considered as the foundations of the modern paradigm in marketing: Service-Dominant Logic (Grönroos and Voima 2013).

Discussion within the relationship management school started to emerge, in particular, adding-value through relationships was not enough to secure the value outcomes in the long-term. In addition to this, issues around service discontinuity and the process of the creation of value outcomes were not properly addressed in this literature. To address some of these issues the literature of marketing started moving into more service and client orientation. Thus, the literature of marketing started to shift from its economics foundations (e.g. marketing mix) into a more sociologically and phenomenological perspective as well as perceiving value as the central focus. This shift was particularly embedded in the Service-Dominant Logic framework (Vargo and Lusch 2004; 2008; 2016). Thus, the following section then fully explored the SDL framework and to what extent it has been applied in projects.

2.7.2 Service-Dominant Logic

The French economist Frederic Bastiat in 1848 (p. 61) said that "*the great economic law is this: service[s] are exchanged for service[s]".* This statement was announcing a paradigm within the marketing school many years later with the introduction of Service-Dominant Logic. SDL is a framework that was initially published, by Vargo and Lusch in 2004 in a seminal paper called: *Evolving to a New Dominant Logic for Marketing*. SDL is a framework that enables to understand how organisations, actors exchange service-for-service. In SDL, all organisations are service exchangers and service is defined as *"the application of competencies (knowledge and skills) for the benefit of another entity or the entity itself*" (Lusch and Vargo 2014, p.12). This suggests that any project could be considered as a service since its conception, as multiple stakeholders exchange their skills and competencies to accomplish the project goals and overall project value outcomes.

SDL has further roots and influences; it has been part of the scholarly development within the marketing and service related-literature (Normann and Ramirez 1993; Gummesson 1994; Ramirez 1999; Grönroos 2000; Prahalad and Ramaswamy 2004). For example, Normann and Ramirez (1993) explored how value could be co-produced beyond the industrial mind-set of the isolated production of products. The authors presented evidence on how customers form an integrative part of the value creation process in IKEA offerings. The introduction of agile manufacturing and production, an approach, which is to respond in a quicker and customised manner the user's demands, has also influenced the SDL framework.

Other researchers, for example, Grönroos (2000, p. 24) also influenced the SDL framework, as his research at that time was centred "*on the consumers' value-creating processes, where value emerges for consumers and is perceived by them".* In a parallel publication to Vargo and Lusch (2004), Prahalad and Ramaswamy (2004) provided one of the first frameworks to co-create value comprised by four key elements: transparency, risk assessment, access, and dialogue. In addition to this, the socio-psychology that gives rise to phenomenological perceptions also influence the SDL. Overall, SDL can be considered a part of the scholarly development within the marketing and service related-literature, rather than a new framework. The first publication of SDL by Vargo and Lusch in 2004 is now considered as a seminal paper in the marketing studies and has changed the research direction and narratives within marketing and has also been influential in the wider literature of management. To date, SDL is considered as the most relevant framework to understand service exchange and the (co-)creation of value among relevant stakeholders in the business (Ostrom et al. 2015), yet its emergence has come with a dose of theoretical and practical challenges which are to be explored across this section.

SDL provides an alternative lens to perceive projects as vehicles to deliver and create value. In SDL, *"service is the fundamental basis of exchange"* (Vargo and Lusch 2008, p. 7). Thus, the neoclassical ideas from creating value from a supplier perspective (Porter 1985), are being replaced in SDL, by co-creating value with a range of stakeholders. This co-creation process may occur not only with the end-users, but also other relevant actors in the ecosystem, such as competitors and other key societal stakeholders (Akaka et al. 2013). Another key characteristic is that the concept of value is moving away from the traditional financial perspective, and it is now considered in terms of the implications and usefulness for the long-term (Grönroos 2011).

In SDL, the people, their skills and their knowledge, are considered as the main source of strategic value. These dynamic type of resources are often called operant resources. In SDL, all relevant actors, such as suppliers, clients, users, and even competitors (Akaka et al. 2013) are considered as proactive actors in the co-creation of value. Yet, Vargo and Lusch (2004) do not look much at the supply side in terms of outcomes for them, instead, the prime focus is on the co-creation of value outcomes, being the client organisation the crucial role in the process. This in contrast to the Goods-Dominant Logic perspective, where the materials, products and other static resources are the main sources of value (Vargo et al. 2011).

One major difference in SDL (compared to GDL) is the difference between service (in singular) and services (in plural). In GDL, services (in plural) were described as a post-production activity, such as customer service, and support and maintenance services. These type of services were featured by four main characteristics: heterogeneous, inseparable, perishable, intangible (see Lovelock 1991; Gustafsson et al. 2003; Zeithaml and Bitner 2003). For example, perishability is a term used to describe how products have a short-term life and cannot be manageable. That is, services were referred to as if they could not add-value because all value was already created during the process of producing tangible goods (Porter 1985).

There are other concepts linked to services. For example, in construction, the concept of serviatisation has been largely used (Vandermerwe and Rada 1988). However, serviatisation aims to extend service transactions at the end of the value chain and beyond. While serviatisation start to connect the back tail of the process, this does not ensure the creation of value outcomes for the long-term. In contrast, the service concept in SDL, (as singular), aims to apply the people's skills and competencies across the process of value creation in order to ensure the value outcomes, particularly for the client organisation (Vargo and Lusch 2004). In SDL, the concept of added-value is rejected and instead value is being treated as socially constructed.

To date, there are still tensions on the role of outputs and outcomes in the delivery of service (Grönroos 2011, p. 284). Some authors consider outputs and outcomes as complementary perspectives, instead of competing and isolated perspectives (Fuentes et al. 2019). For the sake of clarity, the SDL framework is not against goods, instead, goods and products are seen as the vehicles to render a service, but they are not considered as the end-point (Lusch 2011). For example, in construction projects, such as an airport, it is both important to create safe and efficient operational travel, as well as to provide adequate service experience to users.

Production and consumption are separated in many goods, so the experience and outcome come after production and the point of sale, whereas in projects sales come first and production is itself part of the experience and is one service outcomes and then the project in use is the second (Smyth 2015). However, it is fair to state the SDL places a strong focus on the value outcomes rather than on the value outputs. This study focuses primarily on the (co-)creation of value outcomes, yet it is fair to state that value outputs still play an important role in the delivery of service.

Overall, the SDL framework has created a shake on key core concepts in order to change old institutional logics from the marketing and service-related literature. These have been presented and summarised in the following Table 2.4.

Goods Dominant-Logic versus Service Dominant-Logic			
Item	**G-D logic (From)**	**S-D logic (Towards)**	**Comments for the project business**
Process of value creation	Value- added activities	Value co-creation	The thought of a construction firm is that value is created and delivered via outputs. SDL changes this from being built and embedded into a product (or building), through value-creating activities (inputs of content) during production, towards co-creating value outcomes of execution and in use with the customer's/value network actors.
Central view of value	Value-in-exchange	To value-in-use to value-in-context	Every organisation uses each product differently is influenced by the resources, other systems, and institutional logics where such project is embedded. Value emerges when the service is in used and assessed by the relevant stakeholders.
Participants in value creation	Firm	Multiple stakeholders	In GDL, the firms were the only participants in the value creation. However, in SDL, multiple stakeholders may participate in the value co-creation directly and indirectly, although some require direct interaction (e.g. Grönroos 2017).
Central resources	Operand Resources	Operant Resources	Under GDL, value was embedded within the goods. Competitive advantage was focused on the operand resources (mainly physical products). However, in SDL, people, including their skills and knowledge, are key to achieve value outcomes.
Driver of value creation	Production	Resource Integration	From mass-production to mass- collaboration among multiple stakeholders. This shift creates strategic advantage by integrating both operand and operant resources in the co-creation of value.
Context of value creation	Firms	Service Ecosystem	In GDL, firms were the only creators of value. In SDL, an open system view is used to co-create value with multiple stakeholders across different layers: micro-, meso-, and macro-level, within an ecosystem.

Table 2.4. GDL versus SDL on value creation on the project business (Source: Adapted and developed from Akaka and Vargo 2014).

The above concepts of SDL have been embodied in a set of key premises that altogether create a framework around SDL and the co-creation of value. A summary of the development of the premises is presented in Table 2.5. Revised versions of these premises have been developed across the years (Vargo and Lusch 2004; 2008; Grönroos 2011; 2016), and new versions might appear in the coming years as there is an agenda 2050 for research around SDL (Vargo and Lusch 2016).

The SDL premises presented in Table 2.5 have received key critiques across the years. One of the key opponents to the SDL framework has been driven by Grönroos (2011) and other colleagues from the Nordic School (see Heinonen et al. 2010; Edvardsson et al. 2011; Storbacka et al. 2016). For example, Grönroos (2011) advocates the idea that value is co-created through direct interactions, particularly in the micro-level, rather than being co-created at all times (as proposed by Vargo and Lusch 2004; 2008; 2016). Yet, scarce empirical evidence has been provided by these two streams of works.

Furthermore, Wright and Russell (2012) argue the SDL concepts and premises need operationalisation, otherwise they may remain metaphorical and normative prescription on how value should be co-created. In the same line of thinking, Carú and Cova (2003) argued that some of the premises were ambiguous and were not providing enough evidence as to how they work in the market. Fuentes et al. (2019) also argue that some of the premises in SDL have been created for high-volume products and services, and repetitive solutions, rather than for unique, complex and uncertain settings, such as projects. In addition to this, the premises have been criticised for being applicable to western societies, rather for all markets, such as developing countries, where value outputs might be a priority under certain conditions (Wright and Russell 2012). Thus, Brown and Patterson (2009) consider that some of the premises were too broad and cannot be generalised to all markets and type of services.

One key critique to the first set of the SDL premises was presented by Edvardsson et al. (2011). The authors argued that the initial premises did not consider the social context that influences the co-creation of value. For example, aspects around trust, willingness and culture are widely disregarded in these premises. In construction, for example, Xu (2019) has evidenced how trust plays a decisive role in the construction of value across the supply chain organisations. Furthermore, Rousseau and Schalk (2000) suggest that co-creation needs a different type of culture, yet this has not been fully explored in SDL. Moreover, Tijhuis and Fellows (2012) explored how international construction settings have clashes in terms of culture that impede an effective collaboration. Thus, research around contextual aspects of the co-creation of value is needed. One positive aspect of the recent revision of SDL (Vargo and Lusch 2016) is the addition of the social context, in the form of the institutional arrangements. Yet, there is still a need to explore how these arrangements may look on the ground.

Key opponents to SDL premises has been led by Nordic School, especially by Grönroos and other colleagues (see Grönroos and Ravald 2011; Grönroos and Voima 2013; Leroy et al. 2013). For example, Leroy and her colleagues argued that the SDL promoters were black-boxing the concept of value of co-creation. In particular, Grönroos and Gummerus (2014) and Storbacka et al. (2016) mentioned that the process of value co-creation might not work in the micro-level. In the same line of thinking, Foss and Pedersen (2016) considered that most of the principles of SDL are rooted for macro-level, yet how the process looks like in the micro-level is yet to be explored.

Another key challenge to the SDL premises comes from Achrol and Kotler (2006). They argue that the premises are not easily tested, and might, therefore, be considered as unfeasible. The SDL literature has provided scarce information on key managerial actions in order to co-create value. In this vein, SDL has been criticised for being broad and prescriptive (O'Shaughnessy and O'Shaughnessy 2009). Hietanen et al. (2018) have strongly criticised SDL for trying to extend SDL into a theory of society when not even foundational premises have been tested, mobilised or operationalise across the markets.

There is a need to understand how to mobilise the service-related concepts. Some of these concepts have been mobilised, in particular where experience is at the core of the business, such as gaming and tourism (Shaw et al. 2011). Thus, there is a need to explore other markets, such as projects to understand whether service-related concepts can be operationalised.

Evolution of Service-Dominant Logic premises

Item	Axiom Status	Original foundational premises in Vargo and Lusch (2004)	Modified foundational premises in Vargo and Lusch (2008)	Premises revisited by Grönroos (2011)	Modified foundational premises in Vargo and Lusch (2016)
1	Y	The application of specialized skill(s) and knowledge is the fundamental unit of exchange	Service is the fundamental basis of exchange	Reciprocal value creation is the fundamental basis of business, with service as a mediating factor.	Service is the fundamental basis of exchange.
2	N	Indirect exchange masks the fundamental unit of exchange.	Indirect exchange masks the fundamental basis of exchange.	n/a*	Indirect exchange masks the fundamental basis of exchange.
3	N	Goods are a distribution mechanism for service provision	Goods are a distribution mechanism	All resources and processes are distribution mechanisms for service provision, however without including value in themselves.	Goods are distribution mechanism for service provision.
4	N	Knowledge is the fundamental source of competitive advantage	Operant resources are the fundamental source of competitive advantage	*n/a**	Operant resources are the fundamental source of strategic benefit.
5	N	All economies are services economies	All economies are service economies	*n/a**	All economies are service economies.
6	Y	The customer is always a co-producer	The customer is always a co-creator of value.	Fundamentally, the customer is always a value creator.	Value is co-created by multiple actors, always including the beneficiary.
7	N	The enterprise can only make value propositions	(a) The enterprise cannot deliver value, (b) but only offer value propositions	1a) Fundamentally, the firm is a facilitator of value for the customers. 2a) Provided that the firm can engage with its customers' value creating process during direct interactions, it has opportunities to	Actors cannot deliver value but can participate in the creation and offering of value propositions.

				co-create value jointly with them as well. 1b) The firm is not restricted to offering value propositions, but has an opportunity to directly and actively influence its customers' value creation as well.	
8	N	A service-centered view is customer oriented and relational	A service-centered view is inherently customer oriented and relational	*n/a**	The service-centered view is inherently beneficiary oriented and relational.
9	Y	*n/a****	All social and economic actors are resource integrators	All social and economic actors are resource integrators 1) Value is accumulating throughout the customer's value creating process. 2) Value is always uniquely and both experimentally and contextually perceived and determined by the customer. (not revisited)	All social and economic actors are resource integrators.
10	Y	*n/a****	Value is always uniquely and phenomenological determined by the beneficiary		Value is always uniquely and phenomenologically determined by the beneficiary.
11	Y	*n/a****	*n/a****	*n/a***:*	Value co-creation is coordinated through actor-generated institutions and Institutional arrangements.

n/a*: The author only focused his critical review on the value (co-)creation premises; n/a**: The authors only focused on the premises with axiom status in their analysis; n/a***: Premise not yet added in such revision.

Table 2.5. Evolution of foundational premises of Service-Dominant Logic (Source: Vargo and Lusch 2004; 2008; 2016; Grönroos 2011).

Another key challenge in the overall SDL literature is that their concepts around service and co-creation are highly rooted in positive terms. Thus, there is a need to explore the negative implications of a service, for example exploring the concept of value co-destruction (Echeverri and Skålén 2011). In particular, for project settings, the destruction of value has been evidenced (Smyth et al. 2018). This research starts exploring more balanced perspectives of the co-creation of value in project settings.

In addition to this, the service-related concepts need integration with other wider concepts, such as the business model (DaSilva and Trkman 2014). In this manner, the creation of value is linked to the main (financial) business: the capture of value. Furthermore, the return-on-marketing-investment needs further exploration to understand whether the principles and premises of SDL could be fully adopted (Smyth and Lecoeuvre 2015). For example, research has evidenced that relationship management may provide a higher return on investment compared to the marketing mix approach (Smyth 2015).

Duryan and Smyth (2019) argue that short-term financial emphasis affects the value outcomes and functionality of the service in the long-term. This shows that the creation of value and the capture of value are highly intertwined in practice, yet current research in SDL has insufficiently made the connections with wider management concepts. For example, it is unclear how the allocation of value outcomes are distributed across the network (Smyth et al. 2019). This research, for example, starts closing this gap by exploring, first the different types of value outcomes that may emerge in the long-term, and also in how they can be configured and designed across the project life cycle.

Another key challenge in the SDL literature is that it is rooted in Business-to-Consumer settings. Even though the recent addition of the Actor-to-Actor approach has theoretically broken-free of this (Vargo and Lusch 2016), the majority of the models have taken a B2C approach. There is a need to explore service and co-creation in unique, complex and uncertain environments, such as projects (cf. Leon and Davies 2008; Geraldi et al. 2011).

Overall, a full analysis of the wider SDL framework has been undertaken. It has been evidenced that SDL presents strengths, such as focusing on the value outcomes for the long-term from the client perspective. This perspective can complement research on projects, as they have traditionally focused on the supplier side and in how their value outputs and outcomes can be improved (Davies and Hobday 2005). In addition to this, projects have focused on short-term perspectives, disregarding the implications of projects in the long-term (Smyth 2015).

To date, SDL is the most relevant framework across the literature of management to understand and explore how value outcomes can be co-created (Karpen et al. 2012). While the SDL framework presents key weaknesses as any other framework, the owners of SDL (Vargo and Lusch 2016) have proposed a 2025 agenda and stated that "*empirical confirmation and disconfirmation are essential to further development of [the SDL] robust theory*" (Vargo and Lusch 2017, p. 54). This further conceptual and empirical investigation may yield longevity in the research community. Thus, this research takes the challenge to use SDL as an initial point of departure, yet their concepts are to be critically analysed to understand how they can be used in project settings. As a further exploration of the SDL framework, its central concept: value co-creation, is explored in the following section.

2.8 Analysis of the co-creation of value concept in the management literature

Value co-creation is a key concept in the literature of SDL, yet the concept of value co-creation has been discussed across the management literature, such as in the consumer studies (Penaloza and Venkatesh 2006; Schau et al. 2009); innovation studies (Chesbrough 2003; Von Hippel 2005); strategic management (Normann and Ramirez 1993; Prahalad and Ramaswamy 2004); branding studies (Merz et al. 2009); marketing studies (Grönroos 1984; Vargo and Lusch 2004); marketing solutions studies (Cova and Salle 2008; Aarikka-Stenroos and Jaakkola 2012); and project studies (Smyth 2015; Fuentes et al. 2019). For example, Chesbrough (2003) has explored how external actors in the production process can be considered as a source of strategic value. The author explores how the silo mentality of creating value independently negatively affects the performance of the system in the long-term. As a solution, the author explored how the Taiwan Semiconductor Manufacturing Corporation (TSMC) enterprise co-tests the designs early in the process to avoid malfunctioning during operations.

Value co-creation can be referred to as an interactive process, which aims to enhance the functionality of the value outcomes for the long-term (Grönroos 2011). A key focus in the process of co-creation is to look at value from the perspective of the actors who make use of the service, such as the client organisation, and end-users, from a B2B context.

The concept of value co-creation has strong roots in the marketing and strategic management discipline. The concept is influenced by concepts previously introduced in management, such as co-production, agile production, co-creation experiences, and value constellations (Grönroos 1984; Normann and Ramirez 1993; Gummesson 1994; Ramirez 1999; Prahalad and Ramaswamy 2004). For example, Normann and Ramirez (1993) explored how the constellations of actors in a supply network can co-create value during the process of production. In particular, the authors mentioned that knowledge and relationship are at the heart of the co-creation of value. Other authors, for example, Prahalad and Ramaswamy (2004) created a general set of four building blocks for co-creating value: transparency, dialogue, access, and, benefits and risk. While Prahalad and Ramaswamy (2004) have been criticised for being normative, they started to map out the process of co-creation of value. Prahalad and Ramaswamy (2004) questioned the allocation of benefits in the process of co-creation. Theoretically, they suggested that power asymmetry might be present during this process, yet no evidence was provided.

Value co-creation has been connected with the literature of collaboration. However, these concepts have been used (narrowly) interchangeable (Lush et al. 2007). The process of value co-creation needs interaction at the heart of the process. This interaction (and the process of co-creation) can be enhanced by collaboration, yet collaboration per se might not lead to the co-creation of value outcomes (Fuentes et al. 2019).

Key discussions on value co-creation started to emerge particularly in the marketing and service-related literature (cf. Della Corte and Del Gaudio 2014; Wilden et al. 2017). Two competing ideas were found. The first perspective comes from Vargo and Lusch (2004; 2016), using the SDL framework, which considers that co-creation of value occurs at all times and spaces. For example, they argue that people co-create value on a daily basis with their language, symbols, rules and norms. This perspective, in the project context, suggests that a project is fully co-created across the project life cycle. However, this perspective might not be considered as realistic in projects because not all collaborative actions in a project lead to co-creating value for the long-term. Grönroos (2017) criticises this all-encompassing process of co-creation as it then may become meaningless in (project) undertakings. In this manner, Vargo and Lusch’s all-encompassing perspective (2004; 2016) might be positioned as a buzzword, rather a strategic management action (O’Shaughnessy and O’Shaughnessy 2009). In contrast, Grönroos (1984; 2011) takes a strategic approach and argues that value is co-created only through direct interaction. For example, Grönroos (2011) shows a process that when the supplier and a customer interact, they together form a platform of co-creation, where they can share valuable knowledge and expertise. These two perspectives might be seen one as a macro-level (Vargo and Lusch 2016) and the other as a micro-level perspective (Grönroos 2011). This project considers the perspective from Grönroos (2011) as strategic and aligned to project settings in the micro-level. Thus, direct interactions are considered at the heart of the co-creation process for this research.

The concept of value co-creation has been revised across the years (Vargo and Lusch 2004; 2008; 2016). The first version was published in 2004. This version helped to gain momentum across the literature of marketing (Vargo and Lusch in 2004). However, this revision was widely criticised for many reasons. For example, researchers in the marketing (Echeverri and Skålén 2011; Chowdhury et al. 2016; Prior and Marcos-Cuevas 2016; Plé 2017) argue that the concept of value co-creation has been rooted in positive terms from its origins. Echeverri and Skålén (2011) explored how actors in the public transport system co-destroy value due to ignorance of the transport procedures and routines. This shows that value can either be co-created or co-destroyed.

In addition to this, O'Shaughnessy and O'Shaughnessy (2009) argue that the concept presented by Vargo and Lusch is largely normative and prescriptive. To close the gap between theory and practice, empirical studies could evidence what types of management actions can co-create value. Across the management literature, the modern home of value is on the marketing and service-related literature, under the theoretical constructs of SDL (Vargo and Lusch 2004; Grönroos and Voima 2013; Wilden et al. 2017). While the value co-creation concept has been widely discussed in SDL, the concept remains largely theoretical and little empirical evidence has been provided. Thus, some researchers have used this lack of empirical evidence to question whether the concept of value co-creation can be operationalised in practice (O'Shaughnessy and O'Shaughnessy 2009; Wright and Russell 2012; Della Corte and Del Gaudio 2014).

These critiques promoted the development of the concept. For example, Ballantyne and Varey (2006) explored the dynamics of dialogical interaction and how it could lead to constant learning. Similarly, Payne et al. (2008) explored the micro-dynamics on how to manage the co-creation of value. They found that human aspects, such as cognition, effect and behaviour are closely associated when co-creating value. These developments started to show that value at the micro-level was not sufficiently understood. Leroy et al. (2013), for example, criticised the key promoters of SDL (Vargo and Lusch 2004; 2008) for trying to black box the concept of value in the micro-level, particular as evidence was showing new elements coming out from the analysis at the micro-level. Recently, researchers have presented models (cf. Storbacka et al. 2016; Foss and Pedersen 2016), which might be used to explore the micro-level aspects in a finer look. To date, one of the key weaknesses of this literature is the lack of evidence and challenges to the theoretical constructs of value, particularly from the micro-level.

Another key critique in the first version of value co-creation (Vargo and Lusch 2014) was that most of the concepts were highly rooted in Business-to-Consumer interactions. For example, one of the key premises in the SDL first revision was that the customer is always a co-producer. Yet, in projects, multiple stakeholders work in a single project, thus there could be multiple customers (e.g. supply chain tiers). The most recent revision of SDL (Vargo and Lusch 2016) has broken free of these initial forms of interactions and now considered all stakeholders as actors, rather than assigning them a role such as a supplier and customer.

One of the key critiques to value co-creation came with Edvardsson et al. (2011). They explored how the social system influenced the co-creation of value. The authors argued that most of the studies in value co-creation disregarded the forces from the social system. In a later revision of SDL (Vargo and Lusch 2016), the role of institutions was introduced.

The research on co-creation started to gain momentum and started to influence other disciplines. Empirical investigation started to rise across management. For example, in the literature of solutions, Aarikka-Stenroos and Jaakkola (2011) created a set of roles on how value co-creation could be carried out in the context of knowledge-intensive business services. For example, Aarikka-Stenroos and Jaakkola S(2011) found different roles customers could play in a business, such as co-diagnoser, co-designer, and co-marketer. Other researchers started to create organisational capabilities, as part of a business model strategy (Karpen et al. 2012). For example, Table 2.6 presents a set of capabilities for co-creating value, which have been applied in the context project (yet they have remained largely conceptual).

One key aspect to reflect is on the temporality/temporariness of people on projects (Söderlund 2013). Across the literature of marketing it is assumed that the people remained as part of the co-creation process, yet projects and people are both temporal, which create a more complex situation as the professionals working on the front-end stage might be completely different to people working on the operations. In particular, megaprojects may take years to complete so the process of value co-creation is more fragmented in projects that in the marketing settings.

Value co-creation capabilities	
Generic Co-creation Capability	**Comments for the project context**
Individuated Interaction Capability	The process of soliciting knowledge and understanding what the client wants at a generic level, with the flexibility to tailor the services and customise the content to maximise the potential for value co-creation.
Relational Interaction Capability	Ability to respond to client and stakeholder wishes in the design process, in procurement and contractual terms, supported by proactive relationship management processes.
Ethical Interaction Capability	Application of a client-orientated focus tempered by business acumen to satisfy corporate social responsibility, the triple bottom line, and the moral economy.
Empowered Interaction Capability	Facilitating responsibility in teams, supporting actions, and aligning processes in accordance with the requirements.
Developmental Interaction Capability	Developing programmes and codes of conduct to facilitate interaction and advise other parties of the primary associate protocols.
Concerted Interaction Capability	Synchronise processes and actions so they are aligned with customer processes and protocols as part of the service design co-creation.
Learning Capability	Facilitating the generation of competencies and to absorbing lessons from the learning around the requirements for adaptive absorption and delivery.

Table 2.6. Value co-creation capabilities for the project context (Source: Developed and adapted from Karpen et al. 2012; influence by Davies and Hobday 2005; Smyth 2015; taken from Fuentes and Smyth 2016).

2.8.1 Recent developments of co-creation of value within SDL

Key recent conceptual developments have emerged within the last years concerning SDL and value co-creation, in particular, service ecosystems and institutions; the actor engagement during the co-creation process; and the connection with innovation and business models; and more recently the role of technology in the co-creation of value.

Another key development around the co-creation of value is the macro-level: service ecosystem. A service ecosystem is defined by (Vargo and Lusch 2016, p. 11) as "*relatively self-contained self-adjusting systems of resource-integrating actors connected by shared institutional arrangements and mutual value creation through service exchange*". In this view, the role of institutions and social norms are more evident in the process of co-creation (cf. North 1990; Scott 2014). This contrast the first editions in SDL, where the process of co-creation is considered only between the customer and supplier. One key aspect in this recent exploration of the service ecosystem is how innovation emerges (Vargo et al. 2015; Wieland et al. 2016). For example, Ekman et al. (2019) explored the service ecosystem approach in the context of smart cities and provided evidence of beneficial outcomes when multiple stakeholders interact in the market. This may help to innovate existing services.

Research in projects has shown that innovation is low (cf. Winch 1998; Ozorhon et al. 2014), thus the ecosystem view might help innovation to emerge in the project market. Probably, the literature of service innovation could be further combined with the service ecosystem view (cf. Lusch and Nambisan 2015; Pohlmann and Kaartemo 2017), yet empirical studies on service innovation with the SDL arena are quite limited (Ballantyne et al. 2011). Thus, there is further work to be done around this area, as most of the studies around service innovation are conceptual models (cf. Paswan et al. 2009; Patrício et al. 2018).

While the concept of service ecosystem is relevant in the macro-level, and it fits in the context for example of mega-projects, the process of co-creation in the micro-level needs further development before setting foundations for the macro-level. One key concept related to innovation is the business models (cf. Zott et al. 2011; Teece 2018). While there has been recent work around this area trying to connect the creation of value with the capture of value (Wieland et al. 2016), much of the workaround this has been conceptual, rather than empirical. Thus, there is a need to understand the allocation of financial benefits in the process of co-creation, as well as the revenue and profit generation (Smyth 2016).

Another key development in the recent years around the co-creation of value is the actor engagement (Kumar and Pansari 2016; Alexander et al. 2018; Jonas et al. 2018; Brodie et al. 2019; Storbacka 2019). A key paper for future exploration comes from Storbacka et al. (2016). They have created a model of micro-level engagement. In this micro-level, researchers (Hollebeek 2011; Kumar and Pansari 2016; Brodie et al. 2019) have evidenced that not all actors have the disposition, adequate behaviour and emotional engagement in the process of co-creation. Furthermore, while engagement might occur, the common goal might not be aligned (Jonas et al. 2018), thus it might not lead to the co-creation of value outcomes. Recently, SDL researchers have been (conceptually) working on the agent-based model of emergence. However, the majority of this recent research stream is yet too conceptual. Some of these advancements are promising, yet there is a need to provide evidence of what works in the management of projects.

The role of technology has been increasingly taken into account in the co-creation of value (Kaartemo and Helkkula 2018; Vargo 2018; Russo-Spena et al. 2019). In a light form technology, for example, the role of social media (such as Facebook, Twitter and other online platforms) has started to play a role in the co-creation of value (cf. Swarts et al. 2016; Amitrano et al. 2018). In projects, for example, social media has been off the radar (Smyth et al. 2016). Thus, recent research in SDL is considering technology as an operant resource (Akaka and Vargo 2014), which aims to facilitate the process of co-creation.

In a seminal paper, Orlikowsky (1992) argues that technology plays a dual role within and outside organisation (as an operant and operand resource in terms of SDL). Akaka et al. (2016) point out technologies may shape not only the co-creation process but also the market itself. New trends of technology such as blockchain, artificial intelligence, machine learning, and cognitive computing have started to influence the way organisations offer products and services (Kolbjørnsrud et al. 2016). These technologies will at some point redefine management in the future (Schreck et al. 2018; Morse 2020). For example, Russo-Spena et al. (2019) explore how Artificial Intelligence allows co-creation among human and non-human actors to design future service scenarios. While this work acknowledges technology as an operant resource, complex forms of technology such as blockchain, artificial intelligence, machine learning, and cognitive computing are out of the scope of this research, specially as it may deviate the attention to the key focus on this work, which are the face-to-to interactions at the project level. This may create a difference among other studies in SDL that may take technology as the core of the research. In addition to this, this work considers that people are the main source of strategic value. Future research on co-creation may focus on how new trends of technology may allow and improve the co-creation of value beyond the human aspects. This work may then differ from future works of value co-creation that make take both human and technology as parallel sources of value.

As a form of summary from the above sections, a helicopter view of the developments of value co-creation is presented in Figure 2.3.

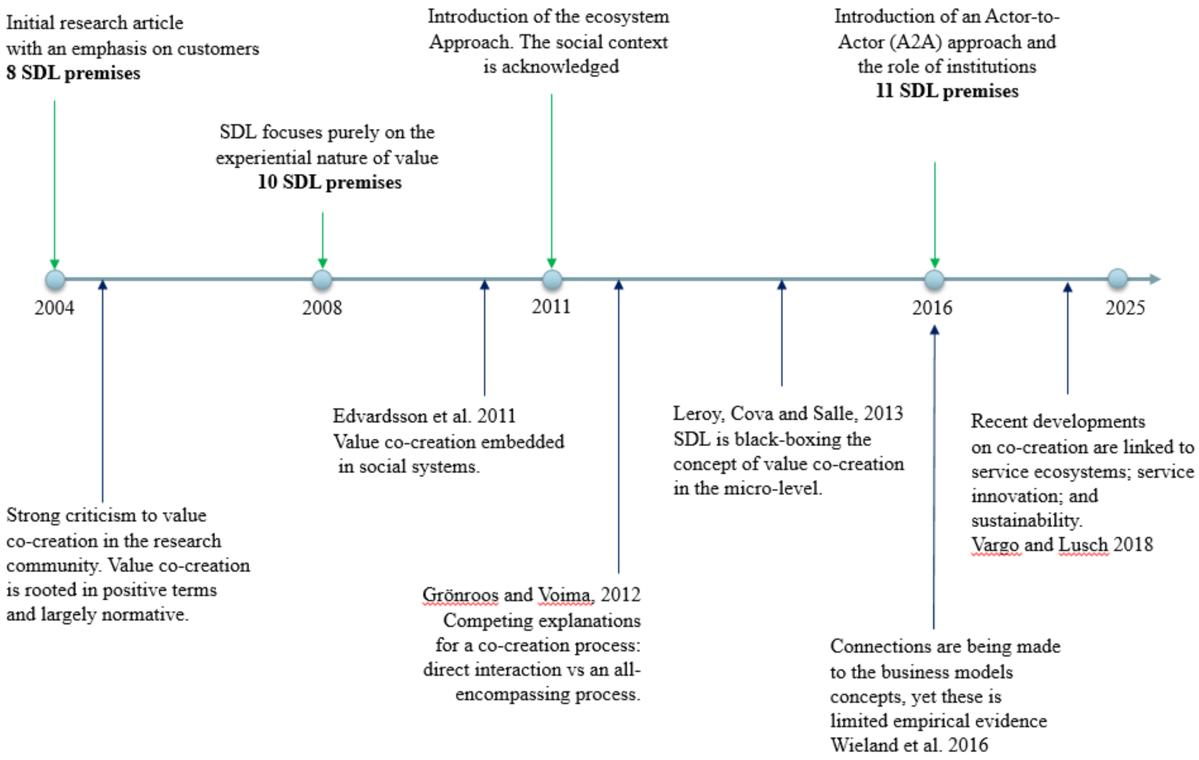

Initial research article
with an emphasis on customers
8 SDL premises
SDL focuses purely on the
experiential nature of value
10 SDL premises
Introduction of the ecosystem
Approach. The social context
is acknowledged
Introduction of an Actor-to-
Actor (A2A) approach and
the role of institutions
11 SDL premises
2004
2008
2011
2016
2025
Strong criticism to value
co-creation in the research
community. Value co-creation
is rooted in positive terms
and largely normative.
Edvardsson et al. 2011
Value co-creation embedded
in social systems.
Grönroos and Voima, 2012
Competing explanations
for a co-creation process:
direct interaction vs an all-
encompassing process.
Leroy, Cova and Salle, 2013
SDL is black-boxing the
concept of value co-creation
in the micro-level.
Connections are being made
to the business models
concepts, yet these is
limited empirical evidence
Wieland et al. 2016
Recent developments
on co-creation are linked to
service ecosystems; service
innovation; and
sustainability.
Vargo and Lusch 2018

Figure 2.3. Historical development of the value co-creation concept in SDL
(Source: Author’s own).

Figure 2.3 shows that the concept has evolved across the years. While it started rooted in B2C settings in 2004, it has now moved into service ecosystems in recent years, where multiple actors co-create value. Figure 2.3 also shows that a timeline until 2025. Lusch and Vargo in 2017 have set up a plan for future work, in which new areas could be included such as complex technologies, cognitive computing, macromarketing, ethics, sustainability, as well as public policy. While these topics are out of the scope of this literature review, future works will start to emerge around these topics to address the agenda. Lusch and Vargo (2017) believe that most of this work may yield the foundations of a new theory of the market in future years. Yet, before a new theory of the market emerges, this thesis shows that empirical evidence and testing are needed around most of the aspects of SDL.

Overall, this section shows the investigation that has been presented in the marketing and service-related areas. This study now explores project settings, where the concept of co-creation is examined. The following section, then, explore how value co-creation has been addressed in project settings.

2.8.2 The co-creation of value in project settings

The service-related and project literature, while they are part of the overall management, they present major differences. Some researchers have strongly criticised the service-related literature and argue these service concepts need careful translation into project settings (Leiringer and Bröchner 2010). One key aspect, around the translation from service-related literature to project settings, is that the literature of co-creation across the service-related literature is highly rooted in high volume products and services (Leon and Davies 2008). This suggests that most of the constructs around the service-related literature have been written for repetitive solutions (Davies and Hobday 2004), such as for McDonald's type organisations, where there is only one type of customer. This does not suggest invalidation for project settings; however, it does need translation in project settings. In addition to this, it is vital to understand what elements from this marketing and service-related literature can be applied in the context of projects. For example, Leiringer and Bröchner (2010, p. 1124) argue that *"it is not immediately obvious which aspects of the manufacturers-moving-into-service[s] literature are relevant, and it would be foolhardy to suggest that the construction [and the project] sector [in general] should simply follow established trends elsewhere".*

Both in the literature of marketing and projects, it is unclear what triggers a process of value co-creation in projects. The project literature suggests that complexity and uncertainty elements might trigger the initial need to co-create value (Luotola et al. 2017). In addition to this, actors may use the process of co-creation to search for the quickest way short-term to secure outcomes that brings the project in on-time and cost, even if it is at the expense of outcome.

Another key differentiating characteristic between the service vs project literature is that the majority of the research in marketing and service-related literature is rooted in the Business-to-Consumer settings. This in contrast to project settings, where multiple actors might interact along the project life cycle. In projects, for example, Business-to-Business settings are the basis of exchange. This suggests that at least three actors are involved: the client organisation, supplier organisation and a user.

The concept of value co-creation fits well in project settings, as it may enable a project-organisation to achieve their strategic goals (Laursen and Svejvig 2016; Keeys and Huemann 2017). Three key reasons the concept of co-creation in project settings is crucial. Firstly, because it promotes the use of the social environment and context where the project is embedded (Engwall 2003). This suggests that one organisation is not the sole creator of value across the entire project life cycle. Secondly, project research and practice have widely considered that value is created primarily by the supply-chain tiers (Porter 1985; Davies 2004). In contrast, the concept of value co-creation considers all actors as active sources of value (Huemann and Zuchi 2014). Thus, the concept considers, other relevant actors, such as end-users and the overall recipients of value, as active co-creators of value. Akaka et al. (2013), for example, argue that business competitors may be part of the process of value co-creation, yet the allocation of benefits, and the risk involved have not been addressed in the co-creation literature. Thirdly, many projects often fail to meet mandatory objectives from the eyes of the recipients of value, such as the end-users. In SDL, the concept of co-creation rotates from the perspective of the client organisation, thus it places more emphasis on the realisation of value for the long-term for the client.

The exploration of the project literature regarding co-creation has resulted in three main avenues of research. The first exploration of value co-creation is in the micro-level (cf. Aarikka-Stenroos and Jaakkola 2012; Jacobsson and Roth 2014; Hellström et al. 2016; Luotola et al. 2017). For example, Luotola et al. (2017) explored how value co-creation occurs during the negotiation stage of a contract. The study explored how value co-creation helps in reaching certainty in problem-solving situations. Moreover, Jacobsson and Roth (2014) explored projects as engagement platforms using the blocks of co-creation set by Prahalad and Ramaswamy (2004).

The authors argued that a move to a co-creation approach requires changes in the working practices from the key-value co-creators. However, the concept of value co-creation in the micro-level (project level) has not been fully explored. For example, it is unclear how actors co-create value across the project life cycle (Grönroos 2011). Thus, this research continues the exploration of the micro-level foundations of value (Leroy et al. 2013; Storbacka et al.

2016; Foss and Pedersen 2016), but within project research. In particular, this research will provide strategic management actions to co-create value across the project life cycle.

The second stream of exploration of value in projects is in the macro-level. For example, Cova and Salle in 2008 explored and identified a process by which suppliers can co-create value using the customer's network. Furthermore, Chang et al. (2013), for example, explored how co-creation might have implications in the macro-level, such as the national level. The authors showed how a national defence-capability needs addressing by relevant stakeholders over time, as emergent requirements might need to be incorporated. The macro-level aspects of value are out of the scope of this research. Instead, this research may provide foundations for the micro-level. However, researchers working on mega-projects could highly benefit from the ecosystem view (see Lehtinen et al. 2019). One particular aspect within the ecosystem view is the role of social context (Vargo and Lusch 2016). While recent revisions of value co-creation have taken into consideration the context of the value outcomes, there is little evidence on how the social context is influencing the process (Edvardsson et al. 2011).

Thirdly, some researchers have explored the implications of value in the long-term. (cf. Mills and Razmdoost 2016; Fuentes and Smyth 2016; Smyth et al. 2018; Smyth 2018; Fuentes 2019). For example, Mills and Razmdoost (2016) show that a co-destruction of value is created when there is an asymmetry of expectations. Furthermore, Fuentes (2019) shows how experiential value can be destroyed when the design of the value outcomes is disregarded at the front-end of projects. The focus on the implications of value creation in the project remains largely financial and operational (Zerjav et al. 2018). Yet, other researchers (see Martinsuo and Killen 2014) have considered that value may have environmental implications. This research explores different types of value outcomes that emerge in the medium-and long-term. In addition to this, the implication of the co-creation of value is not always positive. Thus, there is a need to explore the concept of co-creation critically, by adding the dimension of value co-destruction (Echeverri and Skålén 2011; Plé 2017).

Overall, scant research has been conducted on the positive and negative implication of value co-creation and co-destruction in the medium- and long-term (see Smyth et al. 2018). This research will explore both the negative and positive implications of the this type of process.

As a form of a summary, Table 2.7 presents key studies of co-creation in projects, which have been identified as key in the project-related literature.

One key finding from Table 2.7 is that the concept of value co-creation needs mobilisation and operationalisation across the industry sectors. From the analysis, little evidence has been provided on how value co-creation is addressed within real-settings. To date, research is focused to understand the process, but not how it could be mobilised. To theoretically close this gap, the service design (thinking), which is mostly rooted in practical applications could be used to align the theory and practice of the co-creation of value.

In projects, limited evidence is found using the service design thinking (see Hellström et al. 2016; Luotola et al. 2017). However, service design may help to connect co-creation theory and practice (see Romme 2003; Patrıcio et al. 2011; Kimbell 2011; Wetter-Edman et al. 2014). Hence, the following section will explore the concepts of service design in the context of co-creation.

Key empirical studies using co-creation lenses				
Authors	**Context**	**Methods**	**Discipline**	**Key empirical contribution**
Cova and Salle (2008)	Application of a co-creation lens to understand the transition from products to service.	Qualitative research through two case studies	Industrial Marketing Management	Identification of a process to co-create value between the supplier's networks with the customer's networks, linked through the value proposition in B2B strategies.
Aarikka-Stenroos and Jaakkola (2012)	Application of a co-creation lens to understand the activities and resource exchange between buyers and suppliers in co-problem solving situations.	Qualitative research through an intense interviewing process	Industrial Marketing Management	Identification of specific roles assigned to suppliers and customers, as well as the critical resources they need to facilitate the co-problem solving process.
Chang et al. (2013)	Conceptualising projects as a process of value (co-)creation in the long-term.	Qualitative research through three case studies	Infrastructure Project Management	Findings highlight the importance of stakeholder engagement to balance the needs and other contextual forces in the co-creation process. They also argue that project success needs broadening to consider the value created and captured.
Liu et al. (2014)	Application of a co-creation lens between the client and the contractor at the front-end of a project.	Qualitative research on a single case study	Infrastructure Project Management	Findings indicate that external actors may exchange valuable resources, e.g. knowledge and expertise at the front-end to provide a common grounding in the decision-making process.
Jacobsson and Roth (2014)	Exploration of a partnering project to understand how a co-creation lens may influence the production focus.	Qualitative research on a single case study	Construction Project Management	Findings show that interactions may create an engagement platform, which may enhance dialogue, access and risk assessments. However, a shift in the mindset of practitioners needs to occur to make this platform work.

Mills and Razmdoost (2016)	Application of a co-creation lens to explore the relationships and the value formation process.	Qualitative research on a longitudinal study	Construction Project Management	Evidence highlights that value co-creation is highly linked with positive aspects. However, the mismanagement of the relationship and expectations may create a co-destruction of value, negatively affecting project resources.
Smyth et al. (2017)	Application of a co-creation lens to examine project value beyond the traditional input and output performance.	Single and interpretive case study based on secondary data	Infrastructure Project Management	Findings indicate that long-term implications are overlooked in the decision-making process at the front-end, which is focused upon the traditional project success criteria: time-cost-quality/scope.
Luotola et al. (2017)	An exploration of a co-creation lens, combined with design thinking, in a selling process.	Action-research	Industrial Marketing Management	Findings show that the co-creation process plays a key role in reaching certainty, particularly for problems during the negotiations handled at the front-end stage.

Table 2.7. Key empirical studies using co-creation lenses linked to project contexts (Source: Taken from Fuentes et al. 2019).

2.8.3 Mobilisation of the value co-creation concept through Service Design

Value co-creation has remained largely conceptual across the years. The SDL premises presented by Vargo and Lusch (see Table 2.5) provide scant evidence as to how they are mobilised and operationalised in practice. One new discipline has emerged outside the boundaries of Service-Dominant Logic: the Service Design (see Romme 2003; Patrıcio et al. 2011; Kimbell 2011, Wetter-Edman et al. 2014). Service Design is closely linked with the new development service model concept (Edvardsson et al. 2000), where the outcomes of service are initially designed at the beginning of a project. Service Science is considered as as the modern discipline of Service Design. This has been scantly applied in projects.

Traditionally, the concepts of (service) design are focused on the creation and development of a product, rather than on the holistic view of the service rendered by that product (Zomerdijk and Voss 2010). New conceptualisations of design referred more as *"as the activity of changing existing situations into desired ones"* (Romme 2003, p. 562). In this new wave, designers pay considerable attention to the experience and the artefact in-use, while in the past, designers were concerned about the artefact and its physical features (Mager 2009).

Spohrer et al. (2007) argue that the design of a service system, which is defined as the configuration of the systems, processes, capabilities and human resources, may provide an opportunity for the organisation to orchestrate the co-creation of value with multiple stakeholders. Many researchers have argued (cf. Pine and Gilmore 1998; Verhoef et al. 2009) that the design of service and customer experience may be a great market differentiator.

This study sees service design with the potential to shape the project execution as a service experience outcome (Hellström et al. 2016); the realisation of service in the medium-term (Thrift 2008), and during the post-completion as value of the project in use (Smyth 2015).

The literature of co-creation is highly rooted in conceptual terms, yet Service Design is rooted in practical tools. This combination between both sides can operationalise the concept of value co-creation. In projects, Razmdoost and Smyth (2015) argue that projects need management actions, such as value imagination, at the front-end of a project, in order to design and configure the service experience.

Practical applications started to appear in the literature of service design in order to address the experiential outcomes by mapping relevant encounters and interfaces among key players in the overall service system (Patrício et al. 2011). Some key applications have emerged in the literature to design products and services. A key application of service design is the blueprinting technique (Shostack 1984), which aims to map and visualise the most relevant activities between the provider and the customer. This technique enables the visualisation of service from the supplier point of view. In this manner, suppliers can explore how to orchestrate their current capabilities in order to provide a valuable service. These tools may also help in exposing fail points and weaknesses of an organisation during the service delivery.

Other techniques, for example, the ‘touch-points’ enable organisations to explore in-depth the interactions between the service and the customer (Clatworthy 2011, p.15). The combination of all touch-points across a project life cycle may create a customer journey in a project setting (Clatworthy 2011; Erin and Flowers 2016), which may allow one organisation to map the all experiences of a service from a customer perspective. These tools may work together, rather in isolation, to map a service from both the provider and the customer perspective.

Other design techniques have also addressed the built environment around the service. For example, the servicescapes use the facilities and physical environment to provide a positive effect on a given service for the customers (Lee 2011; Bitner 1992). For example, in a health service, the waiting area might be improved to provide better comfort to patients while they are waiting for the service. This may lead to improve the customer service experience (Lee 2011). This suggests that the orchestration of the relational messages or clues are important to offer a superior service experience (Zomerdijk and Voss 2010). Other intangible aspects, such as brand reputation, can be enhanced if the service experience is adequately addressed during the initial stage of a project (Berry 2000; Keh and Xie 2009). To map the service in more complex systems, such as megaprojects, other applications could be used. For example, the Multi-Level Service Design (MSD) takes a broader view of service (cf. Patrício et al. 2011; Teixeira et al. 2012).

One key weakness from the service tools presented above is that these are rooted for Business-to-Consumer settings, thus they are unable to capture the service interactions in more complex service systems (Patrício et al. 2011). For example, in project settings, many of the basic interactions are B2C settings, thus an adequate translation of these tools are needed for project settings.

To date, limited applications of design thinking practices are found in projects (Razmdoost and Smyth 2015; Smyth et al. 2019; Duryan and Smyth 2019; Fuentes 2019). For example, Duryan and Smyth (2019) have explored how supply chain actors share knowledge across projects. The authors stressed that service design thinking may aid project practitioners to accommodate knowledge practices and management across the portfolio of projects. One key task in this thesis is to start closing this gap by mobilising some of the concepts of service design into the context of projects.

Overall, further operationalisation of service design techniques is highly required in across all sectors, particularly as project teams constantly fail to design the service experience and the overall project value outcomes. In particular, this research further explores the application of the blueprint (Shostack 1984) and the customer journey (Erin and Flowers 2016), in the context of a project.

2.9 Chapter summary

Project research has shown that projects often fail to address the medium- and long-term outcomes (Smyth 2018). Thus, there is a need to understand how these outcomes can be designed and configured across the project life cycle. The key research question on this research is to explore how value outcomes could be co-created across the project setting. This chapter provides an underpinning to this key research question.

The chapter has presented a critical review of the concept of value and value co-creation for both the wider management literature and for projects. The analysis of the literature shows that marketing and service-related literature is the modern home of the concept of value co-creation. One key characteristic of value creation within the literature of marketing is that value is examined from the perspective of the client organisation (Vargo and Lusch 2016), rather from the perspective of the supplier organisation (cf. Porter 1985; Davies and Hobday 2005). This alternative perspective may ensure that outcomes are valuable to the stakeholder who may use the service.

The chapter presents a deep examination of SDL framework, which is to date the most extensive and robust framework to analyse the concept of value creation. For this reason, this research explores how value outcomes are being co-created in the micro-level (project level).

The next chapter is the research design, where a theoretical framework is presented. The theoretical framework has been influenced based upon the conceptual analysis of this chapter and both provide the foundations for this research.

CHAPTER 3: RESEARCH DESIGN - METHODOLOGY AND METHODS

This chapter aims to provide comprehensive and detailed information on the research design. It covers how this research has been undertaken and the principles behind this research. Thus, this chapter covers both the research methodology and the methods of data collection. In addition to this, the chapter provides key information on the two public client organisations used in this study, as well as the information on the six case study projects. One key aspect of this chapter is the presentation of the theoretical framework used for this study. A detailed description of the process of data analysis has been presented, which might be used for future replications. Overall, the chapter provides key information on the research design.

3.1 Theoretical context of this study

This section aims to link the research design with the main purpose of the research. In the literature review, it was explored different aspects around the co-creation of value concerning the key research question. Overall, the literature review chapter argues that in the past, actors outside traditional value chains were considered simply as consumers, hence destroyers of value (cf. Porter 1985; Vargo and Lusch 2004). Yet, and in contrast, the reasoning behind the co-creation of value (Vargo and Lusch 2004; Grönroos 2011) is to mobilise relevant resources within and among organisations, including the end-users, supplier and client organisations to improve the value outcomes in the long-term. The mobilisation of these resources, particularly during the project front-end stage may: (1) ensure future benefits to the client business; (2) avoid delivering scarce value or destroying value. After the front-end stage, value could still be finessed through flexible collaboration (Levitt 2011), to provide customer delight (Pryke 2017).

Several authors in the project research (Morris 2013; Artto et al. 2016; Matinheikki et al. 2016; Smyth et al. 2018) argue about the importance of providing key avenues to enhance value for the client organisation. Most of the literature around value co-creation is still at a conceptual level (Smyth 2015). Therefore, this study explores the process as to how value outcomes can be co-created across the project life cycle (cf. Vargo and Lusch 2016; Grönroos 2017).

The investigation goes on to employ a critical realist approach (Morris and Smyth 2007), to provide challenges to the concept and practicality of value co-creation. The reasoning behind this is that the dynamics may differ from the marketing, and service-related concepts to the project settings. Overall, the key purpose of this research is to contribute to the literature of projects, by analysing new avenues to create and deliver valuable outcomes. This is being done by using the theoretical lens of Service-Dominant Logic, which is to date, the most relevant framework to analyse value outcomes (Smyth 2018).

3.2 Research design

The research design refers to the main strategy employed to ensure all research components are coherently linked to addressing the research problem. Creswell (2003) establishes that a research design may contain three key components: (1) the epistemology, which is the philosophical underpinnings behind the research; (2) the research methodology, which is the systematic manner of undertaking research; (3) the practical methods of data collection and data analysis. This section aims to interconnect these three components to address this research.

3.2.1 Research methodology and philosophical underpinnings

Research methodology has been defined by Smyth and Morris (2007, p. 424) as a *"system about how we go about something, in this case research. Research methodology is located in the philosophy of how we come to know things, that is, epistemology*".

Developing new knowledge in any discipline requires a methodological and philosophical underpinning. Saunders et al. (2009) argue that four main philosophical conceptions may be used for business research: (1) the positivist paradigm; (2) the interpretivist paradigm; (3) the pragmatism; (4) the realist paradigm. Each of them provides both strengths and weaknesses in research. For example, this research is taking into consideration the realist paradigm because philosophers claim that this approach provides stronger explanations of the social reality as compared to other paradigms (Danermark et al. 2002; Wuisman 2005; Bhaskar 2008). A short critical review of the other paradigms is addressed below to provide valid justification.

Firstly, the positivist paradigm argues that facts, frequently based on numbers and measurements, are the only way to interpret the world in an objective and scientific manner. The positivist paradigm considers reality as a single, tangible, and measurable entity (Lincoln and Guba 1985). In this view, the reality is governed by exact laws, where theories may aid to determine reality. Yet, the positivism largely ignores the context around the phenomenon. In addition to this, it does not consider the agency from the stakeholders involved in a project (Creswell 2003).

The positivism paradigm goes in contrast to recent conceptualisations of value co-creation, which considers that the social context highly influences the co-creation of value (Edvardsson et al. 2011). While value has been historically measured in terms of monetary measurements or value-in-exchange (Smith 1776; Porter 1985), according to Vargo and Lusch (2016, p. 4), "*value is always uniquely and phenomenologically determined".* Therefore, value needs to be explored beyond the value-in-exchange elements, dominated by the positivist paradigm.

The second paradigm is interpretivism. In this philosophical view, humans and their experiences, are the main source for understanding reality. This paradigm considers that social reality can be observable through events, from which results can be generalised for populations (cf. Denzin and Lincoln 2011; Yin 2017). This type of simple generalisation has been criticised in the literature for its superficiality. For example, Danermark et al. (2002) argue that events are experienced and observed on an empirical and superficial level. But, those are triggered by a causal generative process and from a structure with enduring properties at a deeper level of reality. Therefore, a deeper layer of reality needs to be explored to understand the reality of any phenomenon.

An alternative view of the interpretivism paradigm is critical realism (CR). This paradigm was developed as an innovative way of approaching reality, which is concerned with neither the particular nor the general, instead, CR creates strong explanations about a particular phenomenon (Smyth and Morris 2007). In this CR, the observable empirical events are influenced by the powers, liabilities and other contextual aspects, which influence the outcome of a project (Sayer 2000). In this manner, a critical realism perspective explores the outcomes as an open and layered system rather than as a closed system.

This research has undertaken a critical realism (CR) perspective to explore different ontological domains of reality to understand the nature of events (Bhaskar 2008), and its root causes (Wuisman 2005; Smyth and Morris 2007; Isaksen 2016).

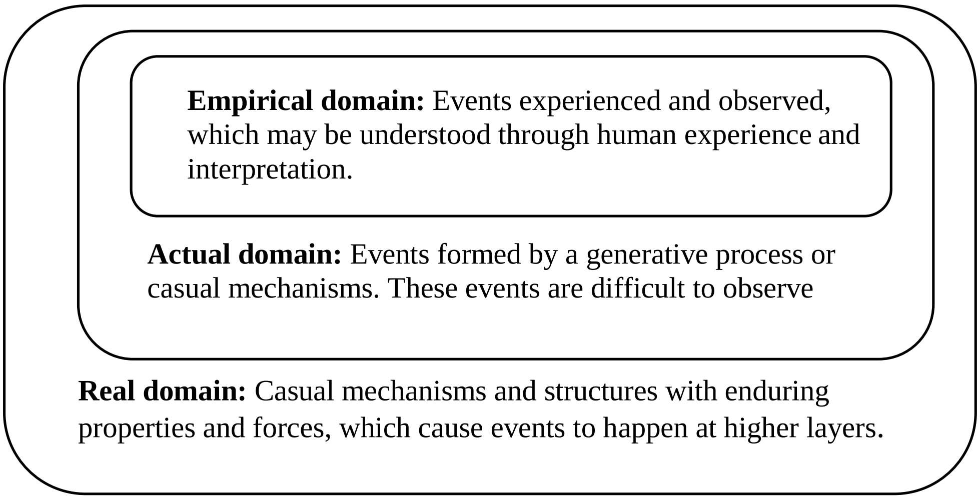
3.2.2 Forms in inference in social science

Inference can be referred to as the logical steps taken to arrive at a point understating of the reality (Creswell 2003). According to Wuisman (2005) three forms of inference can be used in social science research: (1) deduction, which is used to explain empirical data based on a predetermined theoretical hypothesis. In this form of inference, rules are taken for granted for the examination of observations. This form of inference is used primarily, within the positivist approach, where hypotheses are tested and verified, assuming that the reality can be read through one particular theoretical lens; (2) induction, which is used to infer propositions from the empirical data; in this form of inference, the observations in the empirical domain are transformed into generalisable rules or theory building. This form of inference is used in the interpretivism paradigm; (3) abduction; which is a form of inference to provide strong explanations of a phenomenon, considering the social context and its forces as a key influence to the problem under investigation.

The abductive reasoning is connected with the CR (Bhaskar 2008). Using this form of inference, a researcher can understand and explain the events experienced and observed in the empirical level, but at a deeper level of reality. These deeper events are triggered by a generative process and causal mechanisms coming from the actual and real domains. These generative process and causal mechanisms and have structures with enduring properties and forces that make events occur in the higher levels of reality, as represented in Figure 3.1.

In Figure 3.1, three levels of reality can be seen. The first level shows the events experienced at a superficial level. Humans can observe those, but the root cause of these events may be hidden in a deeper reality: real domain. Using abductive reasoning, a researcher can oscillate between these domains and arrive at an explanation of the phenomenon in place. CR does not search to either generalise or find particular, as compared to other approaches but to provide powerful explanations (Smyth and Morris 2007). Some researchers (Sayer 2004; Bhaskar 2008; Isaksen 2016) argue that induction and deduction as a form of inference may provide less valid explanations of reality. Thus, this research takes into account the third form inference: abduction.

For example, in the data coming from a case study (number one) in this research, it shows that in the empirical level, one supplier organisation was unwilling to co-create value with the client organisation during a public meeting. From an empirical domain, it can be said that suppliers are sometimes unwilling to collaborate. Yet, when looking at the deeper level of reality, the supplier did not want to disclose their business model and unique characteristics of service in front of its competitors because competitors could then copy-cat its solutions, resulting in a disadvantage for the future bidding processes. This shows that the real domain contains other information that may trigger certain events in the empirical domain. These are some of the underlying mechanisms in the actual and real domain that influence project events, especially at the front-end.



Empirical domain: Events experienced and observed, which may be understood through human experience and interpretation.

Actual domain: Events formed by a generative process or casual mechanisms. These events are difficult to observe

Real domain: Casual mechanisms and structures with enduring properties and forces, which cause events to happen at higher layers.

Figure 3.1. Layers of ontology in critical realism
(Source: Adapted from Bhaskar 2008; Fletcher 2017).

Another point to address is that critical realism allows the researcher to oscillate between the empirical and theoretical domain, with the purpose to create a critical analysis and a possible correction of the theory based on explanations from the deeper level of the reality (Bhaskar 2008). Overall, in CR, a researcher may go from theory to practice as well as from practice to theory in order to understand the rationale, effects, and consequences of any phenomenon (e.g. value co-creation) in the stratified social reality.

In this research, the theorisation of value co-creation (cf. Vargo and Lusch 2016; Grönroos 2017) provides a theoretical departure point. However, the empirical investigation provides an evidence-based challenge to the constructs of co-creation of value. For example, one of the key critiques in the theorisation of value co-creation is that value co-creation is highly rooted in conceptual terms and some of these concepts may not work straightforwardly in the project business (Leiringer and Bröchner 2010; Hartmann et al. 2014). Thus, a CR perspective is adequate for critically exploring the phenomenon in consideration.

3.2.3 Research approach and strategy

Worldviews are adopted in the social sciences for developing knowledge. In social (and project) research, two traditional research approaches are often used: (1) qualitative approach, which is based on the close understanding and exploration of human interaction and their experiences within a social context; (2) quantitative approach, which is based on objectively describing a phenomenon in numerical terms without considering the context around the problem under investigation (Miles and Huberman 1994; Creswell 2003). For this study, where context is relevant, a qualitative approach is more adequate to explore the actor-to-actor interactions and other contextual aspects of the co-creation of value outcomes. In addition to this, this research aims to explore the process by which value outcomes are co-created from a social perspective, understanding the experiences and struggles from the key stakeholders when developing a project.

As part of the strategy to explore the socially constructed nature phenomenon of value co-creation, I adopted a qualitative and multiple-case strategy (Denzin and Lincoln 2011) in order to have a wider understanding of the co-creation of value, in different project settings.

Case studies can be defined as an empirical exploration, within a specific context, where outcomes and boundaries are not openly delimited (Yin 2017; Creswell 2003), but may provide an in-depth understanding of the social phenomenon.

According to Yin (2017), three categories of case studies can be used: (1) exploratory case study, which are used to initially explore a phenomenon and used as a springboard to refine the protocol; (2) descriptive case studies, which are used as a form of narratives to describe the observations as they unfolded; (3) explanatory case studies, which are used for examining the phenomenon in a form of causal relationships. The explanatory project case studies are in line with the critical realism that searches for explanations of phenomena, thus the main aim of the six case studies are to find an explanation of the phenomenon in place. In this study, I examined six different case studies within two public client organisations, thus it is important to explore the public sector and its characteristics.

3.2.4 The context of the public sector: Higher Education Institutions (HEI)

The public sector has a fundamental role in the current economy. The public sector offers products and services to the population in general, including transport, education, water supplies, and health care (Lane 2000). All these services are provided by organisations fully or partially sponsored by the government.

Higher education is part of the public domain and it is a dynamic sector. For example, in the UK, around two million students were enrolled in a degree in the academic year 2013–14. Project Management Offices, at higher education institutions, are therefore challenged to deliver benefits to a variety of beneficiaries such as students, staff, academics and society at large.

In this study, procurement is considered as the process by which one organisation acquires a product, service or any other type of integrated solution (Lindberg and Nordin 2008). Projects in this public sector need to follow the European Union (EU) regulations, which dictate the processes and system to carry out a procurement (project) process. Thus, a public organisation must comply with the EU regulations using key procurement routes in the exercise. For example, there are four key existing EU procurement routes: Open Procedure, Restricted Procedure, Negotiated Procedure, and Competitive Dialogue procedure. Each procedure presents key characteristics. Some of these procedures may allow dialogue, while others not. For example, the Open Procedure and the Restricted Procedure do not allow any form interactions or negotiations with the suppliers. This, in turn, has implications at the project level.

Chesbrough (2011) suggests that enabling actors to have one-to-one interactions may foster service innovation. Thus, innovation is quite limited in Open Procedures, as innovation requires direct interaction. Yet, the EU has decided not to allow it in order to secure transparency in the process (Hoezen et al. 2012). Other procurement procedures in public procurement, such as the Negotiated Procedure and Competitive Dialogue Procedure allow interactions, yet the evidence demonstrates that these procedures may take longer to execute (Hebly and Lorenzo van Rooji 2006).

3.2.5 Approach to case selection

Having described the public sector and its key characteristics, two public organisations, from the Higher Education sector and similar in nature are considered in this study, as presented in Table 3.1. While the public sector might be considered as exceptional, it was perceived that this sector presents similar characteristics as in the private context, such as complexity, uniqueness and uncertainty (Lundin and Söderholm 1995; Shenhar and Dvir 2007; Winch 2009; Geraldi et al. 2011). In addition to this, the service-related concepts from SDL may be more evident from the public sector (Higher Education Institutions), as they need to create value for themselves and their attached user community, thus the Higher Education Institutions are highly aligned to explore the main research question that aims to explore how the value outcomes are being co-created, having the client as the pivotal role.

Organisational context of this research		
Organisation	**Type of organisation**	**Brief description of the organisation**
A	A leading public organisation within the UK, in the Higher Education Sector.	This is a public organisation based in the UK. The organisation has reported supporting in the region of 25,000 end-users including professional services, academics, staff and students. Some project works have been carried out under a £275 million investment programme. The organisation is not ranked academically as a worldwide university, they are academically positioned in the top 10 nationwide. However, according to the National Student Surveys in 2018, its student experience results, place the university as one of the leading national universities in the UK. The practices carried out may indicate of what other top organisations might do in terms of the student experience. Within this organisation, once case study was explored, which represented the major investment from the project management office in the financial year 2011.

B	A leading public organisation worldwide, in the Higher Education Sector.	This is a public organisation based in the UK. The organisation has reported supporting in the region of 50,000 end-users including professional services, academics, staff and students. This organisation receives more private funding than public funding, therefore it is now in a position to opt out when necessary, of OJEU regulations set out by the European Commission. But, the project team continue following OJEU guidelines for compliance/best practices sake. As a result, some projects have been carried out outside the EU regulations. This organisation has been academically ranked in the top 10 universities in the world for the past three years. Therefore, practices carried out in this organisation may represent one of the best in this sector worldwide and may indicate what other universities worldwide may do. Five case studies were carried out to understand in-depth the phenomenon of value co-creation.

Table 3.1. Description of the two organisations being researched in this work (Source: Author's own).

Within these two organisations, similar in nature, six project case studies were examined. The following three reasons have been considered as fundamental for the selection of the six case studies within these two organisations:

1. The first reason for case selection has been to "stratify purposely" the reality. Palinkas et al. (2015, p 1) mention that "*to capture major variations rather than to identify a common core"* is a principal objective in this strategy for case selection. This suggests that there is a need to explore a variety of projects and provide breadth in the exploration. Since SDL has been widely unexplored in the project settings (Smyth 2015), it was important to understand a variety of projects to understand how the phenomena were emerging in similar settings. Organisation A and B were from the same nature, thus it was decided to explore IT (Case Study 1, 2, 4 and 5), Construction (Case 1 and 4), and Sustainability (Case Study 6) projects in order to explore a variety of practices across two organisations similar in nature. This stratification provided enough *width* on the data to understand the phenomena of value co-creation within this sector. This contributes to both the literature on projects and marketing as the co-creation of value has not been fully explored in the micro-level across different types of projects. There is a need in both pieces of literature to explore the concept of value co-creation from different projects, within a similar context. To combine the depth

with the width, I analysed five case studies (Case 1, 2, 3, 4 and 5) across the project life cycle and one case study (Case 6) in the front-end stage. This intense exploration, particularly from Case 2 to 6 provided the required depth to understand the phenomenon of value co-creation across the project life cycle. This detailed exploration across the project life cycle provided enough information to explore how value was being (re-)shaped. The key idea was to provide both depth and width in the selection of the case studies, having variations (stratified purposely) in order to understand the phenomena in place.

2. Another reason for the selection was to have “extreme cases” where possible. According to Palinkas et al. (2015, p 1), extreme cases help *“to illuminate both the unusual and the typic”*. In this study, for example, a key informant was used to initially investigate the outcomes of the projects so they could provide this contrast. The key informant provided the necessary initial knowledge to select extreme cases. For example, Case 5 and Case 2 were both performed by similar actors/professionals working in the same organisation B, yet both projects have different outcomes. Thus, the selection of the case studies was purposely selected to create a contrast and understand how practices were different from project to project. The nested approach was taken in Organisation B also enabled me to link projects with its history and context in a wider organisational scope (Engwall 2003). For example, one participant (Head of Procurement) took part in the five case studies in the nested organisation; hence, I was able to see how projects interact between them and how some failures were taken as lessons learned to others. This contrast allowed the researcher to explore different issues, challenges and solutions through the lens of value co-creation. It is acknowledged as well that exceptional access was given to six cases studies in order to make an exploration of the phenomenon. Overall, the extreme cases were selected in order to explore the traditional and non-traditional practices in order to explore the phenomena in place.

3. One of the reasoning to use six case studies within two organisations was to capture “the context” of different project practices within the same sector. To date, the literature of marketing and projects is quite dispersed, thus, it was decided to use a nested approach specially on Organisation B (Yin 2017) to explore the practices

within the same context. Thus, it was decided to explore two Higher Education Institutions, positioned in the national and worldwide market, as client organisations, in a Business-to-Business context. The nested approach (Yin 2017) taken in organisation B, for the explanatory case studies, was ideal to explore and explain the process by which value outcomes are formed, particularly from the same organisational setting. Research in the co-creation of value is scarce and there is a lack of research of multiple case studies within the same setting (Smyth et al. 2018). Most of the studies from value co-creation are coming from single case studies (e.g. Liu et. 2014; Jacobsson and Roth 2014; Smyth 2017). Thus, I decided that foundational knowledge needed to be developed within the same contextual conditions, hence I prioritised the integrity of the contextual conditions and deep exploration, rather than a variety of projects from different sectors and organisations. It is acknowledged though this may be a limitation from this research. Yet, the contributions presented in this study could be used as foundations (from similar contextual contingencies) to explore other sectors. Thus, practices in both organisations might be considered as representatives from the public sector. This is, therefore, one of the few studies that have addressed value co-creation from different projects within the same context. This could be used or extrapolated to other similar settings and may be used as a starting point for other settings within the project sector.

From the six case studies selected based on the above fundamental reasons, the first case study, within organisation A, was an exploratory study undertaken during the early stage of my research. The first case study was analysed and it was learned that some projects within this industry presented key characteristics. For example: (a) the projects in this setting were set in a Business-to-Business context, where the client organisation (Higher Education Institution) plays a mediating role between the supplier organisation and the end-users; (b) the end-users were attached to the client organisation, thus the client was particularly interested in creating value not only for the client organisation itself but also for the end-users, as it produces a better (brand) reputation in the sector; (c) the client organisation in this settings are considered as ‘semi-intelligent’ organisation (Morris 2013), as they have adequate processes, systems and resources to design and deliver projects, thus they are able properly to manage supplier organisations for small to medium in scale projects. However, these client organisations are not considered as ‘fully intelligent’ clients, such as Heathrow Airport. ‘Intelligence’ is interpreted in this context as a function of resource allocation and capability, as when the client organisation can undertake full contract and construction management for large and complex undertakings. These learning elements were useful to understand more deeply the information coming from other case studies. Yet, the six case studies were taken for the full exploration and evaluation of the research question.

Overall, the multiple case studies were purposely selected to explore the key research question. The idea of examining different case studies (within the same organisation) was to both provide breadth and depth in the exploration. In addition to this, the idea to explore projects within a similar context was to understand powers and liabilities of a similar setting playing against or in favour of the attributing causalities (cf. Danermark et al. 2002; Edvardsson et al. 2011; Konstantinou and Muller 2016).

3.2.4.1 Observing process of value outcomes

The reasoning behind the key research question was to understand the process by which value outcomes are being co-created. To accomplish this aim, critical realism presents similarities with processual research, as CR aims to explain the process of any phenomenon (Kusuma 2016).

Van de Van (2007) points out that the understanding of a process may be perceived in two different perspectives: (1) to observe how events unfold in real-time from a prospective perspective. This may enable a researcher to understand the actual dynamics and problems as they occur (Pettigrew et al. 1990); (2) to observe the big picture of the sequence of events as they were developed on retrospective accounts. Gustafsson (2002) argues that looking retrospectively or backwards into a project enables the researcher to understand how project outcomes unfold. This could help to observe the implications (of the project actions taken during the early stage of a project) in the medium and relatively long-term.

From these two perspectives, I purposely chose to examine, five case studies, in a retrospective manner. The retrospective cases studies allowed me to understand the process by which the outcomes unfolded and observed the value outcomes in the medium- and long-term. Participants were also able to reflect on the best practices and lessons learned from each project. The retrospective case studies were explored during the front-end, execution and post-completion stage. This allowed me to visualise the full project life cycle.

One key weakness of the retrospective studies is that the researcher is unable to understand the dynamics of the phenomenon from a live project. To address this weakness, I examined one case study in real-time (prospective manner) over one-year, particularly during the front-end stage. This enabled me to understand the dynamics of value co-creation, in real-time and the contextual conditions that influence the process of co-creation. Due to the timeframe for this research, the whole development sequence and the post-completion was not explored, thus the value outcomes in the long-term could not be explored, as compared to the other retrospective case studies. This is acknowledged as another limitation of this research. However, being able to perceive the value interactions within their context in real-time is considered a strength of the study.

While I followed the prospective study for one year, this engagement is not considered as an ethnographic study. It did, however, allow me to better understand the organisational context and the actors within the organisation B. In fact, I was given a desk to work alongside the procurement team, which facilitated the interactions with the interviewees.

Overall, these triangulations of retrospective and prospective studies, within the selected case studies, helped to map the process by which value outcomes are formed, including their rationale, effect, and consequences, within a similar social context (Denzin and Lincoln 2011).

3.2.6 Methods of data collection

3.2.6.1 Case studies context

To pursue the phenomenon of the co-creation of value, I have considered two public client organisations, similar in nature as described in the previous sections. The client organisations (Higher Education Institutions) play a key role in the co-creation of value in a business-to-business context. The demand side is represented by students, academics and professional services departments, which are attached to the client organisation’s business. The supplier organisations are represented by private organisations, which provide a range of services required by the client organisation.

Therefore, the client organisation plays a critical role in mediating between the supplier and the demand side, as shown in Figure 3.2. This leads to, both intended and unintended co-creation and co-destruction of value outcomes within a Business-to-Business (B2B) setting.

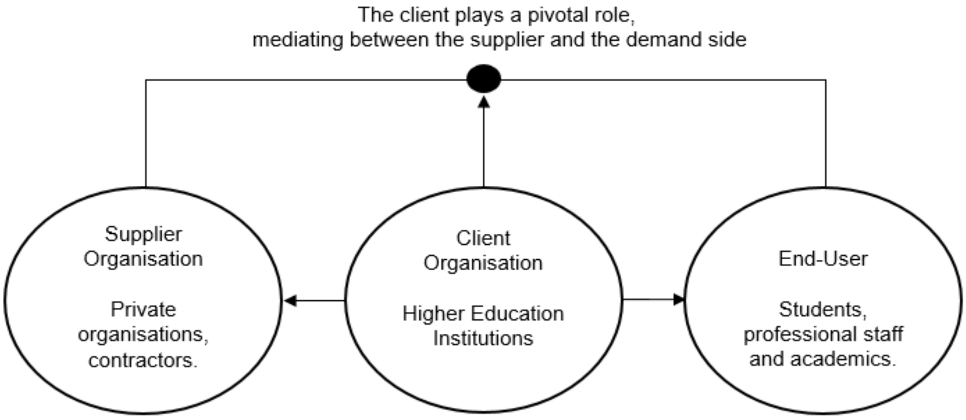

The client plays a pivotal role,
mediating between the supplier and the demand side
Supplier Organisation
Private organisations, contractors.
Client Organisation
Higher Education Institutions
End-User
Students, professional staff and academics.

Figure 3.2. Key stakeholders in this research (Source: Author's own).

Overall, two client organisations and six project case studies were explored for this research. The following Table 3.2 provides a brief description of the two organisations being explored. A description of each case study within the two organisation, including its rationale for selection, can be seen in Table 3.3.

3.2.6.2 Data Access

The two client organisations collaborated with exceptional access. This was facilitated because for organisation A, I worked as a Project Officer and Project Manager, during 2012-2014, thus exceptional access was given by the Deputy Head of Procurement. For organisation B, I worked in an ad-hoc basis for a Procurement Manager during 2016, who provided me access to explore in-depth this organisation. The strong relationship with both client organisations allowed me to create a scholarship engagement (Van de Ven 2007). This helped in better understanding the overall phenomenon of the co-creation of value outcomes and allowed reflection to oscillate between the superficial, actual and real domains.

As an entry point, I initially approached and discussed the key research question(s) with two key access champions: (1) Deputy Head of Procurement in organisation A; (2) Head of Procurement in organisation B. The initial communication was carried out through e-mails and face-to-face meetings. Later, a formal written request was sent to the senior management team in each organisation (see Appendix 4).

The initial dialogue with the key informants helped me in the following five avenues: (1) to align the research question; (2) to select relevant case studies; (3) to finesse the interview protocol; (4) to select key actors to interview; (5) to present preliminary results and to gather feedback. Overall, the access champions played a fundamental role in the collection of primary and secondary information.

3.2.6.3 Data collection

A qualitative method enables a researcher to understand the social reality within the organisational context (Pryke 2017). The method allows understanding the reality from the eyes of the actors-in-action (Denzin and Lincoln 2011). For this research, interviews with key project actors represented the primary instrument for data collection (Yin 2017).

From the six case studies, I conducted in total fifty-nine interviews. The initial participants were co-selected with the access champions. Then, I carried out snowballing sampling, where initial *participants* nominated other key participants in the value creation process. This made sure all key actors were considered, where possible, as some participants denied the invitation to participate, mainly for availability reasons.

The majority of the interviews were from client organisation (n=46). End-users (n=8) and supplier organisations (n=5) were also considered in the design, yet, in particular, the supplier organisations were unwilling to participate to the same extent as the client organisation, despite being contacted on many occasions. This is considered a limitation of the research, but might be also an indication on the extent to which the creation of value outcomes for the long-term is considered seriously by the supplier organisations. Thus, the number of interviews, while substantive (n=59), they could have been more in number in order to map the perspective of the co-creation of value outcomes from the supplier perspective.

Table 3.4 provides a full description of each case study, including the description of the data collection and participants involved.

According to Creswell (2003), qualitative interviews can be carried out using three different types of questioning: (1) unstructured questions; (2) semi-structured questions; (3) structured questions. For this research, I employed semi-structured questions, which provided flexibility in the conversation to follow the flow of the conversation, but with predefined questions. During the interviews, and where appropriate, I employed a laddering technique for deeper exploration of some empirical events (Reynolds and Gutman 1988). Although interviews allowed flexibility, the protocol of interviews was consistent across all case studies in order to ensure conformability in the study. The pre-questions were sent in advance to the participants and all were structured concerning the project life cycle (the front-end, execution and post-completion). This structure helped to organise the data in brackets according to the project life cycle (Tufford 2012). This enabled to map the process by which the value outcomes were being formed. The questions from the interview protocol were tailored to each specific actor, particularly as some actors did not take part in the complete life cycle of the project.

The interview protocol for each interview can be seen in Appendix 5. The key core themes established and followed during the interview process were:

(a) Exploration of the actor-to-actor interactions across the development sequence was as follows: interactions in the early stage of the projects to understand how value propositions were configured and designed; interactions in the mid-stage of the projects to explore how value outcomes were finessed; and interactions in the post-project to understand the emergent value outcomes through the service rendered and the service experienced.

(b) The perception value and the project’s usefulness.

(c) The organisational aspects to understand enablers and constraints, which influenced the project’s interactions and value outcomes.

(d) The lessons learned from each project, including its positive and negative aspects.

Following Yin’s (2017) recommendations, I used a variety of forms of secondary data for triangulation purposes. Project documentation was checked, as well written complaints of the service, organisations’ websites, contracts, agendas and minutes, service review minutes, emails, evidence from social networks, consultancy reports, newspapers, and field notes.

Description of case studies						
Project Characteristics	Case Study 1	Case Study 2	Case Study 3	Case Study 4	Case Study 5	Case Study 6
Organisation Type	Public organisation (A) in the HEI sector	Public organisation (B) in the HEI sector				
Project type	Wi-Fi Service	Printing Service	Building Refurbishment	High-Performance Computing	IT Software System	Soft Services: Waste Management
Start and completion date	Early 2012 – Summer 2014	Throughout 2013	Throughout 2015	Throughout 2015	Early 2014 – Late 2017	Early 2016 - 2018 (ongoing)
Procurement Route	Competitive Dialogue (as set out by EU regulations)	Competitive Dialogue (as set out by EU regulations)	Restricted Procedure (below EU threshold)	Restricted Procedure (under framework agreement)	Similar to the Competitive Dialogue (outside EU regulations)	Similar to the Competitive Dialogue (outside EU regulations)
Contract Value	Approx. £2m over a 4-year contract.	Contract based on service usage of approx. 600 managed devices.	Below £164K	Approx. £1.2m	Approx. £1m	Approx. £50 million over a 5-year contract.

Table 3.2. Key characteristics of the six case studies (Source: Developed from Fuentes et al. 2019).

Context of case studies	
Case Study #1	The client organisation was struggling to meet the IT demands from the student's community, particularly at the residence halls. Thus, the university decided to upgrade the current IT infrastructure to accommodate Wi-Fi service demands in the halls. This project was key to meet the IT strategy mobility programme within the university. The university, as the client organisation, decided to outsource the implementation, management, and support of a pervasive wired/wireless network of all its student residences. This project case study was relevant for exploration due to the multiple value interactions between the client, the supplier and the users across the project stages. The interactions enabled shaping the specification during the procurement stage. However, during the operations phase the end-users reported poor service in the halls.
Case Study #2	The client organisation had an urgency to consolidate a fragmented printing service across its faculties. Thus, the client organisation decided to carry out a project to outsource and consolidate a sustainable management plan for this service. This project is relevant for exploration due to the multiple value interactions during nine months' procurement negotiation. However, during the operations phase the user base complained about the poor printing service. The mismanagement of the service continued throughout the life of the contract to the point that the client organisation decided to terminate the contract and re-tender it.
Case Study #3	Due to natural damage caused by a storm day, a residence hall owned by the client organisation urgently needed a building refurbishment. Thus, the client organisation decided to carry out a project to refurbish it. The initial planning stage carried out by the project team was made without the involvement of the end-users. These were relevant stakeholders as they were living in the residence. Overall, the project team failed to realise the social and living experience of the end-users and it resulted in a poor living experience during the refurbishment for the end-users. As part of the outcomes, the student community took strike action, which resulted in a financial compensation of £300,000 and a considerable delay of the project completion. This project was key to understand the aspects around the co-destruction of value.

Case Study #4	The client organisation had to replace ageing capacity and end-of-life support of a high-performance computing system. Thus, an urgent project was set-up to find a suitable supplier to implement a new system for the client organisation. This case study is relevant for exploration and the project presented value interactions before the start of the procurement between the client organisation and the potential suppliers. These interactions helped to shape the project specification and resulted in positive implications during the operations phase.
Case Study #5	The client organisation had the urgency to keep control of research project resources (approx. £150m) across the academic faculties. Thus, a project was set-up to co-develop and implement a Software as-a-Service system to manage a portfolio of research projects. This case study is relevant due to multiple interactions that the client organisation held with the supplier and end-users to co-develop the system. While the project reported a good functionality of the system, an unexpected business change in the organisation was reported. This ultimately affected the service experience of the end-users.
Case Study #6	Due to the constant expansion of the university, it was struggling to manage the soft facilities management e.g. waste management, of a disparate set of sites, including academic buildings, laboratories, and halls of residence. Thus, a project was set-up to outsource unified management of the soft facilities management. In contrast to the project case studies from 1 to 5, which were explored in retrospective accounts, this case study was explored in real-time. This enabled the exploration of the dynamics of value co-creation in real-time, which could not be perceived in the other five case studies.

Table 3.3. Context of case studies (Source: Taken from Fuentes et al. 2019).

Key characteristics of data collection

Project Characteristics	Case Study 1	Case Study 2	Case Study 3	Case Study 4	Case Study 5	Case Study 6
Observing process	On retrospective accounts	On retrospective accounts	On retrospective accounts	On retrospective accounts	On retrospective accounts	Observations in real time
Stage of project	Front-End Execution Post-Completion	Front-End Execution Post-Completion	Front-End Execution Post-Completion	Front-End Execution Post-Completion	Front-End Execution Post-Completion	Front-End
Number of interviews conducted	*Overall*: 17 one-to-one semi-structure interviews	*Overall*: 7 one-to-one semi-structure interviews	*Overall*: 6 one-to-one semi-structure interviews	*Overall*: 11 one-to-one semi-structure Interviews	*Overall*: 9 one-to-one semi-structure interviews	*Overall*: 9 one-to-one semi-structure interviews
Main actors interviewed	*Breakdown*: a) Client reps: 12 b) Supplier reps: 3 c) User reps: 2	*Breakdown*: a) Client reps: 6 b) Supplier reps: 0 c) User reps: 1	*Breakdown*: a) Client reps: 4 b) Supplier reps: 0 c) User reps:2	*Breakdown*: a) Client reps: 9 b) Supplier reps: 1 c) User reps: 1	*Breakdown*: a) Client reps: 6 b) Supplier reps: 1 c) Users reps: 2	*Breakdown*: a) Client reps: 9 b) Supplier reps: 0 c) Users reps: 0
Interviewees	**Client reps:** 1 Chief Information Officer 1 Head of Procurement 1 Project/Programme Manager 1 Project Manager (Operations Readiness) 1 Head of Networks	**Client reps:** 1 Chief Information Officer 1 Head of Procurement 1 Senior Procurement Manager	**Client reps:** 1 Head of Procurement 1 Senior Procurement Manager 1 Procurement Officer	**Client reps:** 1 Chief Information Officer 1 Project Board Chair 1 Head of Procurement	**Client reps:** 1 Chief Information Officer 1 Head of Procurement 1 Director of IT Services 1 Senior	**Client reps:** 1 Head of Procurement 1 x 2 Project Manager (Soft Services Manager) 1 x 2 Senior Procurement Manager

	1 Legal Manager 1 Head of Service Delivery and Partnerships 1 Technical Lead LAN 1 Technical Lead Wi-Fi 1 Head of Buildings 1 Campus Services Manager 1 Residence Security Manager **Supplier reps:** 1 Supplier Commercial Manager 1 Supplier Marketing Director 1 Supplier Project Manager **User reps:** 2 End-User	1 Service Owner 1 Head of IT Asset and Supplier Management 1 Customer Relations Manager **User reps:** 1 End-user	1 Residence Manager **User reps:** 2 End-users	1 Director of IT Services 1 Senior Procurement Manager 1 Senior Project Manager 1 Project Manager 1 Technical Lead 1 Senior Network Engineer **Supplier reps:** 1 Supplier Business Development Manager **User reps:** 1 End-User	Procurement Manager 1 Senior Project Manager 1 Technical Lead **Supplier reps:** 1 Supplier Project Manager **User reps:** 2 End-users	1 x 2 Technical Lead 1 x 2 Commercial Manager
Average time of interview	40 minutes	35 minutes	30 minutes	41 minutes	36 minutes	31 minutes
Secondary data	Complementary data including project and procurement documentation, service complaints, organisations’ websites, contracts, project agendas and minutes, service review minutes, emails, social networks, consultancy reports, newspapers and field notes.					

Table 3.4. Key characteristics of data collection (Source: Taken from Fuentes et al. 2019)

In addition to collecting data through interviews from each case study, I conducted observations, particularly in Case Study 6. I agreed with one champion on access to organisation B in order to follow the project in real-time for one year. Thus, I attended some project meetings, particularly when the initial specification was being shaped by the client organisation and its internal stakeholders. This informally created rapport with the participants. During the direct observations, I was able to observe how the value outcomes were being formed with its struggles and crashes (Gustafsson 2002) through the observation of the: (1) human behaviour; (2) project processes; and (3) organisational and contextual aspects. This resulted in an increased understanding of the formation of value outcomes during the front-end of a project. I kept a diary to capture information, from the interviews and the observations, which was later used in the analysis period as additional resource.

3.2.7 Data analysis process

3.2.7.1. Theoretical framework

A research framework provides the foundations on how to look at both the conceptual and empirical evidence (Grant and Osanloo 2014). Thus, the analysis of the data has been guided by a research framework, which can be seen in Figure 3.3. The framework has been set concerning the key research question in order to explore the process by which value outcomes are being co-created. This framework has been conceptually built upon four key streams of work. From the management of projects literature, Morris (2013) and Smyth (2015) have strongly influenced my research ideas. I am building on the former, particularly around the aspects of the front-end, where most of the value can be (co-)created and configured. However, this research considers that value is socially constructed across the project life cycle rather than being frozen at the front-end of a project. Following Smyth's recommendations (2015), I consider aspects beyond the traditional project life cycle to understand the dynamics of value outcomes, both in the medium- and long-term.

From the service related-literature, I have been conceptually influenced on value co-creation by Grönroos (2011) and Vargo and Lusch (2016). I have primarily taken the former as a key influence, as this research considers that the co-creation of value is formed through direct interactions. However, the recent revision from Vargo and Lusch (2016) does consider that value is embedded in a social system and generated by institutional arrangements, thus the former is also being considered to understand how the co-creation of value is being influenced by the social system. Yet, since this research explores the micro-level aspects of value, Grönroos' ideas are more aligned to project settings.

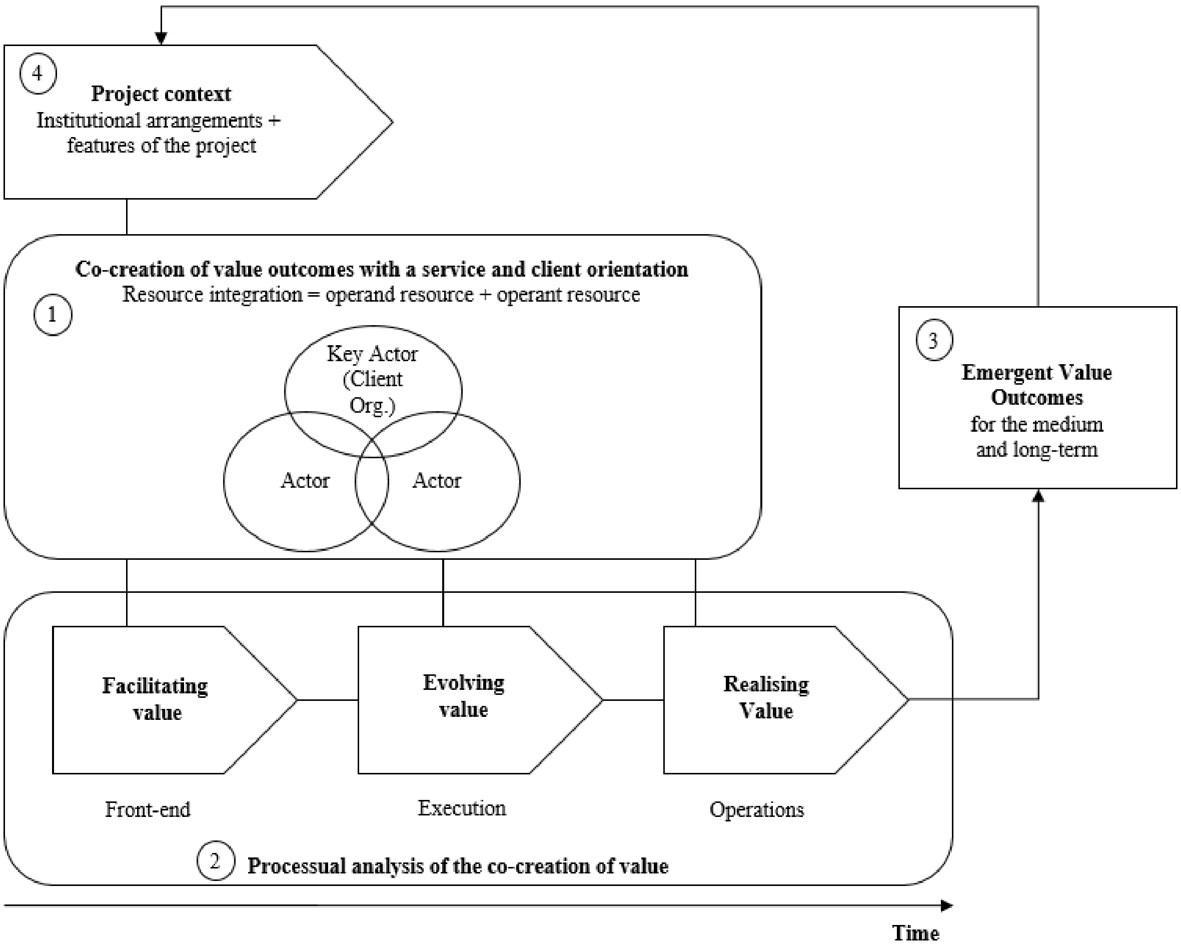
Overall, these four key streams of works (Grönroos 2011; Morris 2013; Smyth 2015; Vargo and Lusch 2016), have been used to set the theoretical framework. This means that the theoretical framework has been developed by existing work both in the area of projects and marketing. The overall framework has a service and client focus embedded (Smyth 20015). The following section describes the development of the framework.

The framework, presented in Figure 3.3., has four key elements, which are explained as follows:

(1) The first element acts as the heart of this framework. Grönroos (2011; 2017) argues that value co-creation needs to be explored in the micro-level, thus, this research takes the direct Actor-to-Actor (A2A) interaction in the micro-level, as the unit of analysis for the co-creation process. Taking into account the project life cycle, the A2A exploration goes from the planning to operations phase. In this study, the client organisation plays a key role in the A2A interaction, mediating between the supplier organisation, end-users (and other stakeholders). Thus, the framework explores the value interactions that have positive or negative implications for the long-term, considering the client organisation as a pivotal role.

The value interactions, within the co-creation process, have been explored to understand how both the operant resources (such as knowledge, skills, and information) and operand resources (such as tangible inputs and outputs) influence the co-creation process. Co-creation involves the integration of both operant and operand resources (Vargo and Lusch 2016), which together render a service. The operant resources have been considered as the main source of value in the co-creation process in this framework (Smyth 2015, p. 230).

The main purpose of the data analysis for the first element was to explore specific management value interactions. This element is connected to RQ1.1, which tries to explore how value interactions look like from the ground. This element did not change across the research process, it remained as an inductive element.


4
Project context
Institutional arrangements + features of the project
Co-creation of value outcomes with a service and client orientation
Resource integration = operand resource + operant resource
1
Key Actor (Client Org.)
Actor
Actor
3
Emergent Value Outcomes for the medium and long-term
Facilitating value
Evolving value
Realising Value
Front-end
Execution
Operations
2
Processual analysis of the co-creation of value
Time

Note: This framework has been influenced by the (a) Project literature: Morris (2013); Smyth (2015); and (b) Service literature: Grönroos (2011); Vargo and Lusch (2016).

Figure 3.3. Theoretical Framework (Source: Author's own).

(2) The second element is the processual analysis of value. This element was divided in three even before the interview process. The exploration of value (set from the interview questions) was to divide it in three main elements: the front-end, execution and post-completion. Morris (2013) argues that the front-end is the stage, where value can be co-configured and co-designed. As a complement, Smyth (2015) argues that value evolves across the project life cycle, thus it needs exploration in different stages of a project. This is in contrast to traditional marketing studies that do not consider value as an evolving process (Smyth et al. 2016). Therefore, the main purpose of this element is to understand how value is co-created (through configuration and design) and the early stage of a project (Morris 2013), and how value evolves across the project life cycle. For example, previous studies in projects (see Zerjav et al. 2018) have shown that the value is being destroyed at the back-end

of the project, thus, it is important to understand not only how value propositions are formed, but also how they are delivered and used at the back-end of a project (and beyond). This element may help to address RQ 1.1. to understand which types of value interactions occur across the project life cycle.

(3) The third element is the emergence of value outcomes in the medium- and long-term. To date, the literature in project and service management have considered outcomes as homogenous entities. Vargo and Lusch (2016) do mainly focus on the experiential value, yet they have been widely criticised for ignoring other types of values, such as the financial (Leiringer and Bröchner 2010). For that reason, the framework has remained opened for the observation of the value outcomes in the long-term in order to understand how value looks like in the long-term. Yet, once the data was being analised, the data started to take the form of micro-, meso-, and macro-level. The overall purpose of this element was to understand how value interactions contribute to achieving valuable outcomes for the client organisation, as stated in RQ1.2. Further research could explore how value moves from these three stages.

(4) The fourth element is the project context, where the value co-creation takes place. Projects are embedded in a social system (Konstantinou and Müller 2016), thus all value interactions are influenced by the social context. Early versions of the value co-creation related concepts had ignored the social context (Vargo and Lusch 2004; 2008). Thus, this study has then adopted this contextual view understanding the social system around the co-creation of value. The main purpose of this element is to explore the type of social generative mechanisms that can generate the co-creation of value at the micro-level. This directly contributes to explore RQ1.3.

Overall, these four elements from the theoretical have been used to initially analyse the data, which all together aim to understand the process by which value outcomes are being co-created in a project setting, as stated in the key research question (RQ1). The development of the framework did not change across the analysis of the data. The following sections shows how the data then was the analysed using the theoretical framework.

3.2.7.2 Process of the data analysis

The formal process of analysis started with the familiarisation of both the primary and secondary data. This was done by: (a) re-reading all transcribed interviews; (b) re-listening to recordings on a case-by-case basis; (c) reading and examining additional secondary documentation, such as business cases developed by the PMO from the two organisations. The data analysis during the PhD is a journey of learning and discovering. However, it does come with a dose of trial and error methods until the researcher can understand how to handle the data (Gibbert and Ruigrok 2010).

The formal data analysis was carried out in the following four steps. The first two steps are described below and represented in Figure 3.4.

As a first step, and in line with the critical realism (Smyth and Morris 2007), I took the theoretical framework, derived from the conceptualisation of value co-creation. As a departure point to explore my data, I deductively selected the following key sensitising categories (Van de Ven 2007) to examine my data: (1) direct interactions; (2) outcomes; (3) value; (4) service; (5) impact and (6) context; (7) benefits.

This initial exploration allowed me to understand the dynamics of these categorisations within the framework. For example, the value category was used across the three stages presented in the theoretical framework to understand how value was being shaped, and re-formed later in the process.

A key characteristic of this analysis was to explore the positive tone of the co-creation value. In Figure 3.4, the arrows represent a deductive exploration of the data. This is then followed by an inductive exploration of the data. Both steps aim to explore extensively the data.

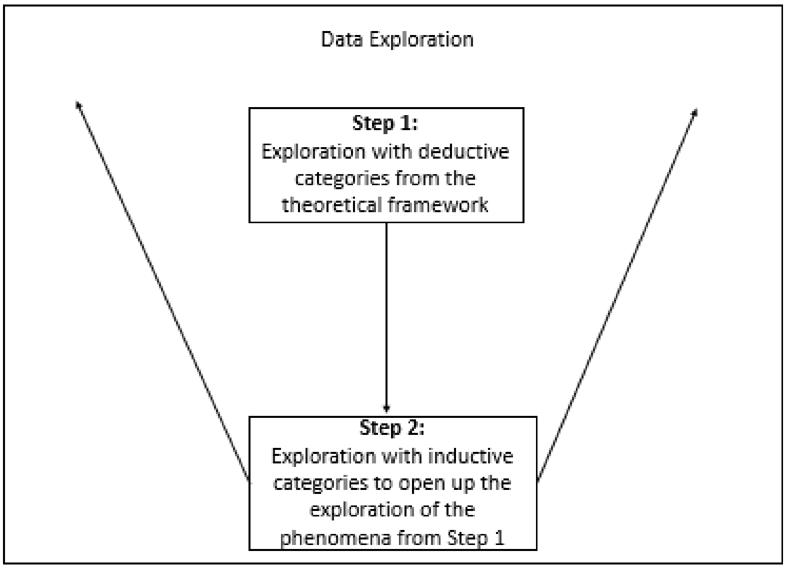

Data Exploration
Step 1:
Exploration with deductive categories from the theoretical framework
Step 2:
Exploration with inductive categories to open up the exploration of the phenomena from Step 1

Figure 3.4. Step 1 and 2 of the data analysis

In the second step, I realised there were other relevant aspects of my data that were not captured by the deductive categories. Thus, I introduced openness in the examination of my data. Thus, I inductively extracted data from the whole dataset beyond the positive conceptualisation of value co-creation. For example, I examined categories, such as sacrifices, destruction, conflicts, and tensions during interactions, and a more inclusive set of value outcomes beyond the experiential nature of value as prescribed by Vargo and Lusch (2016). This inductive extraction of data was in line with authors in the co-creation arena, who have problematised value co-creation in different forms (Plé and Cáceres 2010; Echeverri and Skålén 2011; Leroy et al. 2013; Storbacka et al. 2016).

Overall, Step 1 was a deductive extraction of data (focused on the positive aspects of the co-creation), and Step 2 was an inductive extraction (focused on the challenges around the co-creation). This combination was in line with the Bhaskar’s (2008) principles of critical realism, which allows oscillating (from theory to practice and from practice to theory) within the data in order to find the best possible explanation of the phenomenon. This means that in some aspects of the exploration it was led by theory and some aspects were led by the practice.

The practical extraction of this information was carried out through qualitative content analysis by selecting and highlighting the data derived from the deductive and inductive extraction (Glaser and Laudel 2013). With this purposely-selected data, I created and organised a database. While the database contained only the extracted information, at all times, I used the highlighted text in order not to lose focus on the context of the data.

Key patterns emerged from the examination of Step 1 and Step 2, which provide an initial indication of the phenomena. However, these key patterns were purely manifestations and interpretations of the empirical domain of the ontological perception of reality (Bhaskar 2008). Thus, there was a need to explore the root cause of why the events were happening as such, thus, retroduction was applied to provide a comprehensive explanation of the phenomenon in place (Danermark et al. 2002).

As a third step, I applied the DREIC model (Danermark et al. 2002; Bhaskar 2008; see Isaksen 2016, p. 249) to seek a causal explanation (retroduction) of the events in the empirical domain. The DREIC model is comprised of the following five stages:

-Description, which is the description of an empirical pattern in the dataset. The events described in this level are triggered by the mechanism and generative process.

-Retroduction, which is a form of inference with strong explanatory powers to understand why the events happened in the empirical level. Retroduction seeks to understand the possible causes of the events, considering its contextual powers and structure where the events are taking place. These explanations may lead to different alternatives or perspectives of reality.

-Elimination, which is the process of disregarding alternative explanations of the generative process.

-Identification, which is the process to identify the explanation, which seems real and fits the context, both in the real and empirical domain.

-Correction, which takes place after a valid identification and may impact the theoretical constructs. However, it may also confirm the theoretical constructs, as not every explanation is novel.

The database, based in excel, was comprised of some tables where the five steps were considered for each of the events. Along the entire DREIC process, I continuously considered the original highlighted text to ensure adherence to the original text-in-context.

While the DREIC process helped to understand the reasoning and explanation behind each event and outcome, the data was not organised to present results. Thus, as Step 4, the results were synthesised, in a similar fashion to Gioia et al. (2013). As an example of this, Table 3.5 has been included in this chapter to show the analysis of one part of the data. The other part has been placed in Appendix 6. Both Tables 3.5 and Appendix 6 have been used to structure Chapter 4 and 5 of this thesis, but have been added in this chapter to ensure the reliability of the analysis (Denzin and Lincoln 2011).

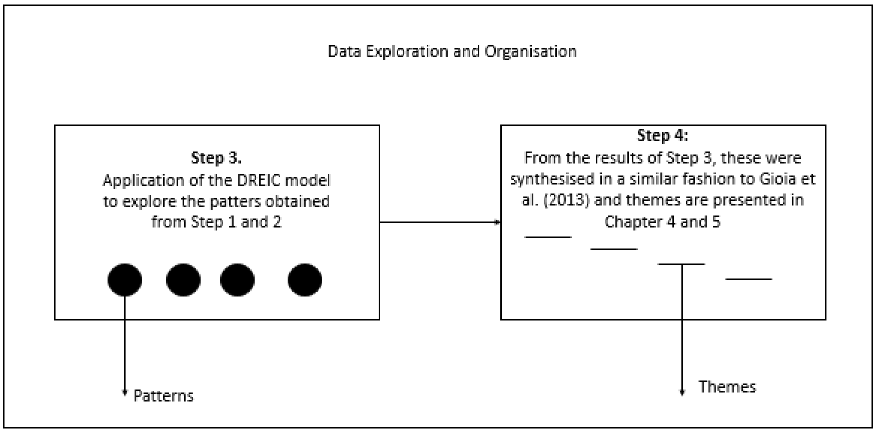

Data Exploration and Organisation
Step 3.
Application of the DREIC model to explore the patters obtained from Step 1 and 2
Step 4:
From the results of Step 3, these were synthesised in a similar fashion to Gioia et al. (2013) and themes are presented in Chapter 4 and 5
Patterns
Themes

Figure 3.5. Step 3 and 4 of the data analysis

Step 4 was carried out to highlight and organise the results. While this study has taken into consideration six project case studies, the results are organised according to the emergent key themes based on the analysis of the data. The emergent themes are presented in aggregated synthesis. Then, themes were grouped into phases to understand how value outcomes are being co-created across the project life cycle (see Table 3.5).

Key emergent themes were analysed individually against the key elements. I conducted a cross-case comparison of the emergent insights and concepts of co-creation within a similar organisational context (Eisenhardt 1989; Eisenhardt and Graebner 2007).

A distinctive characteristic in the presentation of results is that the key emergent themes. This provides emphasis on the key contribution to knowledge, rather than to the six case studies. Within Chapter 4 and 5, key themes are matched against each case studies to provide complete visibility of the phenomenon across the six case studies. Emerging key themes (findings) in both organisations might be considered as representatives for the public sector, as the two organisations were well-position in the national and international market. Yet, other sectors need further exploration to continue with the exploration of this phenomenon.

Synthesis of results (Findings Part 1)

1st order of synthesis	2nd order of synthesis	Aggregated synthesis	Phases of the co-creation of value
Learning from other projects and actors to solve technical, commercial and another service wrap	Absorbing explicit knowledge	Co-learning with internal and external stakeholders	Phase 1: Identifying and envisioning value outcomes
Through the dialogue meetings, clients are able to refine and share other resources, such as project documentation, to absorb lessons learned			
Learning from the experience of others and applying lessons learnt to the benefit of the client	Absorbing implicit knowledge		
Ethical engagement to provide valuable sources of information	Interaction awareness due to contextual factors		
Win-win situations for parties engaged in the co-creation, yet power may influence the interaction			
Observing the physical environment, operations and other routines during real-time service delivery settings	Understanding tangible aspects of the service system	Co-revealing existing service systems	
Corroborating project documentation with existing operations, systems and processes			
Interacting with employees and existing processes to understand their organisational contexts, such as culture and the employees' serviceability	Understanding intangible aspects of the service system		
Early discussion of contracts and projects in the form of market engagements, supplier briefings and consultations	Exploring needs and expectations from relevant actors	Co-aligning strategic needs and expectations	
Commercial awareness was needed during these discussions			

Late design in the process during the actual execution and operations phase	Engagement with actors in execution and operations	Co-designing for service experience	Phase 2: Designing and configuring value propositions
Lack of engagement with roles from the operations phase with the front-end			
Lack of tools and processes to map and backcast the value outcomes	Investment to carry out this interaction through formal processes		
Investment is required to change the process and culture			
Changes in the dynamics of the people within the organisation	Changes in the routines		
Changes in the system could cause problems for the established routines			
Iterations across the development sequence	Flexibility in the process	Co-developing a service with agility	
Use of development and sprint sessions to re-plan and deliver			
Culture change in the way of working	Development of organisational attributes		
Consuming more resources than planned and in comparison to other projects	Dynamics in the financial resources		
Financial rewards when applying co-development			
Changes in the plan and project scope need to be agreed with different project actors	Processes to track and solve problems	Co-solving problems	Phase 3: Refining and delivering value outcomes
A process in place to keep control of the changes and problems			
Challenging situations need to be properly addressed by relevant stakeholders	Soft skills to address and solve problems		

The transition from projects to operation is not planned by the PMO	A formal process to transfer projects to operations	Co-transitioning from project to operations	
Project resources limited to the project lifecycle	Allocation of project resources to the operations		
Systems not connected with the overall service system	The synchronisation of systems in the operations		
Disconnection of the relationship during the contract lifecycle	Formal contract management procedures	Co-managing value outcomes	Phase 4: Managing and realising emergent value outcomes
Clients need to allocate resources to keep control of the suppliers	Dialogue to address performance and service improvement		
Creating a dialogue between the client and relevant actors to discuss the value outcomes			
Note: According to the data, this four-stage process, including the eight key-value interactions, may enhance five types of value outcomes: Operational; Financial; Environmental; Experiential; and Social Value Outcomes. However, value outcomes are socially constructed, meaning that the process is not automatic (as value outcomes cannot be fully controlled). This may suggest that the above value interactions may create varied intended and unintended value outcomes in the long-term.			

Table 3.5. Synthesis of results (for Part 1) using the Gioia's analysis concerning the value interactions (Source: Taken from Fuentes et al. 2019).

3.3 Research quality

Case studies using a qualitative approach need to ensure steps are undertaken in an appropriate way (Gibbert and Ruigrok 2010), particularly as qualitative research face some limitations, e.g. bias of the researcher and participants and their subjectivity. The purpose of this section is to explore the research quality of this study through the validity, reliability and credibility in order to overcome some key limitations.

3.3.1 Validity

Validity refers to the accurate or best approximation for observing the reality (Denzin and Lincoln 2011). To observe the reality, this research has used a collection of different sources, including primary sources: face-to-face interviews and observation of project meetings; and secondary sources: procurement documentation, service complaints, project minutes, surveys, contract, minutes, social media (e.g. facebook), consultancy, project board highlight reports, e-mails, newspapers, and field notes. This data was triangulated to obtain a close approximation to the reality (Yin 2017).

To increase validity, this chapter has provided background information about the two public organisations, which can be seen in Table 3.2 and 3.3. The tables contain key characteristics of the organisation and the project business cases. In addition to this, I used a consistent interview protocol with all the participants, which created consistency in the collection of data. Furthermore, to increase the validity of the study, cross-case analysis was carried out to provide a sound basis for an explanation of findings across the dataset and each case study (Bhaskar 2008). As a final step, the validity of the data analysis was carried out by covering previous theoretical constructs concerning the literature of project management and service-related literature. This enables me to understand what aspects had been previously covered and newly discovered. This also enhanced the transferability of the results between these two areas.

3.3.2 Reliability

Reliability refers to the consistency of the steps undertaken in research so that it can be replicated by other peer researchers (Denzin and Lincoln 2011). As suggested by Silverman

(2005), I audio-recorded all face-to-face interviews to maintain the reliability, with the exception of three interviewees who did not allow recording. However, notes were taken during real-time for these (and all interviews), which were later used in the analysis section. Transcriptions of recordings were carried out by myself, which helped to initially make sense of the data. I included many extracts of data, in Chapter 4 and 5, to show the evidence of these recordings. After the transcription of each case study was completed, meetings were held with my first supervisor for discussion of the initial ideas around each case study to make sure I was following a consistent process across the research. The purposely selected data for the analysis was examined in Excel tables. In addition to this, as recommended by (Gibbert and Ruigrok 2010), a clear description of how the analysis process was conducted has been described across this section.

3.3.3 Credibility

Credibility refers to the level of confidence in the research findings (Holloway and Wheeler 2002). The credibility process was carried out in two levels: (1) practitioner-based; and (2) theory-based.

To increase credibility, I arranged meetings with participants from the organisation A and B to check and discuss findings. This helped to avoid biases and make sure the findings were an accurate representation of reality (Lincoln and Guba 1985). Feedback was taken into account and factored into our results. This ensured credibility and the reduction of research bias in my results.

From a theoretical point of view, I engaged two months as visiting researcher, between July 2017 and September 2017, in Åbo Akademi University, Turku, Finland. This visit enabled me to present my findings in two research seminars: (1) at the Åbo Akademi University; and (2) University of Turku. In addition to this, six individual meetings were conducted with researchers closely connected with the broad area covered by this investigation, as seen in Table 3.6. The average time for each feedback meeting was around one hour.

The meetings addressed a discussion of initial findings to enhance the credibility of my results. Feedback was collected and added this thesis work.

Feedback sessions with researchers on findings			
#	**Researcher**	**Research area**	**Focus of the meeting**
1	Professor Christian Grönroos	Marketing with an expertise in value co-creation as one of the founding fathers of this concept.	The focus of this meeting was to address the foundations of value co-creation. The theoretical framework was discussed as well as the types of co-creation.
2	Dr Elina Jaakkola	Marketing, with expertise in value co-creation in the solutions literature.	The focus of this meeting was to discuss the different value interactions from a solutions perspective.
3	Professor Kim Wikström	Project Management, with exper tise in business models: value creation and value capture	The focus of this meeting was in the functionality of a project-as-a service as well as in the connection between value creation and value capture.
4	Professor Karlos Artto	Project Management, with expertise in the project business and project outcomes.	The focus of this meeting was on how the types of co-creation were influencing the back-end of a project.
5	Dr Magnus Gustafsson	Project Management, with a recent publication on value co-creation.	The focus of this meeting was in the challenges around the co-creation of value, particularly in the co-destruction of value.
6	Professor Satu Teerikangas	Project Management, with teaching responsibilities in the service related-literature.	The focus of this meeting was in the overall structure of my findings.

Table 3.6. Feedback sessions with researchers on findings (Source: Author’s own).

In addition to the feedback received from the one-to-one meetings with the Finnish researchers (shown in Table 3.6), three peer-review research items have been already published (see Fuentes and Smyth; Fuentes 2019; Fuentes et al. 2019), which enhanced the credibility of the results. The feedback received for each item has been incorporated into the results of this thesis, where appropriate.

Finally, the key limitations of this study are addressed in the last chapter of this work.

3.4 Chapter Summary

Overall, this chapter provided the process by which this research has been undertaken. The chapter has addressed key aspects, such as the methodology and methods used for this study. The chapter has provided key information on the public client organisations and the six project case studies used. This chapter has also addressed the information about the data collection. In addition to this, the theoretical framework has been presented, which has been used to analyse the data. The chapter provides evidence on how the analysis has been carried out. The chapter ends with the steps, which have been taken, to ensure quality for this research.

CHAPTER 4: FINDINGS AND DISCUSSION (PART 1) – CO-CREATION OF VALUE OUTCOMES AND IMPLICATIONS

The key findings of this research have been divided in two chapters (4th and 5th). Each chapter starts with the findings, and then followed by a discussion section.

One key aspect to note in both chapters (4th and 5th) is that they are structured in themes. The themes represent the key emergent insights coming out from the analysis of the dataset from the six case studies (see section 3.2.7). In both chapters, after the presentation of the key themes, a cross-tabulation against each theme vs case study provides a holistic view on how each theme strongly appears in each case study. These complimentary views provide both a general and specific view of the phenomenon in stake.

In this chapter, the phenomena that are explored are linked to the RQ1.1, which aims to find out the types of value interactions occur across the project life cycle. In addition to this, this chapter explores RQ1.3, which intentions are to understand to what extent these value interactions contribute to achieving the client value outcomes and how value outcomes look like in the medium- and long-term. Overall, these two explorations feedback to the key research question (RQ1), which aims to explore the process by which project value outcomes are achieved.

The findings presented in this section show four key phases, which represent the process to co-create value outcomes in projects. Each phase shows key-value interactions that have come out as part of the emergent patterns in the dataset. Different case studies are addressed within each phase to emphasise the usefulness or the absence of each value interaction. This helps to build on how each value interaction has either positive or negative implications in the long-term. The findings section then presents a cross-tabulation of the key themes against the six cases to provide an alternative perspective of the phenomenon in place. After the empirical evidence has been provided from the dataset, the emergent themes and findings are discussed referring back to the relevant literature, already presented in Chapter 2.

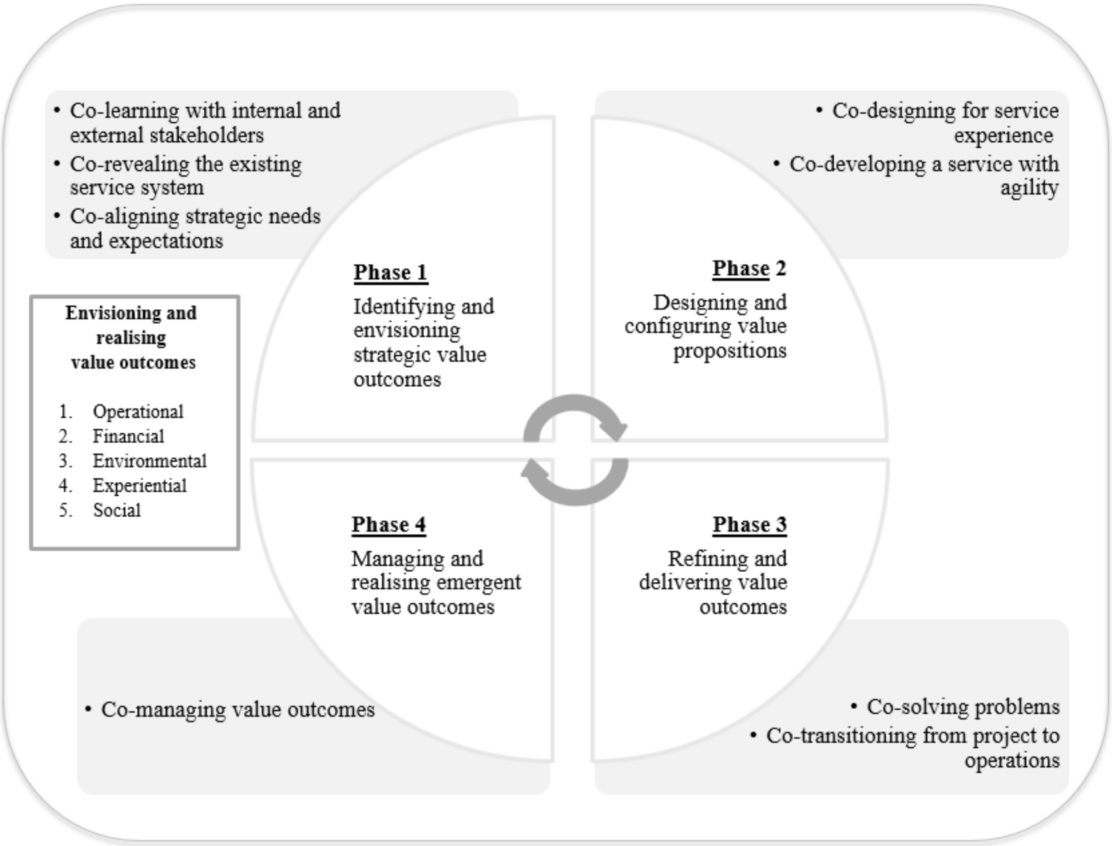
4.1 Findings section - Part 1

The dynamics of the co-creation of value have been identified in this chapter. According to findings, the process contains eight key-value interactions, which are used to co-create value outcomes across the project life cycle. These value interactions are grouped into four key phases. The phases cover from the front-end stage of a project to the back tail of a project. These four phases and eight key-value interactions reveal some of the dynamics of the co-creation of value.

Based on the emergent findings, Figure 4.1 has been developed to provide a process on how value outcomes are being co-created in the project business. In the first phase, it was found three key-value interactions that can enhance the value outcomes in the long-term. These set of value interactions are used primarily to identify and envision the strategic value propositions during the front-end stage of a project.

Once these value propositions have been identified, the second phase of the co-creation of value outcomes appears to design and configure value propositions. In the second phase, it was found two key-value interactions that are used to design the value propositions for the long-term. These interactions appear both during the front-end stage and the execution of a project. Later, the data suggest that value propositions become value outcomes. This transition from propositions to outcomes need refinement during the execution phase, rather than being frozen at the front-end stage. Thus, in phase three, two key-value interactions are used to refine and deliver the project. These interactions are used during the execution and the transition from projects to operations. Lastly, the final phase in the process to co-create value outcomes is used to manage value outcomes during the operations phase. There, it was found one value interaction that helps to manage the value outcomes in the long-term.

Overall, the process to co-create value outcomes is explored in this section. The following section will then address each phase and each value interaction to build the picture on how value outcomes are being co-created in projects (RQ1).



Co-learning with internal and external stakeholders
Co-revealing the existing service system
Co-aligning strategic needs and expectations
Co-designing for service experience
Co-developing a service with agility
Envisioning and realising value outcomes
1. Operational
2. Financial
3. Environmental
4. Experiential
5. Social
Phase 1
Identifying and envisioning strategic value outcomes
Phase 2
Designing and configuring value propositions
Phase 4
Managing and realising emergent value outcomes
Phase 3
Refining and delivering value outcomes
Co-managing value outcomes
Co-solving problems
Co-transitioning from project to operations

Figure 4.1. The process of the co-creation of value outcomes
(Source: Taken from Fuentes et al. 2019).

4.1.1 Lack of thinking about value outcomes

One key finding from the dataset is that key stakeholders within project teams, such as users, Project Managers and directors, have different perceptions of value and a lack of focus on the value for the long-term. Primarily, their decision-making process is based on short-term perspectives. For example, one participant stated the general views from value outcomes within organisation B:

"There is a large and disturbing ignorance around [the organisation], as to what is meant by value, if you go to any professional service…they have a different conception of it"

Head of Procurement – Organisation B

In the above evidence, the Head of Procurement suggests that there is a lack of understanding of what value means within the permanent. Thus, when temporary organisations are constructed, the meaning of value then becomes more complex to be articulated, particularly as internal and external stakeholders have different ideas on the meaning of value.

Value per se might be perceptual from different actors. Yet, the data show that different perceptions of value almost completely exclude value-in-use. This might create asynchrony of value outcomes for the long-term. In addition to this, the analysis of the data shows that diverse project participants, including sponsors, end-users and suppliers, strongly perceive value in the short-term. The long-term perspective is not fully considered in current project practice.

From the analysis, client organisations have a heavy emphasis: (1) on the delivery of manufactured products and systems; and (2) on the efficient use of financial resources primarily through cost reduction. The key focus of most of the participants was on the engineering inputs (project specifications), and outputs (products). This might suggest that project teams might underplay the usefulness of the project resources in the medium- and long-term, hence the lack of management of value outcomes at the early stage of a project.

To provide context to these value issues, Case Study 1 is taken as an example. This project shows how project teams tend to target short-term, rather than long-term valuable outcomes.

Two key findings concerning value outcomes were identified. Firstly, when exploring the benefits section from this project business case, the benefits section was written in a broad, vague and unstructured manner. For example, in the benefits section elements, such as improving the end-user satisfaction or improving productivity were found without a clear indication of their measurement. This shows that the main focus on the creation of value is on the production and delivery of the new products and systems, rather than in the usefulness of the value outcomes in the long-term

Secondly, there was a strong focus on the short-term aspects, particularly in the cost-reduction. To illustrate this finding, the project team, in Case Study 1, which was working on the procurement stage, was granted the best value-for-money award due to an efficient cost-saving negotiation. Exploring the implications of this project, it was found that project stakeholders and other users did not perceive the '*operational outcomes'* as useful. For example, the end-users reported operational issues, such as poor Wi-Fi signal, inadequate internet speed, and unavailability of the service in promised locations during the negotiations stage. One Technical Engineer, from this project, reflected on the long-term service provided:

> *"[The] service was crap…I am talking about Wi-Fi and the whole package…the project was about the cheap[ness]"*
>
> *Technical Lead – Case Study 1*

When further exploring the root cause of this problem, it was found that the project team selected the cheapest options for the solution, such as the type of equipment and the speed of the connection. The Commercial Manager in Case Study 1, from the supplier organisation, stated during the interview: "*I've got the impression that the [client organisation's] decision-making group went for the low-priced option".* By selecting the lowest-cost options for the solution during the negotiation stage, the project team was able to drive a cost-efficient solution. However, these low-cost solutions directly affected the '*operational outcomes'*. In economic, terms good input-output cost ratios are not conceptually the same as value-for-money outcomes. This example indicates these (public) organisations, using the equation of value-for-money, tend to focus on money (cost) rather than value or where value is seen as synonymous with cost, have a strong focus on the short-term and the financial aspects of the equation, leaving behind the value-in-use for the long-term.

It was noted that across the six cases the Project Managers did not manage to address multiple perceptions of value using workshops or interactive engagements. For example, in Case Study 5, the Project Manager organised multiple workshops with key stakeholders, where '*financial and operational outcomes'* were addressed. Yet, there is an overall lack of attention in the value outcomes for the long-term.

Across the data, it was identified eight key-value interactions that help to address and enhance the value outcomes in the long-term across the project life cycle. The following sections explore the different types of value interactions that project teams undertake to co-create value outcomes; and shows a four-stage process by which value outcomes are being co-created. Within each phase, key-value interactions have been identified. Evidence is presented to back the results. The structure of the following sections is based on the key emergent insights, rather than on the six case studies. At the end of the following section, a cross-tabulation is presented, which shows how each key emergent theme appears across the six case studies.

4.1.2 Phase 1: Identifying and envisioning strategic value outcomes

The process to co-create value has been presented in Figure 4.1. It starts with Phase 1, where project value outcomes need to be identified and envisioned from the present (early stage of a project) to the future (operations stage). The idea of this phase is to imagine and explore the perfect future of the project and how it can be achieved. The dataset shows that this phase takes places in the early stage of a project: the front-end. In contrast to the traditional conception of projects (see Case Study 3), where the key focus is on the creation of value inputs and outputs, this phase focuses on the value outcomes as a starting point. In this manner, the project teams may backcast potential value outcomes from the long-term. The phase starts exploring how value propositions can be transferred into the initial value inputs of a project. Overall, this phase allows the identification and envisioning of strategic value outcomes at the front-end of a project.

Within this phase, three key-value interactions were found across the data: (1) co-learning with internal and external stakeholders; (2) co-revealing existing service systems; and (3) co-aligning strategic needs and expectations. They may help to initially understand and envision the value outcomes.

The three interactions during this early stage of a project, are not linear or sequential. Instead, the evidence shows they are carried out concurrently. The exploration of these key-value interactions presents original findings, as explored in the following sections.

4.1.2.1 Co-learning with the internal and external stakeholders

The data show that project teams in client organisation co-learn from internal and external stakeholders, such as financiers, suppliers and end-users, to enhance the value outcomes. While elements of some projects might be considered as unique, other elements are known. This means that some stakeholders might have previous valuable experiences that might aid the project team in terms of developing the specification; and may help to avoid failures from previous undertakings. The data show that project actors might learn, from previous experiences, by two different routes: (a) absorbing explicit and/or (b) absorbing implicit knowledge.

According to the evidence, co-learning was particularly useful when dealing with uncertain and complex settings, particularly during the front-end of a project. As an example of co-learning, in Case Study 4, the Project Manager realised that there was uncertainty in the technical design of the new system. It was the first time the client organisation B was buying a High-Performance Computing (HPC) system. In contrast to traditional computer systems, this type of highly developed system had to be fully designed and tailored to achieve the required '*operational outcomes*'. The Project Manager, in charge of the project, realised that there was a lack of expertise in the project team in the design and configuration of these system requirements. Thus, the Project Manager decided to approach another client organisation, within the same sector, that had already finished an analogous project. This interaction resulted in a co-learning experience.

From the co-learning interaction, the client organisation was able to learn, both explicit and implicit knowledge, from an external actor. This helped to create a solid specification in terms of value outcomes. This co-learning interaction is described as follows:

> *"He [another client] had run a tender himself, and he came down to the meetings [with the potential suppliers], and had a look at our tender documents and suggested some improvements and some alterations…but, sometimes we had to say no to him, he was a bit pushy sometimes"*
>
> *Project Manager – Case Study 4*

From an explicit learning form, the external actor shared previous project documentation, tender package, and current performance indicators of the HPC system in a similar organisation. In addition to this, the external actor was able to provide feedback (and modifications) on the initial tender specification.

From an implicit form, the client organisation was able to gain informal experiences from the external actor as the person attended negotiation meetings with potential suppliers. One director reported that *"by having him [*external actor*] on the board, it minimised the chance of any wrong decisions being made" (Director of IT Services – Case Study 4).*

Both the implicit and explicit form of learning has been depicted in the following Figure 4.2. It shows the different types of interactions (learning) among the key stakeholders. In Figure 4.2, it can be appreciated that the key actor (client organisation A) was able to co-learn with suppliers, end-users, and external actors.

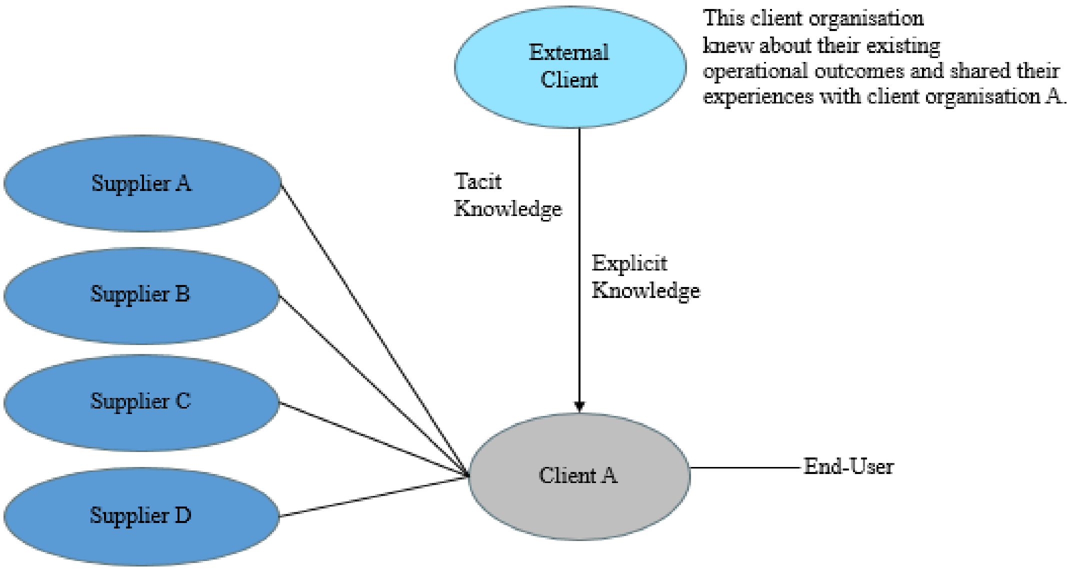

External Client
This client organisation knew about their existing operational outcomes and shared their experiences with client organisation A.
Supplier A
Supplier B
Supplier C
Supplier D
Tacit Knowledge
Explicit Knowledge
Client A
End-User

Figure 4.2. Co-learning interaction among key stakeholders (Source: Author's own).

This positive co-learning interaction in Case Study 4 contrasts with the experience from Case Study 6, where one participant mentioned the lack of a co-learning interaction: "*one of the lessons here is…I don't think our team have picked the good lessons from other organisations, there was a need to look wider and not looking inside and in what we know, because we [client organisation] are not the keepers of all knowledge*" (Commercial Manager – Case Study 6). In that project, the team had a degree of uncertainty, particularly in shaping the '*environmental outcomes'* and requirements, including waste collection, waste treatment, sustainability processes and other green practices.

A key issue here is that the project team was only inward-looking. The ‘co’ part of co-learning cannot take place if an organisation or project team is inward-looking. In this case, the project team decided to work in isolation from practices outside organisation B.

While benefits can be drawn through this co-interaction, as exemplified in Case Study 4, the data show there is a tipping point in this interaction. For example, during the successful interaction in Case Study 4, the Project Manager had to stop the co-learning interaction with the external actor. This decision was taken because the external actor was strongly inclined to putting forward a different set of requirements. The client Project Manager reported that the external actor had a lack of contextual awareness of the organisation. These aspects appear to have remained confidential to the external actor, according to the Project Manager. Thus, the Project Manager fully stopped the value interaction to avoid any wrong decision being made. This might suggest that full empowerment in the co-creation process, to an external actor, might be dangerous if external actors are not fully aware of the organisational contextual contingencies.

Overall, the co-learning interaction was used in Case Study 1 and 4. Yet, the remaining cases studies did not present this type of interaction. Some projects it appears did not require this interaction. For example, in Case Study 5, the client organisation B was created for the first time a unique service, so per se, there was no possibility to co-learn from previous experiences of external actors, which does not exclude co-learning in situ through trial and error. This interaction with co-learning from prior experience appears to be mainly driven by complex and uncertain situations, which can be managed in collaboration with other actors that have had previous and similar undertakings, as experienced in Case Study 1. Yet, the data also show that a tipping point might emerge, particularly, when the external actors are not aware of the organisational contextual contingencies. There, the full-empowerment to external actors might lead to co-destruction of value instead.

4.1.2.2 Co-revealing existing service systems

Another interaction during the front-end stage is the co-revealing existing service systems.

For this key interaction, the data show that the client organisations have uncertainties about the service provided by the supplier organisations. Tender responses provide evidence of previous experiences particularly when the providers use repetitive solutions across a variety of clients. For this reason, there is a need to reveal service systems in order to understand the existing infrastructure and systems operating in the organisations. For example, in Case Study 1, the client representatives, particularly the project sponsor, wanted to understand whether the supplier organisations could deliver the service. Thus, the client decided to visit the supplier premises to explore the existing infrastructure and systems operating. One of the client representatives reported this interaction:

I was impressed actually [of the premises]. It was a reasonable size their service desk, they had their Network Operations Centre with all the monitoring system, we talked to the engineers and they seemed more than capable… The key thing on this [visit] was the standardisation and to look at how [the supplier] performed their [internal] processes and how they standardised them… then we contrast that with the [runner up] supplier and they [runner up] seemed to be still back in the 20th-century type.

Head of Networks – Case Study 1

This value interaction was useful for the client organisation because they were able to observe and reveal to key aspects of the supplier organisation that were supporting the creation of the value outcomes: (a) the tangible aspects of the service system; (b) the intangible aspects of the service.

Concerning the tangible aspects, the client organisation A was able to observe three key aspects: (1) the physical environment. For example, the client representatives visited the Network Operations Centre and observed the technical infrastructure; (2) the service delivery process carried out by the supplier organisation. For example, the client representative visualised the actions from the help-desk team in real-time calls; in particular, the '*experiential outcomes'* from the user perspective were observed when the users were requesting information or fixing a network problem; (3) the back-office support. For example, the client representatives were able to see how the product standardisation was being managed.

Overall, the client organisations were able to reveal and envision the operational and experiential outcomes.

From an intangible point of view, the client was able to perceive some cultural aspects through the interaction, as reported by one representative:

> *"It was good to see the staff and if they were approachable, it was a good feeling, you can't score on that but you understand the culture of the company"*
>
> *Programme Manager IT - Case Study 1*

The client representatives reported that during this value interaction they were able to observe how well the staff was managing existing services. For example, the representatives were able to see how well the front-desk staff were facing issues with end-users. This allowed the client organisation not only to observe how capable the technical staff were but also how friendly, flexible and ready-to-help the staff were when they were communicating and solving problems with the end-users. This helped the client organisation to understand the organisational culture, in terms of employees' serviceability.

Overall, both tangible and intangible aspects of the service were revealed during this interaction in Case Study 1. Thus, the client organisation was in a stronger position to select the successful supplier based on the learned, observed, and envisioned '*operational and experiential outcomes'*.

The overall picture of this theme across the six cases studies shows that this type of interaction was found useful in Case Study 4, 5 and 6. For example, in Case Study 6, the client organisation organised site visits to existing sites, where they could perceive how well the '*operational and environmental outcomes'* were addressed by the supplier organisation.

According to the data, this interaction was found more useful for repetitive, rather than for unique solutions. For example, in Case Study 1, 4 and 5, the projects were IT-related. These IT projects appear to use repeatable solutions to ensure economies of scale and cost advantages. Thus, they repeat the same solution with several clients. In these types of projects, the co-revealing interaction appears to produce more benefits.

This interaction, in general, allowed the client and supplier organisation to co-create and ensure project value outcomes in the long-term. However, the application of this interaction depends on the context of the project, either if they are repetitive or unique solutions.

4.1.2.3 Co-aligning strategic needs and expectations

The third and last key-value interaction within the first phase to co-create value outcomes is the co-aligning strategic needs and expectations. This interaction was found at the heart of dialogue and negotiations sessions in the front-end of projects.

Projects are driven by different stakeholders, which may include different and competing needs and expectations. The data display that project client teams may use this value interaction to explore and align the expected value outcomes, and needs from the demand and the supply side.

This value interaction is based on a two-way communication route, where actors involved can address any issues or concerns from the project, primarily from the initial project requirements. For example, in Case Study 4, the client organisation organised market consultations (face-to-face meetings) with the potential suppliers to discuss the potential project requirements.

One participant reported the interaction as described below:

> *"In the tender documents, the suppliers tend to misunderstand the questions, but [for this project] we were able to talk to all the suppliers and we told them what we wanted so they could hear the solution that we wanted, as opposed to the written specification"*
>
> *Programme Board Executive – Case Study 4*

The above evidence indicates that the client was able to discuss and negotiate with the suppliers the potential solution. The Programme Board Executive reported that suppliers tend to misunderstand the written specification and roadmaps, so this interaction aligned the expectations from every side of the project. Thus, the intense engagement helped to visualise whether the roadmap of the organisation was in line with the client's organisation strategy for the long-term. During this interaction, some information was commercially sensitive, thus the client and supplier organisation(s) had to sign-off a non-disclosure agreement to keep confidentiality of their roadmaps and business models.

Thus, this co-aligning interaction through market consultations, supplier briefings, supplier demonstrations, and user workshops, might involve commercial risks, which may affect the business model of an organisation. For example, in Case Study 1, the client project team used engagement sessions with the potential suppliers to in-depth explore the technical solution. As an interesting collaborative interaction, the client decided to organise a session with the five potential suppliers to (try to) co-create value in a managed many-to-many interaction approach. However, this many-to-many interaction was not found useful, particularly by the supplier organisations, as having an open dialogue and disclosing information for the competitors may result, they claimed, in getting their technical and commercial ideas stolen, leading to losing competitive advantage in the market. It may also be a device to protect a transactional business model and discount a transformational approach. In any case, this evidence presents a tipping point in this value interaction: actors might be unwilling to risk their current market position when co-creating value.

The overall picture of this theme across the six cases studies shows that this value interaction was strongly used in Case Study 4 and 5, but disregarded in other case studies, such as in 3 and 6. In Case Study 3, for example, the '*experiential outcomes*' were not well perceived by the end-users. Those experiential outcomes could have been initially aligned and agreed between the end-users and the client organisation. This value interaction also shows that actors are willing to participate in this type of co-learning only in win-to-win situations.

Overall Phase 1 has been presented in this section and has shown three key-value interactions: (1) co-learning with internal and external stakeholders; (2) co-revealing existing service systems; and (3) co-aligning strategic needs and expectations, which may help client organisations to understand and envision the strategic value outcomes. These value interactions were employed during the front-end of a project. These findings show the micro-dynamics of value co-creation and how value outcomes are being envisioned and managed.

4.1.3 Phase 2: Designing and configuring value propositions

The data show that the process continues into Phase 2 by transforming the envisioned value outcomes into value propositions. The value propositions could carry the value across the project. To do this, the client project teams need to design and configure value propositions that will inform the project specification, contract, and other non-contractual forms of agreements (promises) made during bidding and the final negotiations. In a similar basis from Phase 1, two value interactions were identified from the evidence that may help to design and configure the value propositions for the long-term: (1) co-designing for service experience; and (2) co-developing a service with agility.

These two interactions were perceived during the front-stage of a project and execution. They can be used to purposely design and configure the value propositions across the project front-end and early stages of the project execution. The evidence shows that there is a need for flexibility in the planning stage to avoid the complete freeze of requirement at the early stage of a project. This flexibility may allow the service delight for diverse stakeholders.

These findings are relevant because they are looking at the configuration in the long-term rather than in the short-term. In addition to this, they are part of the portfolio of value interactions that can be used to co-create value in project settings.

4.1.3.1 Co-designing for service experience

According to the data, the '*experiential outcomes'* are at the heart of the delivery of the value outcomes. The data show that the experiential outcomes are assessed by the user stakeholders during the execution and operations phase. Thus, the evidence indicates that service experience in projects can be divided into two main avenues: (1) the service experienced by the relevant stakeholders during the execution of a project; and (2) the service experienced during the operations phase. The idea around this interaction is to design the '*experiential outcomes'* from an early stage of a project. This interaction reaches its peak intensity at the early stage of a project but can be also used across the project life cycle. However, it is at the front-end, where most of the experiential outcomes can be designed.

The data from the six cases studies show that Project Managers often disregard the design of the service experience. According to the evidence, the traditional focus on the design is on the products and systems, for example design-for-manufacturing techniques are widely focus on new product developments. Yet, projects have other soft aspects, such as the service experience, which has been disregarded by the providers.

The overall picture of the data show that projects scarcely design the service experience. Case Study 3 provides valuable lessons to understand the implications of a lack of design-for-service experience, which may feed for other projects. In this project, the client organisation B decided to carry out the project in a fully-occupied student residence, which belongs to the client organisation, during the (study) exams period. The refurbishment was initially planned at the beginning of the academic year, yet the students were uninformed about these construction works at the point of contract. The data show that the client and supplier organisation were unable to understand the implications of the construction project in the student residence. The focus per se was on the technical design of the refurbishment, rather than on the functionality of this service. The project resulted in mental and physical discomfort to the end-users, as they complained when the refurbishment was taking place. The overall service experience from the end-users perspective was destroyed, as shown in Figure 4.3.

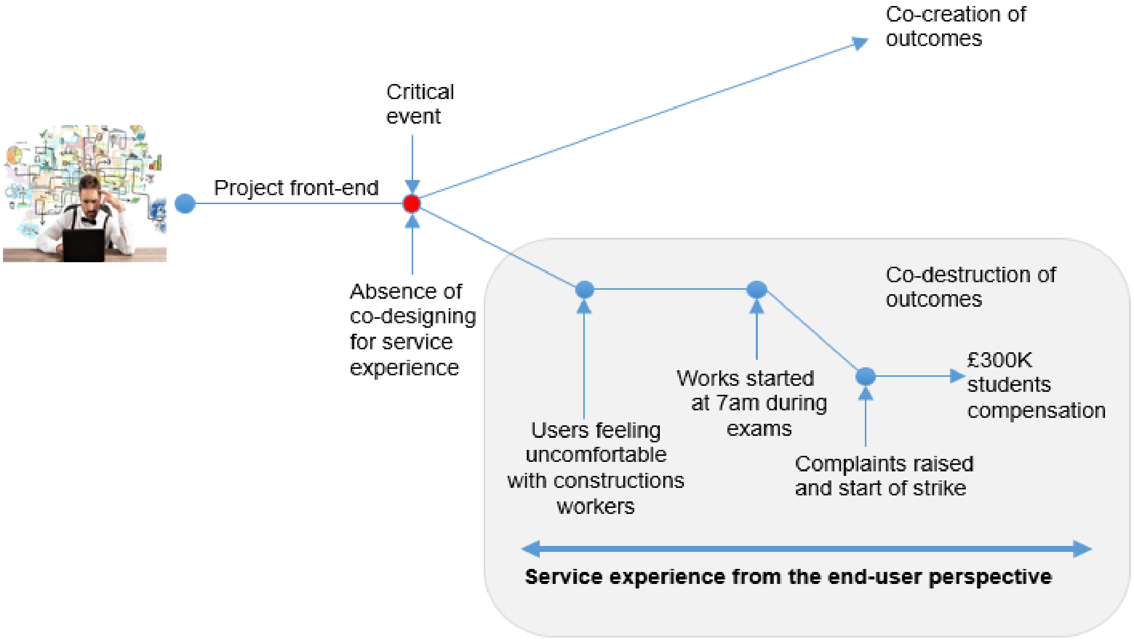

Co-creation of outcomes
Critical event
Project front-end
Absence of co-designing for service experience
Co-destruction of outcomes
Users feeling uncomfortable with constructions workers
Works started at 7am during exams
Complaints raised and start of strike
£300K students compensation
Service experience from the end-user perspective

Figure 4.3. Service experience from the end-user perspective in Case Study 3 (Source: Author's own).

This destruction of the service experience was reported as follows:

You couldn't study in your own room if you wanted to [...] I wasted a lot of time because I'd have to go somewhere else to study and spend time complaining...

End-user – Case Study 3

I understand this may have caused some considerable amount of inconvenience [to end-users] such as privacy, disruption, workmen noise and workmen walking past bedroom windows.

Residence manager – Case Study 3

The evidence shows that the end-users were not treated as co-creators of value through any planned direct interaction; they were treated as consumers. The construction works were not communicated to the student community. Students, thus, reported disruptive works, inappropriate start and finish working times, verbal offences from the construction workers on site. In addition to this, there was a lack of communication from the client management team with end-users, and a lack of formal procedures from the client organisation to address complaints.

The evidence suggests that there is a lack of investment to address the service logic and it may bring negative (financial) consequences to the client organisation. For example, in Case Study 3, the student decided to organise themselves to defend their value outcomes and hold a strike action against the university. The strike resulted with a financial compensation of £300,000 (Times Higher Education 2015; The Guardian 2017). The data then suggest that the lack of investment in this form of boundary-spanning interaction, may not only destroy the value (in the form of experience), but may also leak (financial) value.

While in Case Study 3, the functional silos activities damaged the experience during the project execution, contrast results are presented in Case Study 5. There, the client organisation moderately managed to design the service experience for the operations phase. This service design was carried out through workshops among the relevant stakeholders. According to the end-users, the functionality was agreed during these engagements. Yet, power asymmetry was evident in the allocation of the benefits, as the service experience was not as expected in the long-term.

The client organisation argued that they unintendedly produced a business change affecting the end-user experiences. However, the end-users perceived this as an act of power asymmetry. Key stakeholders stated this as follows:

> *"We did not spend a lot of time looking at the services team, they struggle [now] internally with their business change, which is a point for the lesson learned. We did not spend much time with them and only now we are getting on top of that"*
>
> *Senior Project Manager – Case Study 5*

The end-users complained about the service experiences during the operations phase. This desynchronised process resulted in infective daily routines and services. Due to these infective experiential and functional outcomes, the Project Manager reported that the service experiences were being re-designed during the operations phase. This may suggest that this interaction, co-designing the service experience, may reach its peak level during the early stage of a project. Otherwise, it might be difficult and costly to design the experience.

The overall evidence from this value interaction across the six case studies is weak. Project teams and Project Managers have a strong industrial focus on the design. This may suggest that there is a big gap both in organisation A and B to address the design of the service experiences, from the user perspective. For example, in Case Study 2, 3, 6, there is no reference of any design of the service experience. In addition to this, the design of the service experiences in Case Study 1 and 4 did not employ any design service tools to map the experiences.

Overall, this evidence starts to close a gap in how experiential are currently addressed in projects. In particular, it shows that this interaction needs addressing at the front-end to avoid the destruction of business models from the client organisation’s perspective. While the evidence per se does not show positive practices with this interaction, it does provide valuable lessons on how to avoid the destruction of value.

4.1.3.2 Co-developing a service with agility

The next interaction within this phase co-developing a service with agility. In a similar vein to the co-design interaction, the key idea is to work together with relevant stakeholders in a project to develop the value outcomes with flexibility. This type of interaction goes in contrast with the traditional planning methods, which freezes the initial project requirements at the front-end. The key idea with this interaction is to keep the set of requirements slightly open so the project team can carry out changes across the development sequence

As an example of this co-development, in Case Study 5, the client organisation wanted to implement a new software solution, which was unavailable in the market. The client organisation decided to engage with a supplier organisation and end-users from an early stage to develop the product from scratch. Due to the novelty of this solution, the client and supplier organisation recognised high levels of technical uncertainty to develop the new system. To reduce uncertainty, both organisations had to work together to develop solutions across the project life cycle. Rather than freezing the requirements at the early stage of a project, multiple interactive activities and workshops were established to explore operational scenarios and the overall operational outcomes of the service.

The Senior Project Manager reported the management of workshops with around twenty end-users, who were co-developing the functionality of the service. The project was then divided and delivered in stages. The Senior Procurement Manager from Case Study 5 stated that *"[Some of] the initial requirements changed because we were able to know if the supplier could do something or not"*. Thus, some of the requirements were modified across the delivery for each specific stage (or module). The modifications were agreed regularly through sprint sessions, where, requirements were verified and modified, if necessary. This was a different form of development as compared to other case studies where the planning stage was frozen at the beginning of the front-end stage. A participant reported on this the iterative interaction as follows:

> *"The sprint sessions helped us to set out a very clear directive on what we were doing and on what we were focusing… so at the beginning of every month, we had a sprint kick-off workshop [with the relevant stakeholders]. Part of it was about what was done in the last sprint, we learned from each sprint, and we made sure the change list was signed off. We also planned what would be done for the next 4 weeks"*
>
> *Senior Project Manager - Case Study 5*

According to the Project Manager, these interactions between the client, supplier, and end-users allowed the project team to create flexibility in the process. However, this flexibility resulted in incrementing the number of resources for the project team, particularly for the number of workshops, sprint sessions and project boards. This suggests that re-planning is more costly. For example, the senior Project Manager reported hiring another junior Project Manager to cope with the work. Therefore, a different working culture is required in this type of interaction.

In a similar vein to the co-design interaction, diverse stakeholders from different stages of a project need to be working on this type of interaction to make it work. This may be difficult for complex and long-projects, where some of the stakeholders have not been identified due to the nature of the project uncertainty. The data show that actors from the project and operations team, from the client organisation B, were working in collaboration in this project.

The Project Manager reported that human resources were allocated and agreed during the design of the business case.

Overall, this type of intense collaboration is not usual in the project business. For example, both Case Study 1 and 5 are the only cases, which show the use of this interaction from the procurement stage. In Case Study 1, this form of interaction ended in the execution stage. Yet, Case Study 5 presents this interaction across the project life cycle. As a final observation, Case Study 1 and 5 are both IT-related projects, however, this flexible approach was not observed in construction settings. This nay suggest that the flexible mode of working is recurrent in IT-related projects. This finding may suggest that more flexible planning is required, yet the number of resources, human and financial, are also required more intense as compared to traditional planning.

As a summary, in this stage, two interactions were found: (1) co-designing for service experience; and (2) co-developing a service with agility. The evidence shows that these interactions allow project teams to work on the value propositions across the project life cycle. However, investment is required to execute both interactions, as modern tools to manage these are needed. A key observation is that a different form of working culture is needed, particularly as teams from the projects and operations need to work together to design the value outcomes.

The following phase aims to connect successfully the value propositions, which were designed and developed during this stage. Thus, the following stage aims to refine and deliver the value outcomes to a range of stakeholders.

4.1.4 Phase 3: Refining and delivering value outcomes

Once these value propositions are designed and configured, they need to be delivered. During this process, the micro-level analysis shows that problems often arise. Phase 3 shows that during the execution stage, project practitioners refine and deliver the value propositions through two direct interactions: (1) co-solving problems; and (2) co-transitioning from project to operations. The originality of these interactions is that they ensure the delivery of value outcomes in the back tail of the project. These interactions are shown in the following sections.

4.1.4.1 Co-solving problems

According to the data, projects are full of human interactions and, as consequence, problems arise at all times among stakeholders. These problematic interactions are vital to ensure the delivery of the value outcomes. This interaction can re-align an inadequate value proposition if the interaction is focused on solving the problem.

The six case studies explored have shown that problems are constant and may arise at any point during the development sequence. For example, in Case Study 3, the client and supplier organisation did not design the service experience with the end-users. The end-users complained and defended their value outcomes during the engagement at the project execution. The client organisation inadequately managed the problematic engagement among the three key stakeholders: client, supplier, and end-user. This mismanagement resulted in a confrontation among the three parties.

The main problems started when the construction works were disrupting the routines. Users argued that the construction works were never specified in the initial contract and no warning was given to the students before the construction took place. Thus, miscommunication was evident in this project among key relevant actors. The client organisation did not take full responsibility for this mismanagement of the service. One end-user reported the interaction between users and the client organisation as follows:

> *"The politeness from the institution was quite poor…we had one meeting with the manager to discuss the problems, the guy was responsible for the change, but we had that meeting and nothing was happening…he was so angry [with us] at that meeting"*
>
> *End-User – Case Study 3*

The interaction showed that the client organisation could not handle the problem properly. Firstly, the end-users reported there was a lack of formal process to track and to address the problems. Secondly, the meetings held between the end-users and client organisation were not regarded as fair play and polite by the end-users. They reported an aggressive and defensive attitude by the client organisation during the problem-solving sessions. This suggests that soft skills are highly required when dealing with tense situations.

Based on this interaction, the students decided to call for strike action. This shows that problem-solving interactions require actors to have adequate soft skills, such as emotional intelligence, to face the problems at stake.

In contrast to Case Study 3, in Case Study 1, the client and supplier organisation faced problems during the execution phase, however, as *"they were working very closely over the procurement piece and it built up a strong working relationship prior to the beginning of the development work*" (Programme Manager – Case Study 1). This evidence suggests that the construction of a relationship prior to the problem may help to address problems during the execution phase. Relationships are built over time, thus co-solving requires proactive and collaborative engagements across the project life cycle to ensure that the team is mature enough when problems arise. The data show that when this type of interaction was not well managed, it can lead to co-destruction. For example, in Case Study 2, the confrontation between the supplier and client ended in the termination of the contract.

4.2.4.2 Co-transitioning from project to operations

The last interaction within this phase is co-transitioning from project to operations. Value propositions are designed and developed in Phase 2. A key purpose in Phase 3 is to deliver the value outcomes to the relevant stakeholders. To accomplish this, projects need to be properly transferred and delivered to operations. However, the data from the six case studies show that the project struggled to transfer the project into operations. This transition does not appear to be adequately managed.

The traditional project management methodologies used by the client organisations A and B (e.g. Prince 2 from OGC) present a lack of consideration on this final transfer stage between projects and operations.

For example, in Case Study 2, the Senior Procurement Manager reported that "*the transition into operations [of the managed print service] was poor, we actually have a hole here".* In this case, the project team did not have a process to transfer the project to operations. This evidence may suggest that client internal teams often throw projects 'over the wall' to the operations team. Similarly, from the supplier point of view, there is a lack of engagement to transition the project. For example, in Case Study 1, the Project Manager from the supplier organisation stated: "*When I delivered the project and I handed it over to the service manager and this sounds terrible but I basically walked away"* (Supplier Project Manager – Case Study 1). This evidences that organisations do not fully address the transition to operations.

This evidence suggests that there is both an internal and external lack of synchronisation to deliver the project into operations. From the six case studies, only Case Study 5 addressed properly this interaction through systems validation, system testing, and training of personnel from the project team to the operations team. One practice from Case Study 5 was that the client team decided to test the system, not only in collaboration with the operations teams and supplier organisation but also with the end-users who initially designed the project requirements. The synchronisation between the key stakeholders created consistency and continuity during the delivery of the service.

One participant described the interactions as follows:

> *"We tested as went along with the system and at the end of that process we signed a user acceptance testing and we invited much of the end-users that we had in procurement and they came back and had a look at the system again with all the changes that we made"*
>
> *Senior Project Manager – Case Study 5*

The second form of transition is at the start of the operations phase. For example, in Case Study 2, there was a lack of internal collaboration from the project team at the start of the contract. The Senior Procurement Manager reported that the main supplier organisation: *"started to disengage and getting bad habits because there was no one to control them or to make sure they were doing the right thing*". Thus, the internal transition of projects to operations is critical to the delivery of valuable outcomes. In addition to this, the delivery of value outcomes depends not only on the client's internal team but also in the external alignment with other organisations.

Overall, the six case studies show that projects struggle to transfer the project into operations as well as to get operations running. Out of the six case studies, only Case Study 5 presented strong evidence in the transition of the service, with co-creative activities, such as testing, validation, training, and dialogue between the operations and project teams.

As a summary, Phase 3 has presented two key interactions: (1) co-solving problems; and (2) co-transitioning from project to operations, which appear to refine and deliver the service. These interactions are critical because they ensure the delivery of the value outcomes at the end of the project life cycle. In particular, this section has demonstrated that problems arise in projects constantly. Thus, the management of problematic and tense engagements may ensure that value is co-created rather than co-destroyed during the delivery, as presented in Case Study 3. The evidence shows that traditional project management approaches disregard these transitions, yet they ensure the emergence of the value outcomes in the long-term.

4.1.5 Phase 4: Managing and realising emergent value outcomes

One originality on this data is the strong connection between the front- and the back-end of a project with the operations phase. Frequently, projects and operations are considered as separate entities. Yet, the process of the co-creation of value outcomes shows that the last stage is useful to manage the emergent value outcomes during the operations phase. While this interaction occurs within the operations phase, the management of the value outcomes requires that some actors from the project team still consider managing the outcomes during the operations for a short- to medium-term. In this last phase, one value interaction was found: co-managing value outcomes, which aims to manage and realise the emergent outcomes. While some of the value outcomes might appear in the execution phase of a project, the data show that the majority of the value outcomes emerged during the operations phase in the medium- and long-term.

4.1.5.1 Co-managing value outcomes

Projects produce value outcomes in the medium- (during execution) and long-term (during operations). Thus, there is a need to properly manage the emergent value outcomes and realise the value outcomes during both stages. Frequently, projects and operations have been considered as separate entities, yet this interaction aims to interconnect both ends. The evidence shows that there is a strong disconnection of project and operations team. Both teams work in isolation according to the data. In addition to this, the evidence shows that operation teams do not look after the value outcomes. They look at value outcomes in terms of the new or modified routines generated by the project value outcomes. Yet, the operations team are not fully aware of value outcomes because the operations teams are not part of the initial design of the value outcomes.

In addition to this, the mismanagement of the value outcomes during this phase may compromise and often destroy the value outcomes and the efforts made by the project team. One key finding during the operations phase was the mismanagement of the contract. For example, one senior participant in Organisation B stated:

> *"Contract management is often overlooked, you can speak to any procurement department in the HEI sector and if they were truthful they will say, 90% of them, sorry but we don't have time to do an end to end process"*
>
> *Head of Procurement*

The evidence suggests that all efforts made by the project teams go flat during the contract management. Contract management may be the means to allow the emergence of the value outcomes during the operations phase. Yet, the data show that this value interaction, in the form of contract management, is often overlooked by project and operations team.

This can be exemplified in Case Study 2. There, the Project Manager did not work in collaboration with the operations team. The '*operational outcomes'* started to fall and they were disrupting the existing services and routines.

One senior participant stated about the project:

"We don't have a dedicated manager doing contract management to make sure the SLA [Service Level Agreements] are met and at the moment they are not"

Head of IT Asset and Supplier Management – Case Study 2

In Case Study 2, the Head of IT Asset and Supplier Management stated that there was no person assigned to do the contract management. During the interview neither the Project Manager nor the Service Manager (often called Service Owner in organisation B), felt the management of the (operational) value outcomes were not part of their job responsibility. Then, it is the Service Owner, who deals with day-to-day project routines. Yet, they are often unaware of the project negotiations at the early stage of the project. Thus, there is a management gap, as there is a lack of transition of responsibilities from the Project Manager to the Service Manager. Both the Project and Service Manager argued that financial resources were required in order to fund this management.

One of the key findings across the six case studies is to show that when supplier organisations learned there was inadequate management of the value outcomes, from the client organisation, they started to behave unethically. This resulted in missing the expected operational and service agreement, as stated by one participant:

"One of the problems with the contract, it was that we assumed that the supplier would do what it has written in the contract [but] suppliers won't do what it is in the contract unless they are particularly conscientious, so they run away from it if they can… [For example], they invoiced at the base rate which was more expensive"

Senior Procurement Manager – Case Study 2

This suggests that the management of the value outcomes in the final stage help not only to ensure that the contract is delivered according to the expected service, but also helps to control the behaviours of the contractors during the service. The evidence across the six case studies suggests that client organisations often lack orchestration of people, processes, and systems in order to manage the contract. According to the evidence, an end-to-end contractual process shows that Project Managers need to write the intangible aspects of the service and transform them into requirements.

According to the evidence, the mismanagement of the emergent value outcomes may result in additional costs for the client organisation. For example, in Case Study 2, the destruction of the emergent value outcomes was perceived through the low operational performances; and the uncontrolled financial transactions. This triggered the decision to terminate the contract by the client organisation. At the time of writing the client organisation is re-tendering the contract, which has consumed more (human and financial) resources, as this tender is being carried out twice. This shows that the mismanagement of the emergent value may result in the destruction of value in the long-term

Overall, from the six case studies, only Case Study 4 and 5, dealt with this type of interaction. In these projects, service review meetings created the pace to have a dialogue between the relevant stakeholders, including the service owners and end-users. In Case Study 4, the Project Manager reported having attended the initial service review meeting to make sure the contract was being run appropriately and then the responsibility was transferred to the Service Owner. Then, the Operations Manager took over the meetings and the management and realisation of the contract and the value outcomes. This contrasts Case Study 2, where the poor contract management resulted in the contract being terminated and the destruction of operational and financial value. Project teams often disregard this value interaction, and it is the stage where most of the value outcomes emerge, thus it needs management attention.

As a short summary of this finding section (part 1), these four phases have been presented, which aim to lead the co-creation of value. This section, therefore, contributed to understanding how value outcomes are being co-created in the project business. The four phases aim to connect both the front-end of a project and the operations stage. This may be considered as original as most of the project life cycles end at the end of the delivery stage.

The integrated four phases presented in this section have shown eight key-value interactions that may facilitate the co-creation of value outcome across the project life cycle. These interactions are an original finding as most of the studies in value co-creation consider co-creation as a homogeneous activity. Yet, the findings have shown managerial actions, which project teams may use to operationalise the co-creation of outcomes. According to the evidence, these value interactions are not inclusive, instead, other value interaction may appear in different projects and sector. Some of these interactions may work better in some sectors. Overall, these eight interactions might be an indication of the current co-creation practices, particularly coming from the public sector, but other sectors indeed may need further exploration.

According to the evidence, the implications of these value interactions resulted in five types of value outcomes, including the Operational, Financial, Environmental, Experiential, and Social. These outcomes were being shaped and delivered using the eight key-value interactions. This analysis of value outcomes was possible due to the fact that the data collection on this project included the operations phase, thus it is possible to read the implications of the value interactions presented in the above section. The value outcomes are not linked per se to any interaction. According to the data, the portfolio of value interactions can be used in different ways to ensure the value outcomes in the long-term.

In the following section, to give significance to the key themes, which emerged from the analysis of the six cases studies, a cross-tabulation of the co-creation themes vs. the case projects is presented.

4.1.6 Key cross-case analysis of the co-creation themes vs. the case projects.

In the previous section, the insights are presented, including the phases to co-create value. The phases have shown how outcomes are being co-created in the project setting. In this section, the key emergent themes have been mapped against each case study. This represents another angle on the analysis and provides an overarching view of themes across the data.

One key finding was found: *timing* is an important issue at the process of co-creation. The cross-tabulation shows that the process of co-creation of value outcomes acts as a recurrent rather than an isolated activity. For example, in Case Study 1, the examination shows that the client organisation carried out some value interactions at the early stage of the project, for example, the co-revealing existing service systems. Yet, there is an absence of value interactions at the end of the process. This may suggest that the value interaction need to be applied uniformly across the project, connecting both the front-end of a project with the back-end (operations). This may create an end-to-end process. This may suggest that value outcomes need to be adequately configured at an early stage and realised at the end of the process.

Another key finding in this cross-tabulation is that *uncertainty and complexity* trigger the need to co-create value, otherwise there is no need to co-create value when the solution is widely known. For example, in Case Study 4, there were high degrees of technical uncertainty, particularly as it was the first time the client organisation was procuring a high-tech system. This uncertainty pushed the client organisation to co-learning with an external actor, otherwise there is no need to co-create.

Another key finding is how the *client organisation* occupies a decisive role in the achievement of value outcomes. While it may need higher investment, strong evidence coming from Case Study 4 and 5 show that the more value interactions undertaken by the client organisation, the higher the possibilities to create and deliver the value outcomes, not only for the client itself but also for the end-users. For example, in Case Study 4 and 5, there is a strong presence of value interactions. The presence of the interactions appears across the project life cycle. As a result of these, the perceptions of the value outcomes (perceived by the interviewees) in both projects were relatively successful. This may suggest that co-creation activities may lead to valuable outcomes. By contrast, this also may suggest that the fewer value interactions undertaken by the client organisation, the higher the opportunity to constrain and destroy the value outcomes. For example, Case Study 2 and 3 have presented absence of value interactions. Both projects have resulted in the destruction of the value outcomes in the long-term.

While these findings may suggest that the more interactions carried out the better, some of these value interactions cannot be straightforwardly carried by the client organisation, as the social context influences the extent to which the client organisation can undertake these management actions.

Another evidence from this cross-tabulation is that that value interactions per se consume *human and financial* resources. The evidence shows that projects can save financial resources due to the lack of value interactions at an early stage of a project. However, the examination of the projects shows that the absence of the value interactions may result in negative financial implications for the project. For example, in Case Study 3, the project presented a lack of value interactions, particularly to co-design the service experience with the students. This directly contributed to the destruction of experiential value, as students were complaining about the construction works during the exam period. The results were a student strike and a bad reputation to the client organisation for the mismanagement of the project

Overall, this cross-tabulation of cases vs co-creation themes has presented another angle to the co-creation of value. One key aspect to mention that the emergent themes are not considered as inclusive. Instead, other sectors may draw a list of other emergent interactions. In addition to this, the list of interactions is drawn from public organisations, thus the private sector may use other forms of value interactions. Nevertheless, the set of these eight key-value interactions. This mapping of value interactions may be a good indication of other practices and challenges around the management of value outcomes in project settings.

The following section will then discuss each of the key findings from this section against previous relevant literature.

4.2 Discussion of findings – Part 1

This section addresses the discussion of the process to co-create value outcomes, the value interactions across each phase, and the implications of these value interactions in the form of value outcomes. This section is structured as follows. Firstly, the discussion explores the specific value interactions that are found in each phase. There, key contributions are presented within each phase. Next, the discussion addresses the types of value outcomes that emerge in the long-term. Overall, the findings are discussed and critically analysed against previous literature.

Overall, this discussion section (partially) addresses the key research question (RQ 1), which explores the process by which value outcomes are achieved. This process is explained through four phases to manage the value outcomes. This section also explores the sub-research question (RQ 1.1), which aims to explore the type of value interactions that occur across the project life cycle. Finally, this section explores the implications of the value interactions in the medium- and long-term. This helps to understand how value outcomes looks like in the long-term (RQ 1.2).

The overall analysis of this section has been matched against previous literature on project management and other service related-literature to make a sound contribution.

4.2.1 The strategic process of co-creation of value outcomes

This section discusses the overarching process of how value outcomes are being co-created. The following section then takes a more detailed view of each part of the process.

According to the data, a strategic process to co-create value is comprised of four phases as presented in Table 4.1. The evidence shows that the value outcomes need management across the project life cycle to ensure effective delivery of value. Figure 4.1 and Table 4.1 have been constructed based on the emergent findings from the data.

These four phases have a focus on values outcomes, rather than in value outputs, primarily influenced by the literature of Service-Dominant Logic (Vargo and Lusch 2016; Grönroos 2017). These four phases are in line with previous project development sequence (Morris 2013), yet the process has been expanded to take into account the operations phase. This is considered a key originality of this process as it connects both the project and operations phase. Frequently, project life cycles end when the project has been delivered (PMI 2013). Even so-called cradle to grave perceptions tends to leave a gap between the immediate delivery aftermath and decommissioning. There is a possible exception of whole life costs, but whole life benefits are frequently assumed or ignored. Yet, the data suggest that value outcomes are important and to ensure optimal realisation, thus they need management, both in the medium (execution and delivery phase), and in the long-term (operations phase) (Fuentes 2019).

This set of phases can be seen as a complementary perspective to the product-creation approach (Winter et al. 2006), where the products and value outputs are the main focus. Instead, this process focuses on the identification, envisioning, and realisation of the value outcomes in the long-term.

<table>
<tr><th colspan="2">Process to co-create value outcomes</th></tr>
<tr><th>Phase</th><th>Value interactions within each phase</th></tr>
<tr><td>Phase 1: Identifying and envisioning strategic value outcomes.</td><td>(1) Co-learning with internal and external stakeholders
(2) Co-revealing existing service systems
(3) Co-aligning strategic needs and expectations</td></tr>
<tr><td>Phase 2: Designing and configuring value propositions.</td><td>(4) Co-designing for service experience
(5) Co-developing a service with agility</td></tr>
<tr><td>Phase 3: Refining and delivering value outcomes.</td><td>(6) Co-solving problems
(7) Co-transitioning from project to operations</td></tr>
<tr><td>Phase 4: Managing and realising emergent value outcomes</td><td>(8) Co-managing value outcomes</td></tr>
<tr><th colspan="2">Implications of this process in the long-term</th></tr>
<tr><td colspan="2">This four-stage process, including the eight key-value interactions, may improve five types of value outcomes in the long-term: (1) Operational; (2) Financial; (3) Environmental; (4) Experiential; and (5) Social Value Outcomes. People are at heart of the co-creation process, thus this process, and its interactions, cannot be fully controlled. This may suggest that the above process may create non-linear intended and unintended value outcomes in the long-term.</td></tr>
</table>

Table 4.1. Process to co-create value outcomes (Source: Taken from Fuentes et al. 2019).

The process suggests backcasting the value outcomes, which can then inform then value proposition, hence value inputs and outputs. The management, including backcasting, does not only include content but interaction management for co-creating value. The analysis of data suggests that a focus on both outputs and outcomes is required to facilitate the service provision (Smyth 2015). Yet, the data show project teams tend to focus mostly on the outputs.

Another originality of this process is that it allows flexibility on the co-creation of outcomes during the execution and delivery phase. In contrast to traditional project life cycles (PMBOK 2013), the process presented in this work takes into account a more realistic view on the value outcomes, where some of the value propositions can be re-configured and re-designed during the execution phase (Levitt 2011). While flexibility is allowed in this process, this process still considers that the early stage of a project is where most of the value can be identified, configured and designed (Morris 2013). Yet, Pryke (2018) criticises the work on the front-end as it has tendency to freeze the initial requirements.

From this four-stage process, it was found that key-eight value interactions appear to enhance the project value outcomes in the medium- and long-term. The exploration of these eight value interactions in the micro-level may inform the theory and practice. This group of integrated interactions, including their strengths, tensions, weaknesses, are considered as an original contribution to knowledge to the project literature. They are not an inclusive list but may indicate how value interactions may look in the ground.

This set of value interactions contrasts the literature in project management and marketing, which have not determined the interactions that create value (cf. Vargo and Lusch 2004; Prahalad and Ramaswamy 2004; Ballantyne and Very 2006; Storbacka et al. 2016). Frequently, interactions been have treated in a normative, manner, and it has not been specified how value could be co-created (Storbacka et al. 1994; Gummesson 2002; Smyth and Pryke 2008; Smyth and Fitch 2009; Cova and Salle 2008). Previous work on the marketing and solution literature (see Aarikka-Stenroos and Jaakkola 2012), has explored value interactions, yet this exploration is on the macro-level and for Business-to-Consumer settings.

The following section discuss each phase and the key-value interactions and its contributions.

4.2.1.1 Phase 1 - Identifying and envisioning strategic value outcomes

The emergent insights show that the first phase of the co-creation of value outcomes aims to understand, identify, and envision value outcomes in the long-term. The initial identification and envisioning of value outcomes may aid to backcast (Smyth 2015) and imagine the service (Razmdoost and Smyth 2015) to create more intense value propositions at the front-end. This identification and envisioning of value outcomes may help to create a future perfect project (Pitsis et al. 2003). This phase could be considered as original, as traditional project life cycles (see PMBOK 2013) consider the management of the products and outputs, rather than the outcomes, as the starting phase of its project life cycles. For example, Serra and Kunc (2015) suggest to design first project outputs, rather than value outcomes, in their research to achieve project benefits. However, the emergent findings in this work suggest that value outcomes need to be intensively envisioned and identified before the creation of the products at the front-end of projects.

According to the results, three key-value interactions form part of Phase 1: (a) co-learning with internal and external actors; (b) co-revealing the existing service system; (c) co-aligning strategic needs and expectations.

The first interaction is concerning the co-learning with internal and external actors' interaction. While previous studies in projects have addressed the learning aspects in the project business (e.g. Davies and Hobday 2005; Chesbrough 2011; Gann et al. 2017), in this study, there is an emphasis upon co-learning as a constituent of the co-creation of value and in how this looks like in the ground. For example, in Case Study 4, the client organisation had uncertainty about the technical solution of the system, thus the client decided to learn previous experiences from an external actor, who had completed a similar project.

The co-learning interaction may result in two types of knowledge gained: (a) explicit knowledge: through previous project documentation and understanding of current operating system performances, coming from an external actor; (b) implicit knowledge: through the skills and experiences, from an external actor, applied during the negotiation sessions. This micro-level exploration of this learning interaction is considered as one original as a constituent of the co-creation of value.

Another key aspect of this co-learning process was that the client organisation was able, not only to enhance their value outcomes but also to avoid management mistakes. The expertise, from the external actor, benefited the client organisation. For example, the external actor was able to spot incongruences and unrealistic (contractual and non-contractual) promises during the negotiations sessions.

While the external actor was a direct competitor in the business market, the interaction demonstrates that actors in the ecosystem, even competitors, may be a source of value through providing information, knowledge, and experiences (Akaka et al. 2013). However, the data may suggest that when financial and commercial risks are involved, the data suggest it might be difficult to co-create value with competitors.

The results also indicate an original finding: it may be necessary to stop the co-learning process when actors are unaware of the contextual conditions of a project or an organisation. For example, in Case Study 4, the external actor was unaware of the contextual contingencies of the organisation (cf. Grabher and Ibert 2011). It was reported by the client Project Manager that the external actor suggested amendments to the requirements, which would not benefit the client organisation (as it did for the external organisation). Thus, the project team decided to stop the co-creation process as it may lead to internal conflicts, unnecessary use of resources or a co-destruction of value within the client organisation (Mele 2011; Echeverri and Skålén 2011; Mills and Razmdoost 2016).

The above result contrasts with Karpen's et al. (2012) principles on co-creation, which suggest fully empowering external actors in the co-creation process. Yet, the analysis indicates that it may be counterproductive to do so, as external actors might be unaware of certain contextual features of the project organisation (Edvardsson et al. 2011). This original finding is line with Grönroos' theoretical principles (2011, p. 288), who argue that not all co-creation activities may lead to enhance the outcomes. Instead, they might lead to *"fatal management decisions and actions"*.

Another originality is that according to the analysis, the co-learning interaction is caused by elements of uncertainty and complexity. For example, in Case Study 4, the project team was facing uncertainty in the design of the technical solution. The cross-case analysis suggests that contextual factors, such as socio-political, technological, pace, uncertainty, and structural complexity may trigger the need for co-creation (cf. Geraldi et al. 2011; Smyth 2015). This originality is presented in Figure 4.4, where contextual factors may play the role of inputs to initiate the process of co-creation.

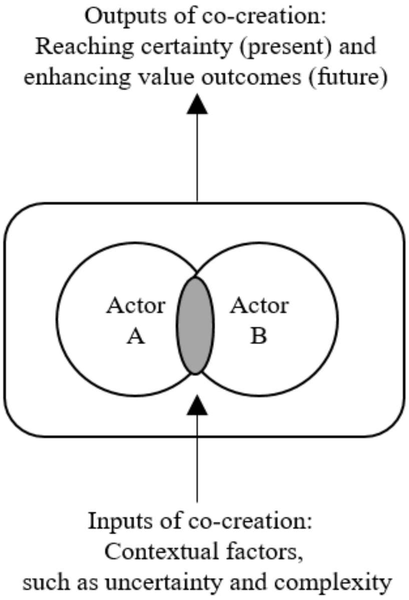

Outputs of co-creation:
Reaching certainty (present) and
enhancing value outcomes (future)
Actor A
Actor B
Inputs of co-creation:
Contextual factors,
such as uncertainty and complexity

Figure 4.4. Inputs and outputs of a co-creation process (Source: Author's own).

The outputs of the co-creation process are not only to enhance the value outcomes (future), but also to reach certainty in (current) complex situations. This is considered as an original finding as the literature of marketing and service focus only on the long-term implications of the process, rather than in the initial factors that can trigger this process (cf. Luotola et al. 2017). In addition to this, the findings across the six cases show that the more complexity and uncertainty in a project, the higher the need to co-create value, as presented in Figure 4.5.

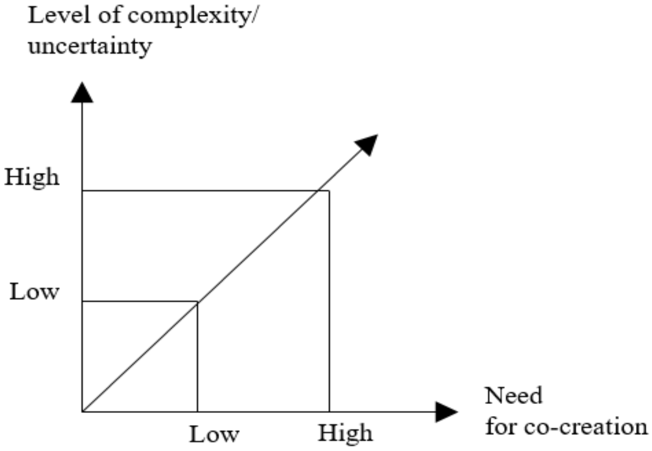


Figure 4.5. The need for a co-creation approach (Author's own).

Figure 4.5 suggests that when there is certainty in a project, probably due to the expertise of one actor or team from previous experiences, there is no need to co-create value. This means that a transactional approach is better than a relational approach when there is project expertise. In this context, the co-creation of value might be considered unnecessary. This finding goes in contrast to SDL constructs, which prescribe a value co-creation as an encompassing process in all types of situations: certainty and uncertainty (Vargo and Lusch 2015). Yet, this normative approach to co-creation may cause a high spent of resources as financial outcomes are also relevant, in focusing upon cost remains important. There, the focus does shift from the project capital cost to include the flow of long term financial benefits derived from the project or constrained by the lack of co-creation, the evaluation is the short-term affordability against the longer-term gains. This is broader than the capital cost and more strategic as it accounts for the market position and advantage of the commercial client and user, the policy or cultural gain secured or the educational benefit (perhaps calculated financially) gained by students and society to give some illustration to this issue.

The second interaction in the first phase, as well occurring at the front-end of a project, is co-revealing the existing service system. This interaction was found useful by client organisations to reveal existing value outcomes, such as operational outcomes, in existing services. The originality within this value interaction comes from showing how client representatives were able to observe existing tangible and intangible aspects of a service system.

With regards the tangible aspects of the service system, the data show that the client organisation was able to reveal the physical environment; the service delivery process; and the back-office support (cf. Zomerdijk and Voss 2010). For example, in Case Study 1, the client representatives were able to observe how the supplier organisation was delivering services in real-time. These observations of the operational value outcomes were then backcasted to project specification and requirements. In this way, the client organisation was able to create value in the long-term, as they knew exactly what types of performances and outcomes they were looking for.

Concerning the intangible aspects, the client representatives were able to talk and observe the employees’ service ability. Thus, they were able to perceive the dynamics of the organisational culture. The client Project Manager, for example, reported caring attitudes and behaviours towards the end-users enacted by the supplier organisation during problem-solving situations (Groysberg et al. 2018).

Overall, this interaction may allow the client organisation to observe both tangible and intangible aspects of a service, which could be later factored as requirements within the contract. In particular, the intangible aspects of a service, such as the organisational culture, have been largely disregarded in the business models and the delivery of projects, hence this contribution is relevant in the project business (Wikström et al. 2010).

The orchestration of both the tangible and intangible aspects, including the organisation culture; the physical environment; and the service delivery process, may enhance the functionality of the service system and infrastructure that generates the value outcomes (Spohrer et al. 2007; Maglio and Spohrer 2008; Zomerdijk and Voss 2010). Thus, this interaction allowed the client organisation, not only to imagine the value-in-use of the service (Razmdoost and Smyth 2015), but to observe it and to use it in their favour during the development of the business case, specification, and contract.

This interaction is considered as an original contribution in the project business, as it was perceived to be useful in specific case studies (Case Study 1, 4 and 5). One common characteristic among these cases studies is that they were all IT related-projects. In the IT industry, Davies and Brady (2005) found that IT supplier organisations may drive projects, (particularly for hardware solutions, not the service management), to create a repeatable solution so that these solutions could be used with many other clients within the same platform (Thomas et al. 2014). In that way, supplier organisations can achieve better economies of scale. Thus, this value interaction may be strongly applicable to IT repeatable solutions, but may not applicable to unique markets, such as projects in construction. There, the physical infrastructure is built after the contract has been signed-off. Therefore, the application of this interaction (co-revealing) might be difficult to apply.

Once the initial value propositions have been identified, the data show there is a need to align and agree on these with key stakeholders. Phase 1 ends with an interaction that aims to co-aligning the strategic needs and expectations. This interaction was particularly useful at the front-end of projects, where actors could align and challenge the expected value outcomes through dialogue sessions. Thus, this type of interaction may help to shape the project through dialogue and negotiation sessions, where the interest of different stakeholders is aligned.

This value interaction was executed through dialogue sessions with external actors, in the form of supplier demonstrations, supplier briefings, market consultations, and user workshops. All of these forms of dialogue created the platform to address the expected benefits, risks, conflicts, and potential challenges of the solution (Hoezen et al. 2012). The analysis shows that these sessions helped to joint-shape project value propositions (Cova and Salle 2012) for the long-term.

This type of interaction has been previously explored in the project literature through other theoretical frameworks (see Morris 1994; Brady et al. 2005; Cova and Salle 2012). However, the emergent insights present one key originality aspect found in this value interaction: the actors involved in many-to-many alignment process (Akaka et al. 2013) may be willing to co-create only if no commercial risks are in stake, otherwise actors might be unwilling to engage in the process. The co-creation process needs to be carried out without comprising the financial, market, or commercial positions of the involved organisations. Otherwise, no parties would be willing to co-create value. In particular, project sponsors from supplier organisations, such as investors and shareholders, may perceive potential losses by openly sharing their business model to competitors (cf. Zott and Amit 2008; Tuli et al. 2007). This finding empirically confirms (cf. Prahalad and Ramaswamy 2004) that commercial risk plays a key factor in the co-creation of value. This contrasts with theoretical propositions from Akaka et al. (2013) that argue that co-creation is possible at all times with all actors in the ecosystem.

One tipping point in the co-aligning interaction is the lack of readiness of stakeholders before the engagement session. This indicates that independent readiness from each actor needs to be carried out before the co-creation process. For example, in Case Study 1, a risk workshop was carried in the client organisation among key internal stakeholders before the negotiation meeting with the suppliers. This empirically demonstrates that the actor disposition needs to be backed up with prior preparation to the co-creation process (cf. Storbacka et al. 2016). In this case, the Project Manager reported a lack of preparation from the potential suppliers, which directly influenced the process of co-creation. This suggests that prior preparation process may secure the co-creation of value outcomes.

Overall, the first phase helps to identify, envision and secure the initial value propositions in a project. This first phase is present at the front-end of a project. A key originality presented on this phase is to focus on the value outcomes at the beginning of the project. Frequently, a product approach has been dominating the project business. This phase presents three key-value interaction that may help to address value outcomes in the long-term.

4.2.1.2 Phase 2 - Designing and configuring value propositions.

After the initial identification and understanding of the service value outcomes, results indicate that the client organisations need to design and configure the value propositions. Thus, the second phase to co-create the value outcomes aims to design and configure the value propositions during the front-end and when possible during execution. The value propositions are service promises to the relevant stakeholders (Skålén et al. 2015), yet they need to be fully developed during the front-end. Two value interactions were found in this phase to configure value propositions: (a) co-designing for service experience; (b) co-developing a service with agility.

Case Study 3 serves as a platform to explore the dynamics of the interaction: co-designing the service experience. The evidence in this case study shows how the end-user experience was destroyed by the client and supplier organisation by the lack of co-design, thus valuable lessons are presented. The evidence shows that the client organisation strongly focusses on the engineering inputs and outputs of the project. This may confirm that some projects are largely production-oriented in the construction sector (Bettencourt et al. 2014). In this project, the client organisation did not consider user expectations, including their daily routines and behaviours. The overall contextual conditions were ignored by the client organisation (see Edvardsson et al. 2011).

The analysis from Case Study 3 shows that there are two types of services experiences: (a) the experience during the execution of a project; (b) the experience during the operations phase. If the service theorisation from Vargo and Lusch (2016) is extrapolated on this, one can argue that the experiential consumption of a service takes place both within the execution and post-completion stage. This experiential consumption "*is part of the service experience and it needs to be managed at the front-end of a project"* (Fuentes 2019, p.109).

To explore these original elements of service experience, Figure 4.6 has been built to show these two types of service experiences. The figure contains three phases: 0, 1, and 2. The originality of this figure is then to have broken the service experience in two phases, one in execution and the other in post-completion (cf. Smyth 2015).

Phase 0 in Figure 4.6 represents the place where service experiences can be co-created and co-designed at the front-end of a project. The scope of the co-creation of the service experience decreases during the execution phase, thus it is in Phase 0, where managers can mostly design the experience.

Figure 4.6 illustrates that the first type of service experience starts in Phase 1 of this figure, where the value-in-use of a project may emerge during the execution of a project. In the case of the refurbishment, most of the issues were occurring at this initial stage. The second Phase 2 takes place after the completion of a project, during the operations phase. Frequently, the service experience has been only considered after the completion of a project, yet the data show that the service experience can take place also during the execution.

This co-design at the front-end of a project (Phase 0 from Figure 4.6) requires adequate service tools to address the service experience. The service design thinking literature (see Maffei et al. 2005; Romme 2003; Kimbell 2011) argues that service design tools may allow teams to design value propositions in this project stage. These tools may allow the client organisation to imagine the service-in-use (Razmdoost and Smyth 2015). However, none of the six case studies uses service design tools. This empirically confirms that service design is off the radar from the project theory and practice (cf. Smyth 2015; Duryan and Smyth 2019).

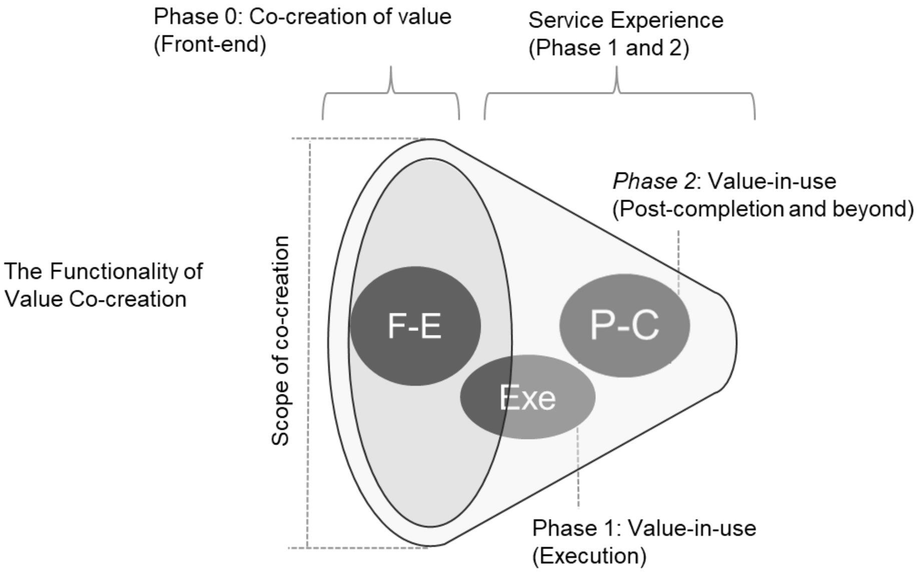

Phase 0: Co-creation of value
(Front-end)
Service Experience
(Phase 1 and 2)
Phase 2: Value-in-use
(Post-completion and beyond)
The Functionality of
Value Co-creation
Scope of co-creation
F-E
P-C
Exe
Phase 1: Value-in-use
(Execution)

Figure 4.6. The functionality of value co-creation in a project setting (Source: Developed from Fuentes and Smyth 2016).

One originality in this study comes from the actual application of service design tools: the blueprinting technique (Shostack 1984) and the customer journey (Erin and Flowers 2016) for Case Study 3. This application might be considered one of the first attempts to link and apply the service design technique in a project context.

Figure 4.7 shows the application of blueprinting technique (from the client organisation perspective) and the customer journey (from the end-user perspective), which has been built as follows.

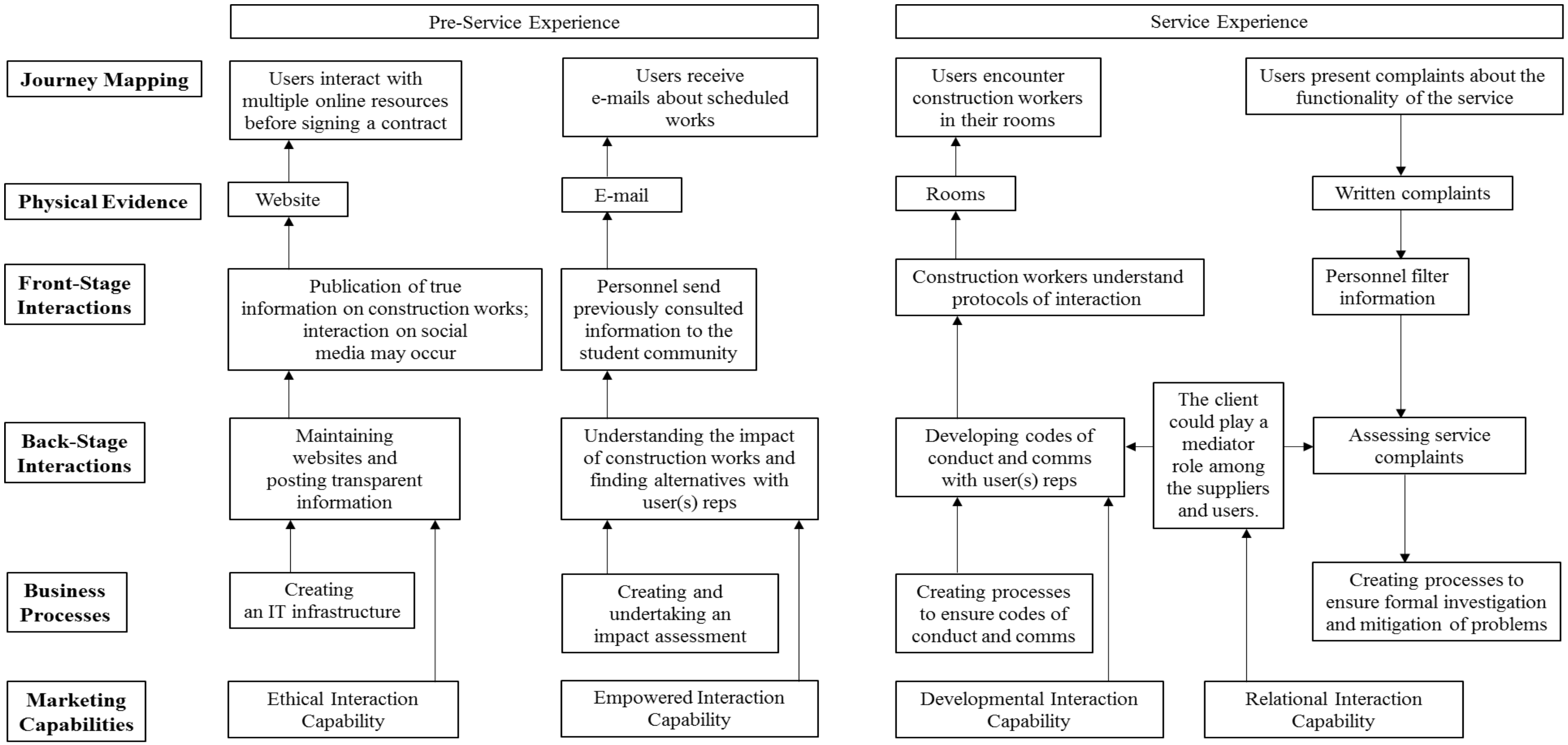
Firstly, key negative service experiences have been taken into account for this project. These experiences have helped to build a customer journey based on their negative experiences. A customer journey maps the route of the user across the service experience (Erin and Flowers

2016). For retrospective works, Project Managers may need to organise design workshops with end-users, or other relevant stakeholders to design positive (and avoid negative) service experiences. This could then inform the project specification and the contract in terms of functional and performance requirements.

Once, the service experiences have been mapped, then, the blueprinting technique could be used to understand what processes and capabilities can be used to support these experiences from the client organisation perspective. The combination of both tools is strong because both can together work to understand how experiences can be supported by the organisational capabilities and infrastructure in place.

In Figure 4.7, the blueprinting technique has four key elements from the perspective of the client organisation: (1) the business processes, which contains the internal processes within the organisation that support the experiences; for example, creating adequate processes to address the codes of conduct and communication in a project; (2) back-stage interactions, which are the interactions that occur within the service organisation; for example, designing the service experiences and codes of conduct with the end-users; (3) front-stage interactions, which are the interactions between the service provider and the end-users; for example, how workers need to behave and address the relationship with the end-users, as they are the face of the service; (4) physical evidence, which represents how service is being delivered to the end-users, for example through face-to-face meeting or written documents. These four elements help to support the service experience, mapped from the customer journey.

In addition to supporting the service experience, both tools may operationalise interactive capabilities (see Table 2.6, in Chapter 2). For example, in Case Study 3, the client organisation may have applied the ‘empowerment interactive capability’ by enabling the users to express their concerns about the service and communicate information that could have been captured in the initial requirements. The end-users could have complained about the service before it was executed and then, dates and working hours could have been negotiated. Yet, the client organisation worked in silos and was unwilling to consult the end-users about the service. As can be visualised in Figure 4.7, the application of the diverse marketing capabilities can enhance the service experiences. In this way, stakeholders, such as end-users, may be regarded as a source of value (Freeman 2010) during the decision-making process (cf. Donaldson and Preston 1995); rather than as static instruments (Huemann and Zuchi 2014) or as a destroyer of tangible assets (Vargo and Lusch 2004).


Pre-Service Experience
Service Experience
Journey Mapping
Physical Evidence
Front-Stage Interactions
Back-Stage Interactions
Business Processes
Marketing Capabilities
Users interact with multiple online resources before signing a contract
Users receive e-mails about scheduled works
Users encounter construction workers in their rooms
Users present complaints about the functionality of the service
Website
E-mail
Rooms
Written complaints
Publication of true information on construction works; interaction on social media may occur
Personnel send previously consulted information to the student community
Construction workers understand protocols of interaction
Personnel filter information
Maintaining websites and posting transparent information
Understanding the impact of construction works and finding alternatives with user(s) reps
Developing codes of conduct and comms with user(s) reps
The client could play a mediator role among the suppliers and users.
Assessing service complaints
Creating an IT infrastructure
Creating and undertaking an impact assessment
Creating processes to ensure codes of conduct and comms
Creating processes to ensure formal investigation and mitigation of problems
Ethical Interaction Capability
Empowered Interaction Capability
Developmental Interaction Capability
Relational Interaction Capability

Note: This diagram has been built based solely on negative experiences from our case study to highlight the service gaps and understand how the client organisation could have used service design tools and some interactive capabilities from Table 1 to close these gaps.

Figure 4.7. Application of journey mapping and service blueprinting tools in the refurbishment project (Source: Taken from Fuentes 2019).

While the service blueprint and customer journey may help to enhance the functionality of the service, it is acknowledged that the application of these service design tools is being built for a low complexity project, such as the refurbishment project. For other more complex projects, other service design tools can be further explored, such as the user design (Redström 2006), customer journey (Zomerdijk and Voss 2010), touch-points (Clatworthy 2011), and multi-level design (Patrício et al. 2011; Teixeira et al. 2012). However, complex projects may challenge the application of these service design tools (Duryan and Smyth 2019).

The development of these service design tools requires a substantial financial investment. Yet, the evidence from Case Study 3 shows that the lack of investment of these tools may result in negative business models (Zott and Amit 2011). This suggests that value outcomes, in this case financial and experiential, are intertwined. Thus, this finding could be considered as an original contribution (Vargo and Lusch 2016).

In a similar vein to the co-designing interaction, the interaction co-developing a service with agility allows a client organisation to do iterative planning both during the front-end (Pinto and Rouhiainen 2001; cf. Cova and Salle 2005) and during the execution phase.

Results indicate that co-developing may have strong connections with an agile approach (widely used in IT-related projects), which suggest a more dynamic approach to plan and iteratively deliver projects (Levitt 2011; Serrador and Pinto 2015; Gann et al. 2017).

The iterative process has been initially mapped from the evidence. For example, Figure 4.8 maps the sequences of flexible and iterative activities within Case Study 5. In the initial part of this iterative process, there is a bank of value propositions, coming from the contract and project requirements. These set of requirements are discussed among the relevant stakeholders in co-development sessions to understand whether those requirements need development as initially envisioned. These discussions are addressed through co-developing sessions, which help to address requirements, from an idealist to a realistic perspective.

The output of these sessions is to refine the value propositions and to get an agreement among the key stakeholders. The final part is the delivery of these mini-projects (often called project sprints). The analysis of each sprint from Case Study 5 showed that sprints last for a short period. For example, in Case Study 5, all the work was developed in around 40 sprints.

Each sprint positively produces a learning output, which was used in the subsequent re-planning process. This is in contrast to traditional project management approaches that need to wait until the delivery of the whole project to create lessons learned (see PMI 2013). The whole repetitive or iterative cycle is applied with all the sets of value propositions. This iterative planning, therefore, is comprised of more planning sessions across the project life cycle.

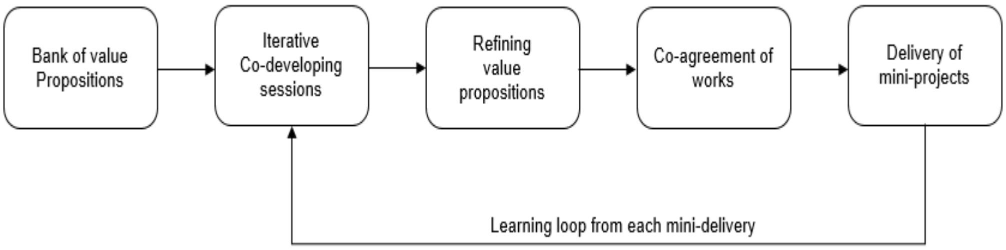

Bank of value Propositions
Iterative Co-developing sessions
Refining value propositions
Co-agreement of works
Delivery of mini-projects
Learning loop from each mini-delivery

Figure 4.8. Development of a project under a flexible and iterative approach (Source: Author's own).

This evidence from Case Study 5 empirically confirms that the cycle of re-planning takes longer and consumes more resources (cf. Levitt 2011; Serrador and Pinto 2015), as compared with other case studies, such as Case Study 3, which used a linear planning approach. While it consumes more resources, the flexible approach ensures that works are planned and delivered according to the needs of the present situations and challenges (cf. Mintzberg 1994), particularly for large projects, which period of execution might take years (e.g. Morris and Hough 1987; Miller and Lessard 2000; Flyvbjerg et al. 2003). Pryke (2017) suggests that this flexible development may lead to customer delight. Yet, this type of flexible approach has been insufficiently applied practice in (large infrastructure) projects; exception exists (see Gann et al. 2017).

Looking at all case studies, the co-developing interaction mainly emerged from Case Study 1 and 5, however it was not present in other cases. This may suggest that this interaction may work only through certain conditions, such as projects with a high level of uncertainty and for specific markets. This interaction appears to be used commonly for IT projects, where some of the requirements may be altered late in the process (cf. Wells 2012). Yet, other settings, such as construction might struggle to apply this form of interaction (Levitt 2011), as the change of some requirements might not be feasible (or too expensive activity to undertake).

Overall, in Phase 2, the emergent insights have produced two types of value interactions that can be used when co-developing and co-designing the value outcomes. Both interactions occurred during both the front-end and execution, and their dynamics have been explored in this section. Once the value propositions have been designed (or initially delivered), the data show that the process to co-create value proceeds to refine and ensure the successful delivery of the value outcomes at the back tail of a project.

4.2.1.3 Phase 3 - Refining and delivering value outcomes.

The third phase in the process to co-create value outcomes is about refining and delivering value outcomes at the back tail of a project. Results indicate that the Project Managers may need to refine value propositions along the way in order to deliver the project, rather than treating them as frozen requirements. In this phase, two specific interactions were found: (a) co-solving problems; (b) co-transitioning from projects to operations.

The interaction co-solving problems may help for difficult situations. Projects pose constant challenges and problems across the project life cycle (Edkins et al. 2013). All six case studies presented problem-solving situations, yet they were addressed in different manners. Thus, interaction management (Nurhayati and Hendar 2017) and group emotional intelligence (Druskat and Druskat 2006) may provide the means to manage and overcome some of the problems raised in projects.

The management of some of these problematic interactions resulted destroyed value. For example, Case Study 3 shows the inadequate use of this interaction. When problems arose during the execution of a project, the interactions were inadequately managed.

This interaction may provide lessons learned on how to address this interaction. In this Case Study 3, the client organisation faced constant problems with the ends-users. The students then defended their value outcomes against the client organisation. However, the client organisation addressed this interaction with a defensive and aggressive attitude, which led more intense problems, such as strike action by the end-users, who were defending their (expected) value. One originality on this interaction is to have empirical evidence that the mismanagement of the interactions may result in wider destruction of value, as presented in Case Study 3.

While the evidence shows that problem-solving situations are highly perceived negatively, Smyth (2015) argues that problem-solving situations offer learning opportunities for innovative solutions.

In addition to this, the analysis of this type of interaction shows that client organisations need to cultivate the relationships (Lusch and Vargo 2014), before the actual execution of a project.

Results of this interaction are in line with previous research in collaborative practices (Prahalad and Ramaswamy 2004; Smyth and Pryke 2008), which also consider that joint problem-solving as crucial to effectively delivering the outcomes and avoidance of an increment of costs (Pryke 2012).

The analysis reveals a desynchronisation both with internal and external teams to co-transition the project to operations. Thus, the second interaction within this phase is the co-transitioning from project to operations. Evidence shows that project organisations struggle to transfer the project into operations. This discontinuity has been previously covered in the project literature (cf. Håkansson 1982; Morgan et al. 2008; Zerjav et al. 2015; Zerjav et al. 2018).

This transfer from project to operations could be divided into two parts, according to the evidence. The transfer from (a) the final part of the project to operations, and (b) the start of the operations being managed by the project team.

Out of the six cases, only Case Study 4 and 5 present strong evidence on this type of interaction, while the others project teams focus more on the actual execution of the project and disregard the final stages of a project. For example, in Case Study 5, the Project Manager reported having carried out co-transitioning workshops among the suppliers and end-users. The end-users used for this transitioning process were the same end-users to have worked during the early stages of a project specification (procurement stage). Thus, it created continuity across the project life cycle (cf. Hadjikhani 1996). However, for the other case studies, the evidence may suggest that client internal teams often throw projects ‘over the wall’ to the operations team (cf. Smyth 2006; Morris 2013). Previous literature in projects shows similar findings (Zerjav et al. 2015; Zerjav et al. 2018), particularly in the context of the Heathrow Airport, has shown an inappropriate transfer from project to operations, which may result in the co-destruction of value.

The analysis also suggests that project teams struggle at the start of the operations phase. The evidence shows there is a lack of an effective collaboration between project and service/operations managers prior to the start of the operation phase. For example, in Case Study 2, the supplier Project Manager confirmed to have walked away after the delivery of the project, thus the start of operations was not smooth for the operations team.

One key originality in this interaction is the transfer of both operand (outputs) and operant (explicit and tacit knowledge) resources (e.g. Kelly et al. 2013). Previous work on this interaction has widely focused on the tangible assets to make sure the operational outcomes are achieved (Zerjav et al. 2015; Zerjav et al. 2018). However, the operant resources, such as explicit and tacit knowledge are relevant to the project business. For example, in Case Study 5, the Project Manager reported to have conducted not only training sessions to teach end-users how to use the new system, but also the team organised development sessions so that end-users could improve their current skills and continue their value creation with the new system (Normann and Ramirez 1993).

This phase has demonstrated the importance of refining and delivering the value outcomes at the end of the project life cycle and at the start of the operations phase. The evidence may suggest that project teams often throw projects ‘over the wall’ to the operations team (Smyth 2006), which may also lead to the destruction of previous work efforts during the project life cycle. Overall, this phase is original because it focuses both on the hard and soft transfers from the project to the operations level.

The following phase explores the operations phase in the medium- and long-term and shows how the service and operations team manage the value outcomes.

4.2.1.4 Phase 4 - Managing and realising emergent value outcomes

The last phase of the co-creation of value process is to manage and realise the emergent value outcomes. This phase integrates both the project and operations phases. Frequently, project life cycles have been considered to be part up to the delivery of the project (PMI 2013). Yet, the data show that both project and operations teams need to create synergies to manage emergent value outcomes. This creates a link between the value outcomes at the back-end with the front-end of a project (Artto et al. 2016).

The analysis shows that the client organisations need to make those efforts to defend the early promised and avoid the co-destruction of value during the operations phase. The analysis shows that client organisations, at the beginning of a project, make efforts to create and write good contract and project requirements (value propositions). Once the project has been (successfully) delivered and transferred, the analysis shows that the client organisations need to make efforts to make the contract a reality during the operations phase (see representation in Figure 4.9).

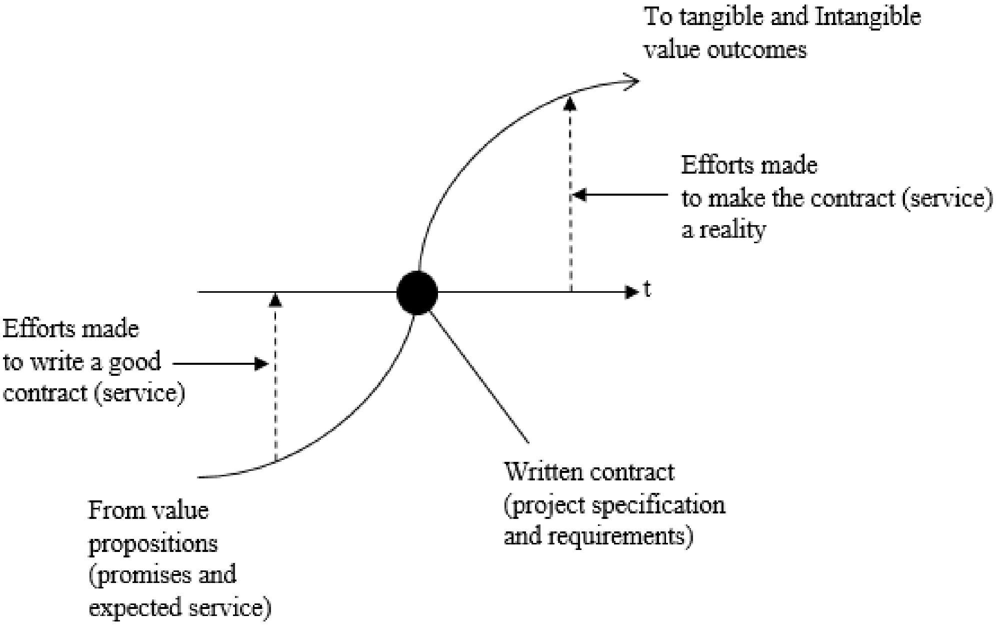

To tangible and Intangible value outcomes
Efforts made to make the contract (service) a reality
t
Efforts made to write a good contract (service)
Written contract (project specification and requirements)
From value propositions (promises and expected service)

Figure 4.9. Efforts made to create and realise both value propositions and value outcomes (Source: Author's own).

According to the data, the suppliers often avoid (cost-effective technique) to deliver the tangible and intangible value outcomes as promised during the early project negotiations. For example, in Case Study 2, the client organisation assumed that the supplier organisation would genuinely deliver promises as written in the contract. The client, therefore, trusted the supplier and disengaged from the relationship. The supplier organisation then acted opportunistically and started to charge the service at a more expensive rate.

The cross-case analysis shows that contract management is often overlooked by the project management and service management office. The Project Managers, according to the data, do not feel entitled to continue looking at the project after it had been delivered, particularly as Project Managers have been given another project to manage unless they are willing to. For example, in Case Study 4, the Project Manager attended the initial service review meetings to facilitate the discussions. This engagement provided both explicit and implicit knowledge to the operations team. Then, it was agreed that the service owner would take over the responsibility.

Thus, a clear allocation of roles and responsibilities need to be considered at the beginning of the project, primarily to: (a) ensure how human and financial resources are given and allocated; (b) to agree on the responsibilities of each actor, such as the Project Manager and service owner.

The data may suggest that the management of the value outcomes in the long-term may be divided into different strategic elements. Using the theorisation of SDL and evidence from the six cases studies, Figure 4.10 has mapped the integrated strategic outcomes agreements for client organisations. Fair to state that both organisations have existing services, this may look different for new settings where the project is the first element.

The elements of the strategic outputs and outcomes agreements are integrated by: (a) key (project) performance indicators (KPIs), which are short-term measurements on how the project client organisation is meeting the expected needs of the end-users. The primary focus on these indicators are on the tangible assets and outputs; (b) service level agreements (SLAs), which are measurements on how the supplier organisation is meeting the expected needs of the client organisation through the provision of the service; (c) both the SLA and KPI influence the operational level agreements (OLAs), which are the overall measurement of the new and existing operations and systems. The focus on the OLAs is on the overall service system of the client organisation; (d) performance level agreements, which are the measurement of the project performance of the tangible outputs in the long-term; and (e) the outcomes level agreements, which are a measurement of the value outcomes in the long-term.

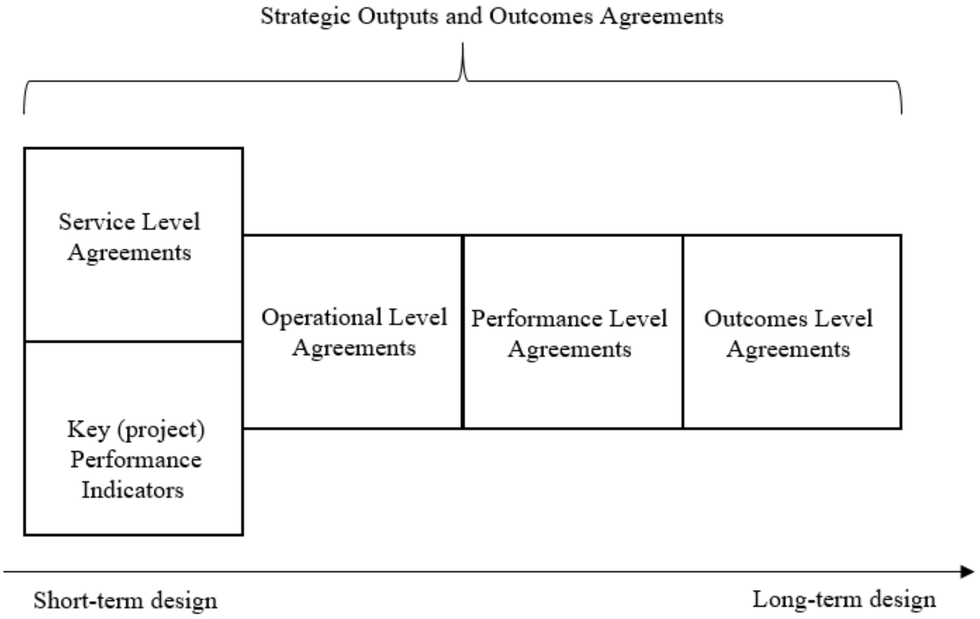

Strategic Outputs and Outcomes Agreements
Service Level Agreements
Key (project) Performance Indicators
Operational Level Agreements
Performance Level Agreements
Outcomes Level Agreements
Short-term design
Long-term design

Figure 4.10. Design of strategic outputs and outcomes agreements (Source: Author's own).

This categorisation is original as both strategic outputs and outcomes agreements are considered. Thus, this categorisation takes into account both the operant and operand resources in the short- and long-term. The categorisation could feed into the initial project specifications. The orchestration of these elements presented in Figure 4.10 is required to achieve the strategic agreements. However, the data show that there is a strong desynchronisation of these elements in a project. For example, in Case Study 2, while the Project Manager considered the KPIs and SLAs for the new project, they disregarded the existing OLAs. Thus, there was a disconnection of the systems when the operations started.

The data show that the client organisation widely used the KPIs to measure the performance of the outputs in the short-term. The KPIs are often considered as a measurement tool to assess project success, yet they are focused on the performance of systems for the short-term (Deng 2015). Thus, performance level agreements in the long-term would complement and inform the client organisation on the performance of the tangible outputs. In a similar vein, the measurement of the value outcomes is widely disregarded during the operations phase. The data show that none of the organisations measured the outcomes of strategic agreements of projects in the long-term.

This set of agreements may need to be managed by a Project and Business Development Manager, which could be responsible for an end-to-end process (cf. Hellström et al. 2016). Yet, in both client organisations (A and B), the researcher could not perceive a stakeholder doing the role of Business Development Manager.

Overall, this interaction does not appear to be strongly performed across six case studies. Client organisations have therefore the challenge to manage both emergent value outputs and outcomes in the medium- and long-term. This last value interaction in the process aims to successfully manage the emergent value outcomes in the medium- and long-term.

This section has aimed to solve (partially) question RQ1 and RQ1.1 to understand the process by which value outcomes are being co-created; and to understand the interactions that occur across the project life cycle, that enhance the value outcomes in the long-term. As a summary, each phase contains key-value interactions that help in the process to achieve the value outcomes in the medium- and long-term. While the set of value interactions presented within each phase may improve the value outcomes in the long-term, it might be too precarious to match value interaction with the value outcomes, particularly as projects are embedded in a social system embedded (cf. Danermark et al. 2002; Edvardsson et al. 2011; Konstantinou and Muller 2016). Yet, the above evidence has shown some of the connections between the value interactions and the value outcomes. In the following section, it shows the types of value outcomes that emerged in the long-term.

4.2.2 The integrated value outcomes in project settings

The above four phases of value outcomes showed the eight key-value interactions. These phases aim to co-create value outcomes in the medium- and long-term. The evidence shows that these set of value interactions positively, (or in the case of absence, negatively) influence the value outcomes. In total, a set of five of value outcomes was found from the emergent insights: Operational; Financial; Environmental; Experiential; Social. This section aims to discuss these set of value outcomes as part of the implications of projects in the long-term (see RQ1.2).

In this section, it is first discussed how project value outcomes are often disregarded in the business cases, and when considered, according to the evidence; they are set to achieving short-term value outputs rather for long-term value outcomes.

The evidence presented in this study shows that project case studies are strongly based on the traditional business cases, where a set of engineering value inputs and outputs are set to achieving benefits (Morris 2013). Yet, in that view, the value outcomes are often disregarded, as the main focus is on the value outputs and systems. The results from six cases studies show that stakeholders do not often consider the usefulness and implications of project resources in the long-term (Morris 2013; Edkins et al. 2013).

According to the emergent insights, it may be better to address and create one strategic business case, which is focused on the value outcomes, as presented in Figure 4.11. This strategic business case can then inform the traditional business cases based on valuable inputs and outputs. Figure 4.11 shows a cascade system where the strategic business case is driven at the programme and portfolio level, and the traditional business case is driven at the project level.

Results illustrate that projects (and their co-creation) produce value outcomes, in a positive or negative manner, for medium and long-term. The analysis provides a set of integrated types of value outcomes that appear in the medium- and long-term: (1) Operational; (2) Financial; (3) Environmental; (4) Experiential; and (5) Social. Key research in project success (Shenhar et al. 2001) is in aligned with these findings, as it considers the implications of projects in the long-term.

These set of integrated value outcomes might be used in strategic business cases, particularly to get early agreement at the programme and portfolio level. These set of value outcomes have been mapped from the client perspective, rather than from the supplier organisation. It can be extrapolated that supplier organisations are financially driven and in contrast, client organisations are more value-driven. Overall, this set of integrated value outcomes is an original contribution to knowledge in projects and are considered as implications of the value interactions executed during the development of the project.

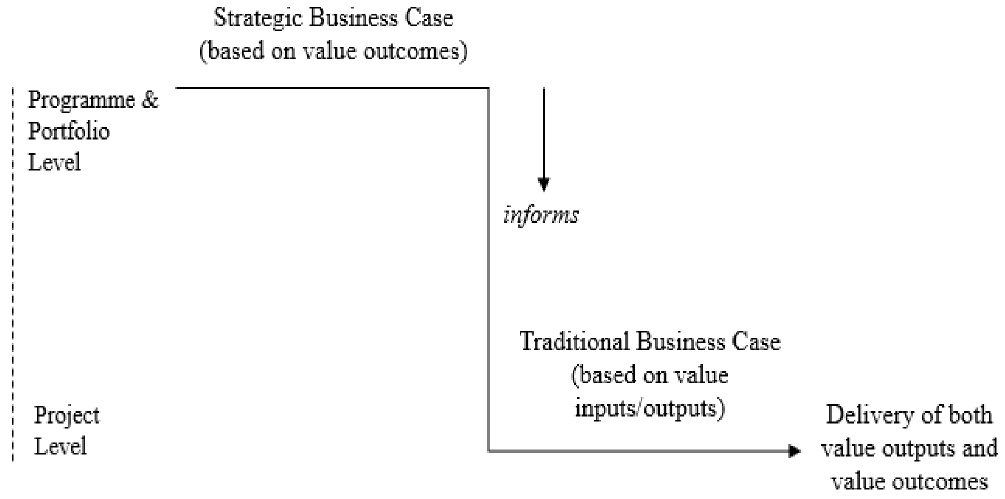

Strategic Business Case
(based on value outcomes)
Programme & Portfolio Level
informs
Traditional Business Case
(based on value inputs/outputs)
Project Level
Delivery of both value outputs and value outcomes

Figure 4.11. Strategic Business Case based on value outcomes (Source: Author's own).

Traditionally, financial and operational outcomes have been addressed in project research practice (Morris 2013; Zerjav et al. 2018), but the integration of those five outcomes has not been yet addressed both in theory and practice. The originality comes from presenting a heterogeneous set of value outcomes that can be used in the micro-, meso-, and macro-level projects.

This set of value outcomes are then discussed:

(1) Operational value outcomes: According to the results, these types of outcomes are related to the performance of the products and services during the life of the service. This type of outcome has been previously explored in the project management literature (Morgan et al. 2008; Zerjav et al. 2015; Zerjav et al. 2018). Particularly, Zerjav and his colleagues addressed the transfer from the project phase to the operations phase. Other aspects of previous project research, such as total asset management, maintenance, and facilities management have been discussed and helped to considered aspects beyond the delivery phase. Yet, they are primarily considered as a source of added-value, rather than a source of creation of value (Smyth 2015).

The originality on this type of value outcomes might come from the micro-level exploration of different criteria to address the operational outcomes. The last value interaction in the process of the management of value outcomes: co-managing value outcomes. It has shown that client organisations (within existing services) need to understand the implications of a project in the parent organisation. For example, in Case Study 2, the project designed both the KPIs and SLA of the service. Yet, they were crashing with the current OLAs of the organisation. This directly influenced the performance of the value outputs and the overall operational value outcomes of the system.

(2) Financial value outcomes: According to the results, these types of outcomes refer to the financial impacts produced by the project. Financial outcomes have been historically considered as the main source of value (Porter 1985). They have been explored in the project management literature, particularly with the whole life cost aspects in procurement (Connaughton and Green 1996). However, the case studies indicate that projects may have the potential to generate, capture and destroy financial value beyond, both in the medium- and long-term and directly damage the business model of the organisation (cf. Kujala et al. 2010; DaSilva and Trkman 2014).

(3) Experiential value outcomes: According to the results, these type of outcomes refer to the experiences of the actors who make use of the service, who ultimately benefit and suffer from the project-in-use. End-users are the prime actors when the service is in use. This type of value outcome is inspired by the literature in Vargo and Lusch (2016, p. 4), which consider that the meaning of value: "*is always uniquely and phenomenologically determined"* by a number of actors involved when using the service.

Another original contribution in this research is to have empirically shown that the experiential consumption of service can take place both during the execution (value-in-use phase 1) and operations phase (value-in-use phase 2). This experiential consumption is part of the service experience, which needs management at the front-end of a project (Fuentes 2019). This division is unique as literature in benefits management assumes that value outcomes emerge in the long-term, rather than the short-term (cf. Serra and Kunc 2015).

This study confirms that this value outcome is largely off the radar (Smyth 2015) in the project business. This study has originally applied service design tools (blueprinting technique from Shostack (1984) and the customer journey from Erin and Flowers 2016) in order to operationalise the concept of value co-creation. The application of those tools is to my knowledge, one of the first applications of those in the asset specific-markets, such as construction.

The study has also empirically confirmed that the service experience has a direct influence on the corporate brand and reputation (Berry 2000; Keh and Xie 2009). Thus, adequate management of the service experience may lead to increase in the competitive position in the market (Porter 1985).

(4) Environmental value outcomes: According to the results, these outcomes refer to the environmental (or ecological) outcomes produced by a project. These types of outcomes have been recently covered as urgent in the project literature (Tharp 2012; Smyth 2013; Martinsuo and Killen 2014; Brookes and Locatelli 2015). Global agendas have recently been paying considerable attention to environmental damage and energy efficiency. Thus, this needs to be factored at the core of any (project) business. Yet, the evidence presented in this research, primarily coming from Case Study 6, shows that Project Managers do not fully address the environmental outcomes in the long-term. For example, Case Study 6 shows that the project did not fully consider aspects such as re-use, recycle, and recovery of resources. Therefore, the theorisation of SDL (Vargo and Lusch 2016) may push current practices in the project business to address environmental practices.

(5) Social value outcomes. This type of outcome is concerning the social context and well-being linked to the people influenced by the project. In a similar vein as the environmental outcomes, this type of outcome has started to attract attention to the project management literature (Martinsuo and Killen 2014; Zeng et al. 2015), but they are often disregarded particularly by supplier organisations, which are financially driven. Thus, the data show that the client organisation plays a central role on how to manage and defend the social value outcomes, for the client itself, and for other weaker stakeholders, such as the end-users.

The evidence from the cross-case analysis shows that social value is often slipped from the client organisation into other social layers. Three layers have been set based on Akaka et al. (2013): (a) micro-level, which makes reference to individual actors, for example, in Case Study 3, the project produced mental and physical discomfort to the end-users; (b) meso-level, which makes reference to the organisation, such as the supplier or the client organisation; (c) macro-level, which makes reference to the society at large.

This type of value might be difficult to measure, as well as the experiential outcomes, as both are perceptual outcomes. One key aspect to consider is the measurement of these value outcomes. However, the measurement is beyond the scope of this research, yet this needs addressing.

As a summary, this section has addressed RQ1.2 that aims to explore the dynamics of value outcomes in the long-term. The original contribution for this section is to have created an integrated set of value outcomes: Operational; Financial; Environmental; Experiential; Social. This initial categorisation of value outcomes could be used at the front-end to envision the value outcomes for the long-term (Smyth 2015). The analysis shows that this set of value outcomes are dynamic and interconnected. Furthermore, this section has shown eight key-value interaction that may be used to influence and enhance the set of five value outcomes presented in this section.

One key aspect to note is that it would be precarious to automatically connect value interactions and value outcomes as if they can be fully controlled (cf. Danermark et al. 2002; Edvardsson et al. 2011; Konstantinou and Muller 2016). Projects are embedded in a social system, thus value interactions might produce intended and unintended value outcomes. In the following chapter, it is explored how the social system influence the co-creation and development of the value outcomes.

4.3 Chapter Summary

This chapter has addressed and explored the process by which the project value outcomes are being achieved (RQ 1). The process is comprised of four key phases to address value outcomes. The process starts at the front-end of the project and finish during the operations phase. This is presented as key originality as frequent project life cycles are delineated until the delivery of the project. Along the four-stage process, which is comprised of four phases to manage the value outcomes, eight key-value interactions have been addressed, which contribute to the co-creation of value (RQ 1.1). Each of the value interactions was addressed, including its strengths and weaknesses. The analysis is driven by the application of these interactions, while others show the absence of these interactions.

The emergent insights also show that these value interactions produce implications and value outcomes in the long-term (RQ 1.2), which are also addressed in this section. The implications are presented as an integrated set of five value outcomes. The originality of this set of value outcomes is to have shown a heterogeneous set of value outcomes. These value outcomes might be considered at the front-end of the project to envision the future perfect project, but might be also used to control and monitor the value outcomes across the project life cycle.

The chapter has provided three key original contributions to knowledge: (a) eight key-value interactions have been presented, which appear to co-create value outcomes in the long-term; (b) five-set of integrated value outcomes have presented, which might be used either at the front-end of a project to envision the long-term value or at the back-end to understand the emergence of the value outcomes; (c) four-stage process, which contains the eight value interactions and aims to present a process by which the value outcomes are achieved.

While this chapter has initially presented the process by which the value outcomes are achieved, the analysis of the data suggest that this process is highly influenced by the context around the project (cf. Engwall 2003; Edvardsson et al. 2011; Konstantinou and Müller 2016). The following chapter explores how the context influences the process of the co-creation of value outcomes. Therefore, the following chapter will complement and complete the exploration of the phenomenon on the co-creation of value outcomes in the project business (RQ1).

CHAPTER 5: FINDINGS AND DISCUSSION (PART 2) – THE SOCIAL CONTEXT OF THE CO-CREATION OF VALUE OUTCOMES

The key research question in this research is about understanding the process by which value outcomes are being co-created. In the previous chapter, the key research question (RQ1) was partly explored, as the overall process was presented as well as key-value interactions that contribute to the improvement of the value outcomes in the medium- and long-term. The data suggest value interactions are highly influenced by the social context, where the project is embedded. Therefore, this chapter explores the phenomenon of how the social context influences, both positively and negatively, the co-creation of the value outcomes.

This chapter directly addresses the last sub-research question (see RQ 1.3) of this study. This question aims to find out the contextual generative mechanisms to facilitate the generation of value outcomes. This exploration allows in understanding what makes value co-creation happens in the project business. This research question complements the previous chapter and it creates a complete picture of the process, by which value outcomes occur (RQ 1). The key contribution of this chapter is to present key four generative mechanisms: (1) institutional arrangements; (2) resource arrangements; (3) socio-cultural arrangements; (4) socio-technical arrangements; that project organisations need to consider in order to co-create value outcomes. These social mechanisms tend to oscillate between the permanent and temporary organisation and create an adequate synchronisation of resources in order to co-create value outcomes at the project level.

In a similar vein to the previous chapter, the chapter is divided into two sections. Emergent findings across the data are presented in the first part. The second part of this chapter focuses on the discussion of the social context, in particular, the four key-generative mechanisms found, are discussed against previous literature. As a complementary view on the analysis, the discussion is followed by a cross-case analysis of the emergent insights against the six case studies. This provides an overarching perspective on how each of the generative mechanisms appears in the case studies.

Overall, the key originality in this section is to explore how the social context (via four generative mechanisms) contribute to the development of the value outcomes. Little has been covered around the context as to what makes value co-creation occur (Edvardsson et al. 2011). Thus, this research starts exploring the dynamics of the social aspects of the co-creation of value.

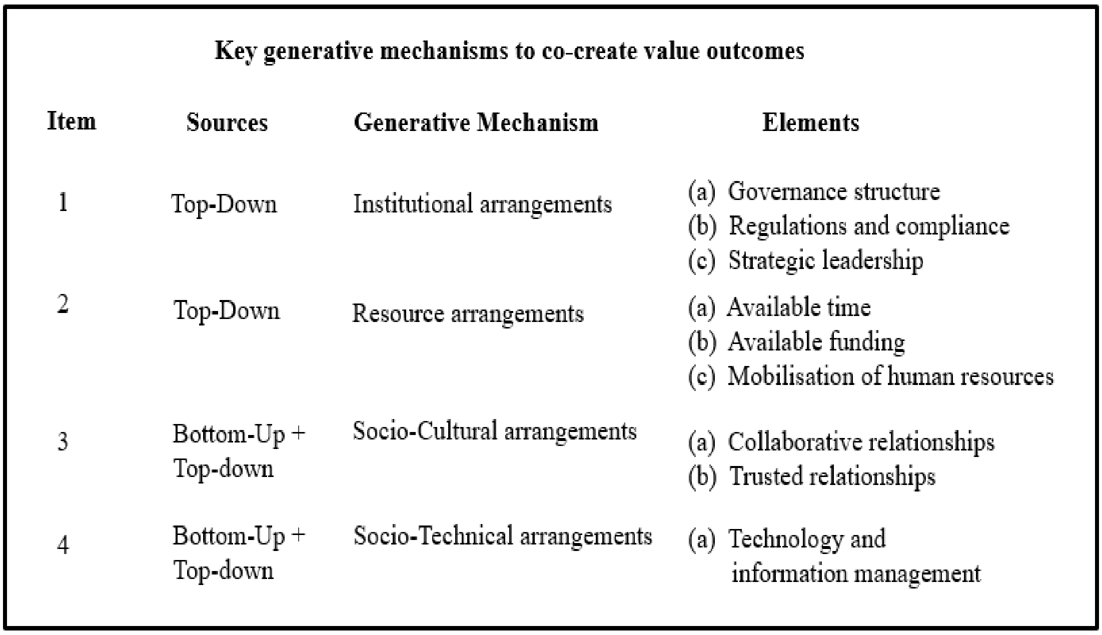
Overall, Chapter 5 of this thesis complements Chapter 4 by providing the answer to RQ 1.3, which in turns contributes to answering the key research questions RQ1.

5.1 Findings section - Part 2

The key originality on this section is to show four key-generative mechanisms that according to findings, they have a direct influence on the co-creation of value outcomes. These four mechanisms (1) Institutional arrangements; (2) Resource arrangements; (3) Socio-Cultural arrangements; (4) Socio-Technical arrangement. They are interconnected within the social reality, rather than being considered in isolation.

In this section, the four generative mechanisms are presented to explore each phenomenon in context. Every generative mechanism has key elements, which may act as enablers or constraints to achieve the value outcomes. The elements within each mechanism are explored in the following sections. While these four mechanisms influence the co-creation, some do it in a top-down approach, for example, some come from the senior management level. Others come from a bottom-up approach, which comes from the agency (people) or the lower level of the organisation (project level). While some of the elements are not new in the project business, the originality of the generative mechanisms and their elements comes from having formed those as a constituent of the co-creation of value.

Figure 5.1 presents an overall summary of the emergent findings (four generative mechanisms) across the six case studies. Each of these will be explored in the following sections.



Key generative mechanisms to co-create value outcomes

Item	Sources	Generative Mechanism	Elements
1	Top-Down	Institutional arrangements	(a) Governance structure (b) Regulations and compliance (c) Strategic leadership
2	Top-Down	Resource arrangements	(a) Available time (b) Available funding (c) Mobilisation of human resources
3	Bottom-Up + Top-down	Socio-Cultural arrangements	(a) Collaborative relationships (b) Trusted relationships
4	Bottom-Up + Top-down	Socio-Technical arrangements	(a) Technology and information management

Figure 5.1. Generative mechanisms to co-create value outcomes (Source: Author's own).

5.1.1 Generative mechanism 1: Institutional arrangements

According to the findings, the first generative mechanism is the institutional arrangements. This mechanism has an influence on the co-creation from a top-down approach, meaning that upper levels are influencing the project. According to the evidence, the institutional arrangements are linked to organisational structures, rules, patterns, and the agency (people) that may influence the strategic value outcomes. This mechanism has three key elements: (a) governance structure; (b) regulations and compliance; (c) strategic leadership. These are explored individually within this section.

The results show that this mechanism might be managed by stakeholders (their senior managers in this study although it is recognised that a wider constituency of actors would be influential if direct users had been involved in practice), governments or regulators at the upper project level. This suggests that some elements might be changeable within the boundaries of the project organisation, such as governance structure and strategic leadership, but others such as regulations and compliance might be unchangeable within the boundaries of the project.

5.1.1.1 Governance structure

The first element within the institutional arrangements is the governance structure. The governance structure element plays a top-down role in the co-creation of value. The governance structure is presented in the data in the form of processes, project boards, functions and procedures, usually organised and enacted by key stakeholders. According to the data, the governance arrangements may help the senior management team during the process of co-creation, for example in taking collaborative decisions with key project stakeholders. One key goal of this arrangement is to design, monitor, defend, and deliver valuable outcomes to the relevant stakeholders.

Two original aspects of governance are discussed. Firstly, the relevance of the governance arrangements both in a horizontal perspective (project life cycle) and vertical perspective (project and programme/portfolio levels) is explored. Secondly, the findings show how the co-creation with both internal and external actors, through the governance arrangements, may help to create clarity and ensure the delivery of the value outcomes for the long-term.

Governance arrangements may create a vertical alignment across the layers of a project. The data show that the vertical governance arrangements (senior management level and project level) help in making the right decisions in the process to achieve the value outcomes. For example, two participants from different case studies (Case Study 1 vs 6) provided opposing perspectives in how key stakeholders play a role in the process of the value outcomes through the governance arrangements.

"The Chief Information Officer was there [on the project board] and she took the opportunity to make sure everything was on track so…at the project board meetings, we also had the opportunity to liaise and speak"

Director of Campus Services – Case Study 1

“There is no direct management route. There is no clear link on how decisions are made and this is impacting the development of the project…so rather than to have three contracts, now we are having this one contract, but it is not clear to me how that decision was made and then communicated”

Commercial Manager – Case Study 6

This evidence is juxtaposing. In Case Study 6, (in contrast to Case Study 1), there was a lack of connection between the top management team and the project team on the creation of the value outcomes. The decisions taken by the senior management team were formed without consulting key project stakeholders. Resources were sunk and nullified.

A key negative aspect of Case Study 6 is that there was a lack of a project board, where actors from different levels could meet. This is in contrast to Case Study 1, where a key project sponsor: Chief Information Officer was involved in the project board. According to the data, the co-creation on the board level may help, not only to monitor and control the project value outcomes but also to reduce the uncertainty of a project, as decisions are collaborative undertaken and communicated among the relevant stakeholders, as in the example of Case Study 1. In this project, the project board allowed the connection between key decision-makers project in the PM1; PM2; and PM3.

The data also show that a horizontal alignment is needed to ensure the delivery of value outcomes in the medium- and long-term. The data suggest key stakeholders need to continue with the co-creation across the project life cycle in a horizontal manner. The data indicate that the value outcomes need to be finessed across the project life cycle rather than being solely addressed at the front-end as a discrete activity. For example, in Case Study 1, the project presented a strong vertical alignment at the front-end of a project, yet a weak horizontal alignment (time-based). The interaction among the relevant stakeholders, particularly at the project board, disappeared in the execution phase. This caused constraints to the Project Manager in the delivery phase and hence affected the delivery of value outcomes designed in the front-end.

The follow-up of this variable across the project life cycle demonstrates that governance arrangements are required to be embedded for the duration of the project (horizontally) and across the layers of a project (vertically). This creates a type of project assurance in order to secure, protect or defend the value outcomes from a strategic point of view. From the six cases studies, only Case Study 4 and 5, were able to create both a horizontal and vertical alignment across the project life cycle. Fair to say, the value outcomes from both projects were (relatively successful). This may suggest that the governance arrangements may directly support the development of the value outcomes.

Applying some retroduction, governance arrangements primarily represented by project boards often incur on financial resources, thus this may increase the overall cost of the project. Thus, project actors may not be willing to spend resources, in terms of money and time to create strong governance structures.

Another key aspect to highlight within this mechanism is that while most of the data come from the client perspective, it would be necessary to have the same project governance arrangements on the other side of the coin: the supplier organisations. The below evidence from Case Study 1 shows how there might be a lack of vertically and horizontal alignment from a supplier perspective as well:

> *"We had a project board our end, so we had a monthly update with our project sponsor. I had a senior supplier and I had reps from different departments that were feeding into the project…so I was in a very luxurious position because of my resources but that does not operate that normally"*
>
> *Supplier Project Manager – Case Study 1*

Extrapolating the above evidence indicates that supplier organisations struggle, in the same manner as the client organisations, in implementing an effective governance. Yet, this could not be confirmed due to the limited amount of interviews coming from supplier organisations, although the lack of engagement might indirectly infer some known shortcomings in this respect.

Another key originality within this mechanism is to show how the co-creation with both internal and external actors. For example, in Case Study 5, evidence shows that supplier and client representative work with the end-users, not only in the project level but also at project board (governance level) and across the project life cycle. This finding is contrasted with other cases, for example, Case Study 3, where there was a complete absence of a project board and interaction among relevant stakeholders.

This finding shows a tipping point in this mechanism: due to confidentiality concerns, some actors, such as the client organisation, may decide not to invite another key stakeholder to meetings, such as governance structure boards. In addition to this, co-creating value with external actors might create conflicts. For example, one participant stated about having multiple stakeholders, particularly in the governance boards:

> *"The project board was about 25 people. The first thing I did was to take an axe to that. I prefer a small number, with high power individuals who can make decisions. If you have 25 people talking on the board they just go around in circles, but if you have 6 people talking on the table with a strong chair, you get decisions"*
>
> *Senior Project Manager – Case Study 5*

This evidence suggests that stakeholders in the board level (either programme or portfolio level) may be valuable if they have sufficient power to make decisions, otherwise the interaction may create unnecessary conflicts and time consumption.

To show the different governance structures among some case studies, Figure 5.2 has been created to map the co-creation among relevant stakeholders, particularly at the project board. Figure 5.2 aims to show both the presence and absence of governance arrangements. For example, in Case Study 1 and 3, the evidence shows governance structure was absent. The examination of the value outcomes also shows that the value outcomes in both projects were (relatively) unsuccessful. This may suggest that the absence of these structures might have a direct influence on the co-creation of value outcomes among relevant stakeholders. This contrast the evidence from Case Study 4 and 5, which presented a project board across the project life cycle and. Interesting to note, when project boards were used, value outcomes were considered as successful.

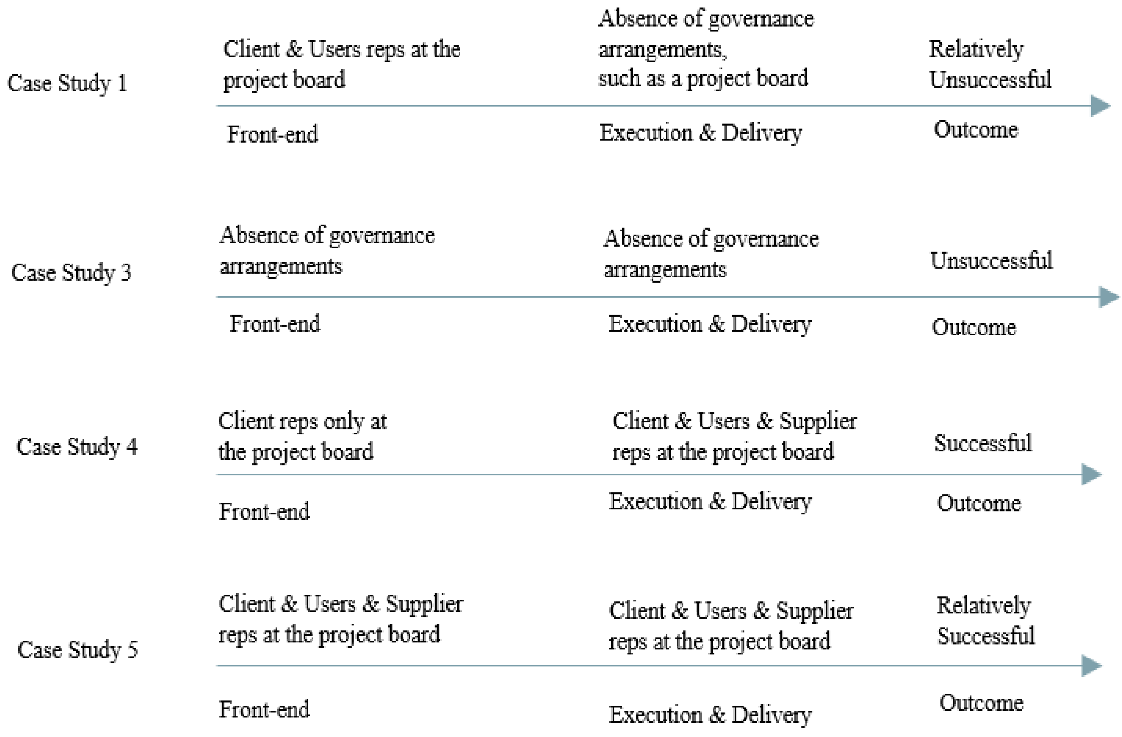

Case Study 1
Client & Users reps at the project board
Absence of governance arrangements, such as a project board
Relatively Unsuccessful
Front-end
Execution & Delivery
Outcome
Case Study 3
Absence of governance arrangements
Absence of governance arrangements
Unsuccessful
Front-end
Execution & Delivery
Outcome
Case Study 4
Client reps only at the project board
Client & Users & Supplier reps at the project board
Successful
Front-end
Execution & Delivery
Outcome
Case Study 5
Client & Users & Supplier reps at the project board
Client & Users & Supplier reps at the project board
Relatively Successful
Front-end
Execution & Delivery
Outcome

Figure 5.2. Mapping of governance arrangements across some case studies (Source: Author’s own).

While Case Study 5 presented the integration of stakeholders at the governance level, the data demonstrate power asymmetry. This resulted in an imbalance among key stakeholders. In particular, the end-users being the weakest actor at the governance level reported project sacrifices in terms of limited allocation of benefits and resources for their benefit. End-users were both overlooked and mistreated concerning their needs.

Overall, out of the six case studies, only Case Study 4 and 5, present a strong presence in the alignment of the governance element. Yet, the other case studies presented weak evidence on this mechanism. This mechanism is highly connected with the strategic leadership enacted by the key stakeholders, as it provides the platform where key stakeholders may (positively) shape the development of the value outcomes.

5.1.1.2 Strategic leadership

The second element within the institutional arrangementsk mechanism is strategic leadership. Leadership is enacted in a project and it influences the value outcomes in the medium- and long-term. To explore the dynamics of leadership, the section is divided into two parts, which presents the key originalities. The first part addresses two types of leadership, namely vertical and horizontal leadership. The second part explores how the leadership enacted by the key stakeholders may call on resources for a project, which in turn may help to achieve the value outcomes. The section also addresses how leadership is interconnected with the governance structure in order to achieve an adequate co-creation of outcomes.

Leadership can be enacted horizontally and vertically. Effective leadership enacted by key project stakeholders, particularly the ones working on the governance level may provide direction in order to induce and secure project value outcomes in the long-term.

The horizontal perspective may enable the team to provide a vision across the project life cycle and within the parent organisation in the long-term. The data show that the integration of key stakeholder across the project may enable the project team to promote and realise the expected benefits for the medium- and long-term. This is fundamental, particularly for new service entering into existing operations. For example, in Case Study 2, the project team expected the service (printing equipment and services) to be utilised by many departments within the parent organisation. However, the service was being underutilised by the internal departments. This lack of utilisation of the service resulted in having a shortage of (financial) benefits in the business model. When examining the project, it was found that the service was not properly mandated and supported by the leadership team, as stated below:

"There was not senior management buying and nobody understood the benefits for the organisation to do it. Nobody got convinced to use the new printing service. There were plenty of solutions out there [in the market], which people perceived as better value"

Senior Procurement Manager – Case Study 2

One of the biggest problems was getting support from the executive, and getting the ideas across the organisation.

Head of IT Asset and Supplier Management – Case Study 2

In this example, the lack of horizontal leadership from the key stakeholders was unable to mandate the service across the whole organisation. The benefits that were envisioned from the early stage of a project were not transferred across the project life cycle. As a result, the printing service was underutilised. Applying retroduction, there was an ineffective horizontal leadership; the vision and benefits were not properly communicated across the project life cycle, particularly at the project board level. The underutilised service in place resulted in more expense as the client organisation was unable to reap the benefits of economies of scale. According to the data, after four years of the contract, the service was being underutilised across the organisation, as reported by the PM. This suggests that horizontal leadership was neither enacted at the project nor the operations level. Another originality found in the emergent findings is vertical leadership. This type of leadership may create the connection to co-create value between the relevant stakeholders across the project layers PM1; PM2; PM3. For example, Case Study 6 presented a lack of connection between key stakeholders across the layers. This brought negative implications, such as lack of communication and lack of trust from the project team towards the senior management (as they were making decisions without consulting the project team).

The data show that the project governance arrangements are the vehicle to carry out the project leadership. Thus, both arrangements, governance and leadership, are critical and intertwined to achieve project value outcomes. For example, in Case Study 1, the vertical leadership was intense during the front-end of a project (as they were enacting their leadership supported by the governance arrangements). The results demonstrate that leaders may call on resources, such as financial resources, which may aid to achieve the value outcomes in the long-term. The key stakeholders were able to enact their leadership and convinced other stakeholders in the adequate allocation of resources, as described by one of the interviewees:

"The Wi-Fi project was very fortunate because it had dedicated funds, dedicated attention and a really strong financial backing from both the Chief Information Officer, the Finance Director and Campus Services"

Head of IT Partnerships and Service Delivery – Case Study 1

The above evidence from Case Study 1 shows that effective vertical leadership may provide the project team with enough resources to execute a process of co-creation. Key stakeholders have the power to mobilise resources and take valuable decisions for the benefits of the project. Contrary to Case Study 1, Case Study 6 presented a lack of leadership (as there was an absence of a project board), which resulted in securing enough resources for the project. This suggests that project leaders may use their power within the organisation to influence the allocation of resources, highly needed for the creation of the value outcomes. This may also suggest that project leaders may use the power to create asynchronous benefits, particularly for the weakest actor in a project.

Overall, the enactment of strategic leadership was perceived only in Case Study 4 and 5. In other case studies, the leaderships appear to be relatively weak in both vertical and horizontal perspective.

The two elements covered so far within this mechanism: governance and leadership appear to be flexible elements. This may suggest that client organisations have the ability to shape these elements within the project or organisational boundaries. For example, an adequate governance structure depends on the extent to which the client organisation is organising the delivery of projects.

However, other elements within this mechanism, such as the regulations and compliance are more difficult to be shaped or modified within the boundaries of a project. The following section explores how this element is more rigid than the leadership and governance element.

5.1.1.3 Regulations and compliance

The third element found within the institutional mechanism is the regulations and compliance arrangements. These arrangements may play a key role in the creation of value outcomes, as they may constrain or enable a client organisation to execute value interactions at the project level, hence they have a direct influence on the value outcomes for the long-term.

Regulations, standards, and the overall compliance may come from a higher level, such as the governments, commissions, institutions, and authorities. In this study, projects examined were carried out in the public sector, thus the client organisation had to comply with the regulations set for the public sector. In this client sector, the European Union (EU) commission sets regulations on how to run public procurement process and on what client organisations can do or cannot do when they are procuring a new service or product. Thus, this section explores how the (EU) regulations may act as enablers or constraints on the co-creation of value outcomes. One key originality is to show that some external factors, such as regulations, may influence the value outcomes and might be difficult to change within the project boundaries.

The regulations per se, according to the evidence, may directly constrain the value outcomes. In the first part of this section, it addresses how the EU regulations may have a focus on value outcomes for the short-term rather than for the long-term. This directly influences how project teams may act during the procurement process. In addition to this, the section addresses how the EU regulations set out in a rigid manner how to carry out interactions within public organisations, as compared to projects carried out outside the EU regulations, such as in the public sector. This rigidity may influence on what management actions the project team can do or not.

Project Managers in the public sector had to comply with the rules set by the EU commission. However, according to the data, participants from the project and procurement management teams believed that the EU constrains the value outcomes. One participant stated:

"It regulates in too much detail on what we can do. I honestly believe because of the way the legislation is written, we are prevented to get the best possible terms for our contracts. As a consequence, the EU does not maximise the value that it gets"

Deputy Head of Procurement – Case Study 1

The EU regulations have a strong emphasis on the short-term aspects of value, thus Project Manager tends to focus on these short-term aspects, rather than in the long-term. Case Study 1 organisation chose the lowest options, making an emphasis in short-term success. They compromised other long-term value outcomes, such as the operational and experiential. Thus, this shows that the EU regulations promote a focus on the short-term rather than in the long-term.

Another key constraint presented in the EU regulations is in the way it controls the value interactions, in forms of face-to-face communications and active negotiation of strategic requirements. Within the EU regulations, requirements cannot be easily changed or negotiated later in a process. As a result, this does not provide enough flexibility to the client organisation to address any emergent requirements.

From the current procurement procedures in the public sector, the Competitive Dialogue and the Negotiated Procedure are the only procedures, which allow the negotiation of requirements. Others, for example, the Open Procedure constrains the change or re-negotiation of requirements later in the process.

One of the key issues of using the Competitive Dialogue and the Negotiated Procedure (which allow the negation) is that they are too expensive to run. For example, in Case Study 2, the project team decided to use the Competitive Dialogue Procedure. However, the overall use of this procedure was not found useful as it was consuming too much project resources, as stated below:

> *"The whole [competitive dialogue] process took something ridiculous like 9 months and the end thing, it was that the contract was not particularly great, it was overpriced, there were some things really, really poorly"*
>
> *Head of Procurement – Case Study 2*

The client organisation did not find this procedure useful. Instead, they found it expensive. However, the Competitive Dialogue Procedure is the only procedure that allows negotiations. This shows that exaggerated regulation limited the overall flexibility of the client organisation to address any type of innovation (or emergent requirements) during the procurement process.

One key finding in this section is to show the shackles of the regulations by the EU commission. They were more evident when doing the analysis for Case Study 6, which was not entitled to comply with the regulations. Thus, the freedom of working outside the EU regulations provided room for innovation and flexibility to address emergent requirements.

As summary, case studies 1, 2, 4, and 5 presented strong evidence on how the EU regulations influence the relationships and the project value outcomes. In the majority, it was a negative influence as they constrain the value interactions between the client and supplier organisations. This is contrasted with Case Study 6, that did not use the EU regulations and it enabled the client with enough flexibility to co-develop the project specification. This allowed to re-shape and negotiate outcomes requirements with a wider range of key stakeholders.

Overall, this section has addressed the institutional arrangements mechanism and in how they directly influence the development of the value outcomes. Three key elements were found within this mechanism, which are: (a) governance structure; (b) strategic leadership; (c) regulations and compliance. From these elements, the regulations and compliance are more rigid to change, as compared to the other soft elements, such as leadership and governance. It would take extra effort for client organisation (or probably impossible) to change existing public or industrial regulations (institutional logics) based on the needs of any particular project.

While this section has focused more on the upper levels of a project, the following mechanism is highly connected to the resources allocated at the project level.

5.1.2 Generative mechanism 2: Resource arrangements

The second generative mechanism, found in the dataset, is the resource arrangements. This mechanism primarily influences the project level and determines what management activities can be carried out at the project level. The resource arrangement mechanism is integrated by three key elements (a) available time; (b) available funding; (c) the mobilisation of human resources. These three elements influence the co-creation of the value outcomes at the project. According to the evidence, the influence is coming from a top-down approach.

The originality in this section is to show how value co-creation is highly dependable on the resources allocated to the project, in terms of time available, funding available and the availability and mobilisation of human resources. In addition to this, this section also emphasises how different generative mechanisms, such as the institutional and resource mechanism, are highly intertwined. This may suggest that while the generative mechanisms are considered as separated elements. The section also addresses how elements within this mechanism are interconnected at the ground level. Overall, the section shows how project resources are critical to achieving project value outcomes in the long-term.

5.1.2.1 Available time

The first element within this mechanism is the time available within the project constraints. Time is a prime resource on a project. The results show that the co-creation of outcomes are highly constrained by the total amount of time given for a project. According to the data, time is a clear driver of the number of value interactions that can be carried out during the project life cycle in order to co-create the value outcomes.

From the analysis of the six cases studies, the majority of the timescales are pre-given by the parent organisation. For example, Case Study 1 shows that the client organisation had to deliver the new service by a pre-defined date: the start of the academic year in 2012 within the university. Thus, co-creation activities had to be properly selected because there was insufficient time to carry out all of them within the schedule. This shows how schedule (time) may constrain the co-creation of value outcomes.

The analysis also shows how internal forces might influence the timescales, and ultimately the value outcomes. For example, in Case Study 4, the project team procured a new IT system (High-Performance Computer). The client organisation used a Restricted Procedure (from the EU procurement regulations) to tender this project. However, the team initially wanted to run an Open Procedure tender in order to co-create an appropriate solution. Yet, the Open Procedure would take longer to execute as compared to the Restricted Procedure. Finally, the client decided to use the Restricted Procedure in order to hit the timescales.

Specifically, the Project Manager reported he was informed to spend the financial resources within the financial year of the organisation. Thus, the project team decided to run the project using the Restricted Procedure (against their own will) in order to execute the project in a shorter period and hit the fiscal year deadline. One participant stated the challenges about the lack of time available to plan and execute the project:

> *"We had to spend money really fast, this is like a trade-off, we could have gotten a better solution if we could have more time [to use the Open Procedure], but we might not have spent the money [within the financial year] and lost it so we would not have any solution now, so this is better!"*
>
> *Senior Procurement Manager – Case Study 4*

The evidence shows that the project team decided to carry out the tender as fast as possible to spend the resources within the financial year. The above examples show how timescales are also constrained by internal forces, such as the financial year (of internal client's departments), which ultimately influenced the final value outputs, as the client organisation was unable to procure the new service from the best supplier in the market. The Project Manager reported that the best supplier of the required system was not part of the framework agreement, thus they had to procure the service with other secondary suppliers. The Project Manager reported while the Open Procedure was ideal, they could have not finished the project within the financial year and could have resulted in the inability to provide a new service to the university.

This finding also demonstrates that the generative mechanisms might be interconnected. In this example, both the resource and institutional mechanism play against each other in the co-creation of value outcomes.

In another finding, the data show that some value interactions may take longer to execute, and this may negatively influence the timescales. For example, in Case Study 5, the team carried out various co-developing sessions (value interaction) within the supplier and end-users. Yet, time as a resource was a problem; management and interactions took longer than scheduled, as described below:

"They [the interactions] required a huge amount of input and focus and we had two full-time Project Managers and a Support Officer...both the supplier and us we needed a break [after the procurement] because it was a very intense process and it took longer than expected"

Senior Project Manager – Case Study 5

Extrapolating this, this suggests that the co-creation activities are time and cost consuming, as presented in Case Study 5, where human resources (people and their time) increased to cope with the co-creation activities. Thus, Project Managers are challenged to be selective on the type of co-creation activities to be carried out without draining financial, human or time resources. In addition to this, this finding also shows how all the elements within this generative mechanism: timescales, budgetary and human resources are highly intertwined. It is the people, who ultimately execute the value interactions and they have to be completed within the time constraints.

Overall, this section has explored how the project schedules might directly affect the process of value co-creation. The following section shows how the funding available influences the co-creation of value.

5.1.2.2 Available funding

The second element within this mechanism is the availability of the funding to co-create value outcomes. The analysis shows that the financial resources available to carry out the project influence the number of value interactions that the client organisation can undertake. Three key findings are presented within this element: (a) the focus on the financial expenditure is on the short-term, rather than in the long-term; (b) the implementation of value interactions may consume more financial resources than planned; (c) the analysis of this arrangement also shows that this element is highly intertwined with the timescales elements, which might dictate the number of interactions to undertake.

Overall, the value outcomes depend on how many financial resources are available for the project. The financial resources available for a project may indicate the extent to which the value outcomes can be co-created during the project life cycle. For example, in Case Study

1, the project outcome was not as expected because the parent organisation was unable to inject financial resources in order to achieve the value outcomes in the long-term. The participants explored some of the issues around the lack of financial resources for this project as follows:

> *The Wi-Fi [solution] technically was sh*t and not able to deliver to the standard required. The project was about the cheap…there was not enough money, so it was a bit of an issue. If you have no much money you can't expect the suppliers to deliver, for nothing, a premium service.*
>
> *Technical Lead Wi-Fi – Case Study 1*

When the service becomes operations in Case Study 1, the end-users were complaining about the inadequate operational outcomes. The Chief Information Officer in Case Study 1 reported that "*the project team was trying to be incredibly efficient which meant there were pressures on [this project] budget*". This evidence shows that pressures outside the project may decide how much to invest in a service. Applying retroduction, this may also suggest that there are other (hidden) agendas at the top management team, where other projects are assigned the (financial) resources.

Another key finding is that the intensity of the value interactions may be directly connected with the expenditure of the financial resources. The data show that the more value interactions executed, the higher the investment on this. The expenditure on value interactions appears to influence both the client and the supplier's business model. For example, in Case Study 5, the client organisation undertook plenty of interactions over the course of the (long) procurement, which lasted for around one year (longer than initially planned due to the length and complexity of the interactions). One participant from the client organisation reported these value interactions:

> *"The procurement was quite lengthy and there were lots of stages from the initial tender; and having to do lots of rounds of dialogue and costing and that in-self and from a supplier*

point of view, it is quite consuming and you are making a big financial commitment before you even know if you are awarded"

Supplier Project Manager – Case Study 5

In the above evidence, the supplier representative exposes the constraints of having to undertake lots of interactions, and how these value interactions represent a financial commitment. These financial commitments happen before the contract has been awarded, thus, some organisations might be unwilling to co-create value as there is a financial risk involved in this.

To execute value interactions at the project level, the data indicate that the financial resources need to be agreed in the programme and portfolio level. During this agreement, in particular, both risks and benefits need addressing before the commitment is made.

In another finding, the analysis shows that both client and supplier organisations focus more on the short- rather than in the long-term financial outcomes. The data show that some of the stakeholders are highly reluctant to carry out value interactions, which might create benefits for the long-term, rather than for the short-term. For example, in Case Study 1, one of the supplier representatives stated the perceptions of key stakeholders in investing in value creation activities:

"It is very difficult to invest on marketing (value creation) and what you have to learn is to not speaking marketing jargon because directors, executives and particular finance directors they do not like it and they do not understand this"

Supplier Marketing Director – Case Study 1

The above evidence shows that financiers and project sponsors consider value interactions as unnecessary activities for the creation of value. The focus of financiers and project sponsors are primarily the (engineering) outputs, such as a new system, and in the return-on-investment for the short-term. In Case Study 1, the Supplier Marketing Director reported having difficulties to get support to carry out value interactions with a focus for the long-term.

This section has shown that funding available for a project highly constrains the value interactions carried out in a project and in turn influence the value outcomes in the long-term. Overall, from the six case studies, only Case Study 5, presented an extraordinary allocation of financial resources to invest both in the short- and long-term value outcomes. Thus, the client organisation was able to address more value interactions as compared to other cases studies. Some case studies show that while value interactions were carried out, there was an insufficient financial resource to invest in the final value outputs and outcomes. Therefore, the findings show that the co-creation of value outcomes highly depend on how many financial resources are available.

5.1.2.3 Mobilisation of human resources

The last element within the resource mechanism is the people available to develop the value outcomes. According to the data, human resources, as operant resources, are at the core of the co-creation of outcomes. Thus, in this section, an analysis of how human resources play a critical role in the co-creation of value is being explored. Three original findings are presented. First, the allocation of resources at the portfolio level is discussed, on how resources need to be properly agreed before the start of the project. In this way, PMs understand how to use existing organisational resources. Secondly, it is explored that people working in the co-creation process need to have the right competencies in order to co-create value. The third finding in this section is concerning how well-prepared an actor is during the process of co-creation. This prior preparation to the process of co-creation may directly influence the value outcomes. Overall, this section shows how human resources play at the heart of the co-creation process and directly influence the process.

The allocation of human resources for a project plays a critical part in the development of the value outcomes. Yet, when project teams miss to prioritise and allocate resources from an upper level, such as the portfolio level, the value outcomes are difficult to achieve. For example, in Case Study 4, the project team decided to carry out the value interaction: co-aligning strategic needs and expectations, with a range of suppliers before the tender were initially developed. These value interactions with suppliers were fundamental to shape the specification. However, some of the actors from the client organisation could not engage in these interactions, as the resources were not agreed and allocated at an early stage of the project.

The Project Board Chair perceived a lack of engagement with the Networks Manager as this project actor could not attend some of the sessions. When applying retroduction, the analysis could take two routes about this lack of participation:

(a) Resources have to be agreed in the governance level. This could ensure that resources are allocated and the specific amount of the time of each assigned actor could also be agreed. This agreement has to come from a strategic level rather than a project level. In contrast to Case Study 4, where some of the key actors could not engage in the key-value interactions, Case Study 5, for example, shows that human resources have to be formally bought and agreed by the temporary organisation from the permanent organisation (in existing organisations, such as organisation A and B) as described below:

> *"I paid for backfill in Services [operations], also backfill staff in IT, I worked out very quickly that you have to pay for the resource and confirm how much of them you have because people [line managers] drag staff in all kind of different directions"*
>
> *Senior Project Manager – Case Study 5*

The above evidence shows that the allocation of resources needs formal agreement at the portfolio level. Thus, the Project Manager could use these resources for the time agreed. In Case Study 4, the analysis shows that the resources were not agreed in the portfolio level, so the Project Manager could not use these resources during the key project negotiations with the potential suppliers.

(b) There are priorities within the permanent organisation, as resources are not focusing only on projects (for existing organisations). Thus, projects may suffer, as the priorities of the human resources might not be towards the project. The finding shows that this alignment of resources may become more difficult when resources have to co-exist between the temporary and permanent organisation, thus resources can be dragged by project and line managers on different routes. According to the data, PMs then need to agree at the portfolio level the amount of time, from the human resources, to work either on the permanent or temporary organisation.

Another emergent finding was concerning the people's competencies who take part in the co-creation of value. The evidence shows that having agreed on the time and the commitment of the resources to each project does not ensure that the people always have the right competencies to co-create value. For example, in Case Study 2, key players involved in the value interactions at the front-end stage had a lack of skills, knowledge and competencies as described below:

> *The Procurement Manager doing the procurement was not experienced enough to understand and tease out what the local requirements were.*
>
> *Head of Procurement – Case Study 2*

The IT Director reported that "*the negotiation during procurement was not right, the Procurement Manager did not get the contract right and the contract was very complicated*" (IT Director – Case Study 2). According to two senior management actors, such as the Head of Procurement and the IT Director, the Procurement Manager did not have the required skills, knowledge and expertise to carry out the procurement. This directly affected the result of the project, as the design of both the financial outcomes (for the client and supplier organisation), and experiential outcomes (for the end-user) were inadequately addressed at the procurement stage.

The last emergent finding within this element is about the level of readiness that the people involved in the co-creation have during the process of value co-creation. For example, in Case Study 1, the project team found some sessions useless as described below:

> *"We prepared a briefing and we hoped that during that briefing we could generate some constructive discussion. [Supplier B] came to the dialogue with the wrong people. They*

came not prepared. We had a list of questions and number of points that the contractor had not taken those on board [before the value interaction took place], it was useless"

Deputy Head of Procurement – Case Study 1

This demonstrates that even if the actors are allocated and agreed at the portfolio level, the actors involved need to have prior preparation before the process of co-creation, otherwise the value interaction can be meaningless.

Overall, tensions were found in this element, such as the lack of planned allocation of the resources at the portfolio level or actors having the right set of skills and competencies to make a meaningful contribution during the process of value co-creation.

Combing the three elements found within this mechanism: time, funding, and human resources, the resource arrangement element shows that resources have an influence on the project for the development of the value outcomes. The availability of the resources is critical to the creation of value. The analysis of the six case studies show that no project has infinite resources, thus the role of the Project Manager is critical to developing proactively value outcomes in the long-term. The following mechanism continues to focus on the human dynamics and in how they play a critical role in the development of the value outcomes.

5.1.3 Generative mechanism 3: Socio-Cultural arrangements

The third generative mechanism found in the data is concerning social-cultural aspects that surround the process of value co-creation. People are at the heart of the co-creation of value and their behaviours and attitude contribute to the development of the value outcomes. Within this mechanism, two key elements are addressed in this section: (a) collaborative relationships among key relevant stakeholders, which appear to enable or constrain the co-creation of value; (b) trusted relationships, which appear to be the engine oil on which any form of relationship can be built or destroyed. According to the results, the Socio-Cultural arrangements influence the co-creation of value outcomes in a top-down perspective, as well as in a bottom-up perspective, as people work on both levels. A key originality of this section is to show how project actors might have a dark side or unethical behaviours that contribute to the destruction of value. These elements show that the co-creation of value outcomes might require another set of more collaborative values, beliefs, and culture for the benefit of a wide range of stakeholders, including the weakest actors in the system, such as end-users.

5.1.3.1 Collaborative relationships

The first element within this mechanism is how collaboration is a central role in the co-creation of value and how the lack of it might lead to the destruction of value. The analysis from the six cases studies has resulted in three main key findings. Firstly, it is explored the internal and external collaboration in a project. There, financial incentives are a key driver in collaboration to co-create value. Later, it is explored how collaboration is socially constructed during the development of a project. This part explores how prior engagement is necessary to ensure that the co-creation process may flow as expected. Then, it is demonstrated how the construction of the collaboration happens across the project life cycle, rather than being given by default at the start of the project. Lastly, it is explored how trust is a key player in the collaboration process. This may suggest that the two-element within this mechanism are highly intertwined.

The first key finding is on relation on how internal collaboration within the client organisation is socially constructed through direct interactions and time, rather than being given by default at the start of a project. Evidence drawn from Case Study 2 may suggest that collaboration may have antecedents coming from the permanent organisation (for existing client organisations) that may impede the co-creation of value in the temporary organisation. For example, in Case Study 2, there was a lack of collaboration between different internal departments in the permanent organisation as described below, which directly influenced the project team:

> *"We need a bit more of collaboration between all the departments, between purchasing and procurement…when you ask departments to share things, they don't share as much as we would expect, and I think we are working too much in silos"*
>
> *Head of IT Asset and Supplier Management – Case Study 2*

This may indicate that internal teams work independently or in ‘silos’ within the permanent organisation, thus it becomes difficult to co-create value outcomes in a project. Overall, past and present collaboration experiences within the organisation may also influence the level of collaboration for project engagements.

The second finding explores the dynamics of the external collaboration in a co-creation process. Similarly, to the internal collaboration, the external present difficulties. For example, in Case Study 5, end-users reported that it was difficult to collaborate with external actors because there were no tangible benefits for them coming out from the value interaction, as reported by one participant below:

> *“We [end users] are fed up with change, we are fed up with the systems being replaced by other with little tangible benefits so that creates an atmosphere...and if I give my afternoon to go this workshop or 2 or 3 afternoons, are we going to get a return from this?”*
>
> *End-User B – Case Study 5*

The above evidence shows that end-users ultimately are the ones who benefit or suffer from the outcomes of a service. Yet, some end-users argue that a few benefits were coming out from previous participations and projects, thus they are reluctant to collaborate in a co-creation process. The absence of external collaboration impedes that the project team could get the best ideas and concerns from the users, thus initial specifications might disregard valuable outcomes for the long-term.

The data show that project teams may use financial stimulus in order to attract external actors. For example, in Case Study 1, the project team organised initial workshops with the end-users to co-create value. The project team decided to offer financial incentives to the end-users, which then attracted end-users to collaborate, as reported below by one participant:

> *“Money was useful, it was an incentive…but sometimes the money is not available and you have to use other ways of exchange”*

Project Manager – Case Study 1

The above evidence shows that financial incentives might trigger collaborative practices in the project business, yet not all project teams have the luxury to provide incentives to the external actors. There, Project Managers need to find other ways to engage with external actors.

Another finding is to show how the relationship between key stakeholders is socially constructed over time. For example, in Case Study 1, the Supplier Project Manager reflected on how the relationship was built throughout the procurement process of nine months, which was comprised of formal (negotiations) and informal (lunch and coffee breaks) interactions.

Relationships lead, for example, to create a sense of trustworthiness with the actors involved. The last emergent finding within this element is how trust appears to be a key enabler in the collaboration. For example, in Case Study 4, the project conducted several negotiation meetings with the (successful) supplier during the procurement stage, which enhanced the collaboration during the project. Yet, one participant stated that trust is difficult to be perceived as follows, particularly as actors may have divergent interest in a project:

"One of the things is very difficult to build in procurement, is the level of confidence and trust because in the end when a problem goes wrong, it is the relationship that solves the problem"

Director of Research Services – Case Study 4

The above evidence suggests that trust is difficult to be perceived and constructed in a relationship. According to the data, trust may help when problem-solving situations appear. Based on a trusted relationship, key stakeholders in a project may look in win-to-win situations, rather than individualistic goals.

The analysis of the six cases studies suggests that trust is something difficult to express or write down into the tender responses by references or demonstration of previous experiences because it is until when a problem arises that one actor can see whether they can trust the other (external or internal) actor to solve a problem.

5.1.3.2 The role of trusted relationships

The second element within this socio-cultural mechanism is the role of trusted relationships. This section explores how trust plays a fundamental role in the co-creation of value and how the lack of trust may lead to the destruction of value. Trust may act as the engine oil in the co-creation of value outcomes within the relationship. "*Trust relationships and working together cooperatively is fundamental to make it something happen*" (Senior Project Manager - Case Study 4). Yet, evidence shows that trust is not highly enacted in project settings. The evidence shows there is a lack of trust and many opportunistic behaviours across the six case studies, which may ultimately lead to the co-destruction of value.

This section is divided into three findings to understand the dynamics of trust: (a) the unethical behaviour is explored and how it may lead to co-destroy value; (b) forms of contractual arrangements may directly influence the trust and collaboration in a project; (c) the misalignment of values in projects, which directly leads to co-destroy value.

Firstly, the analysis of the six cases shows that there is a lack of trust in the relationships. For example, during the project execution in Case Study 3, the contractor was behaving unethically during the contract execution. They were working outside agreed working hours, starting earlier and finishing later than agreed every day. The working hours undertaken by the contractor were different to ones agreed in the contract. The students complained about the early and late works within their rooms and buildings, and this resulted in that students were forced to change their routines as described below:

> *"The people working on the site were too noisy and loud during the mornings and waking up students from 7 am and the contractor was not delivering well in general"*
>
> *End-User – Case Study 3*

Applying retroduction into this event, the client organisation trusted the contractor to carry out the activities as agreed in the contract. The client, then, was surprised that the contractor behaved unethically. The Head of Procurement in Case Study 3 reported that by starting early, not as mentioned in the original tender, the contractor was *"able to work longer, therefore being able to hit the deadline as they mentioned in the tender".* This suggests that the contractor lied and behaved unethically in the tender response in order to win the initial tender competition.

Furthermore, the client organisation was behaving unethically at all points during the relationship, even during formal and informal communication with the end-users. This shows a lack of trusted relationships in the project business, which directly affects the co-creation of value outcomes. The unethical behaviour appears to be enacted by the strongest actor in the relationship and reflects the power asymmetry in B2B settings.

The second finding is concerning how the forms of contractual arrangements may directly influence the trust and collaboration in a project. This may suggest that formal legal agreements may ensure the co-creation of value outcomes in a project. According to the analysis, particularly the suppliers often act in financial self-interest manner whenever possible, probably due to the fact they are financially driven organisations. Yet, they can be monitored and controlled through formal legal agreements. This finding suggests that trust (and collaboration) could be enhanced or broken through playing the existing contract systems. For example, in Case Study 1, the supplier organisation behaved unethically and took advantage of the situation, as the client Project Manager did not add a requirement about testing on the contract. Thus, the supplier refused to carry out the testing during the delivery, as stated below:

> *"I was invited to a meeting with [the supplier], and they said: well, there isn't any testing on the contract-, and I was like, you are joking right?, so it [the solution] was not testable"*
>
> *Technical Lead – Case Study 1*

The above evidence shows that legal contracts may lead effective management actions in a project. In this project, the client organisation could not test the solution implemented by the supplier organisation. However, when the operations started the client organisation realised that the initial network configuration was badly configured and directly affected the operational outcomes of the project. In this case, stronger contract arrangements could help in ensuring the value outcomes for the client organisation.

In contrast to Case Study 1, where the contract arrangements were weak, Case Study 6 used a more advanced form of contact: The New Engineering Contract (called NC3). This type of contract enforces some type of trust and collaboration in this project as reported below:

> *"NEC3 has a mutual trust and corporation clause and that is the number one clause, and the duty of both parties is to notify and address one another about something going wrong in the contract"*
>
> *Commercial Manager – Case Study 6*

This type of contract (NEC) legally bounds the key stakeholders to behave ethically. The contract arrangement has then implemented a trust and collaboration clause that allows the client organisation to create better relationships during the duration of the contract, which may lead to improve the value outcomes in the long-term.

The last finding in this section emerges when examining the reason behind the unethical behaviour of the people. It is found that it is the values of a person may lead to behave in an adequate or inappropriate manner. Thus, the system of values of an actor may contribute either to co-creation or co-destruction of value. One participant reported a perspective around this:

> *"It is difficult to enforce values and beliefs to some people and if you are going to go through that dialogue [co-creation] process, you need to do a lot of work, as an engaged team and come out with the values and beliefs rather than saying: here are our values and beliefs, you have to ask your team to create those"*
>
> *Chief Information Officer – Case Study 1*

The above evidence suggests that values and beliefs may be socially constructed in some projects, for example in Case Study 4 and 5, where participants reported high levels of trust and co-operation. Yet, in other Case Studies, such as 1, 2 and 3, it was perceived a high-level misalignment of values, primarily reported in conflictive situations and unethical behaviours. People are at the heart of the co-creation of value and people have a different set of (human) values, yet they might need alignment within the project life cycle.

As a summary, this sub-section explored the dynamics of trust in project settings. In some projects, for example, in Case Study 2 and 3, there was a lack of trust in the relationship, which directly influenced the value outcomes, and in other cases, this led to the destruction of value, affecting the weakest actors on the system: often the end-users. The evidence also shows that trust and collaboration might be enhanced and enforced through contractual systems.

Overall, in this section, the socio-cultural mechanism was explored. It has been evidenced how trust and collaboration elements are highly intertwined and together they may enhance the co-creation process or lead to the destruction of value. The data also suggest that other elements, such as the Socio-Technical arrangements, may help the trust and collaboration in the project. Thus, the following section shows how this mechanism plays a key role in the co-creation or co-destruction of value.

5.1.4 Generative mechanism 4: Socio-Technical arrangements

The last social mechanism found in the data is the socio-technical arrangements. This mechanism plays an important role in the co-creation of value and it supports others mechanisms, such as the socio-cultural to emerge. While most of the focus on the co-creation of value is on the people, the technology and its infrastructure play a key role as an operant resource during the process of co-creation. This mechanism appears to play in a top-down and bottom-up approach. This section explores how the technology and the management of the information are critical to support the mobilisation of value co-creation. This mechanism shows that technology may create value as well as the people, thus it is considered as an operant resource.

5.1.4.1 Technology and Information Management

In this mechanism, one key element was found: Technology and Information Management. It plays a critical role in the support and mobilisation of the co-creation of value. The analysis also shows that an absence of this mechanism may play against the development of the value outcomes. This section explores three key findings: (a) the management of the information and knowledge; (b) the internal and external orchestration and synchronisation of the IT service systems; (c) the flow of information within and outside the client's service system. Overall, this mechanism plays in a bottom-up and top-down approach and shows how technology plays a dual role as an operant and operand resource.

The first key finding shows that the management of the information is important in the co-creation of value. Yet, the analysis of the six cases shows the management of information and knowledge is weak. For example, Case Study 2 shows that the project team did not have the practice of documenting the business process and creating detailed information across the project life cycle. This lack of management of information resulted in problems during the operations phase. When the operations team were trying to find information on some technical aspects of the solution or the project development, as one actor stated:

> *"With [some personnel] departure and others being unavailable [due to illness], we've lost a lot of institutional knowledge, which presumably lives in documents on their personal filestore or in their heads"*
>
> *Customer Relationship Manager – Case Study 2*

The above evidence shows that there is no organisational culture for documenting the business processes and other aspects of the project. The information is stored in personal computers, rather than in shared spaces. There is an overall lack of organisational culture around both the permanent and temporary organisation in the management of the information and knowledge. This pattern strongly appears across different cases studies, such as in Case Study 2, 3 and 6.

The second key finding shows that the client organisations need to synchronise and orchestrate service systems to support the management of the information. Organisation A and B had a lack of central document repository for storing information and sharing the information, not only within the temporary organisation but also with the permanent. From the six case studies, Case Study 1 showed how the orchestration of IT systems, in the form of online platforms, could help in collaborating project documentation, processes, and other related information about that project:

"The online platform [basecamp] was very useful because the information was shared and it usually goes to the hard drive, but for this project, everything was there [online] for us and for the contractor. That is very rare across this organisation"

Building Manager – Case Study 1

In Case Study 1, the Project Manager decided to share, through an online platform, all the available documentation, such as asbestos surveys, health and safety reports, and cost reports of the site where they were operating. The Building Manager reported that this was a useful but unusual practice in the organisation. Some project actors perceived that due to confidentiality reasons, the shared information both within internal and external teams through online systems, such as Office 365 or Basecamp, might be commercially dangerous.

While the above finding is in relation to how the information could be shared throughout the duration of the project. The analysis of the data shows that the orchestration of information management is weak as well during the operations phase. For example, Case Study 2 shows an inadequate integration and investment in the IT systems, which ultimately had operational and financial consequences, as stated below:

"The supplier did not have enough systems and decent software to invoice the client in the way that we really need to be invoiced because they invoiced at the base rate which was more expensive"

Senior Procurement Manager – Case Study 2

In this event, the supplier organisation did not have adequate systems to perform their accounting activities. In addition to this, the service systems were not synchronised. The client representatives reported that they had a lack of visibility of the information, thus the supplier was unethically taking advantage and charged at a more expensive rate, demonstrating an unethical behaviour. This demonstrates that the synchronisation of the systems can support the socio-cultural mechanism, including its project collaboration and trust, among the service system.

Lastly, the findings show how important it is to circulate the information across the service system using social media. For example, in Case Study 1, the Programme Manager stated that they "*could have used more the online environment and the social networks to do online surveys and disseminate information*". The analysis of the six cases studies shows that project teams unused social media (e.g. facebook, twitter, and other online social platforms) for their benefit.

This section has discussed how the technology and information management plays as a generative mechanism on the co-creation and co-destruction of outcomes. Overall, Case Study 4 shows a strong presence of this mechanism, not only within the project phase but also during the operations. This shows how technology is vital in the co-creation of value and may support another social mechanism, such as the socio-cultural.

5.1.5 Key cross-case analysis of contextual generative mechanisms

The above evidence has shown four social mechanisms to co-create value. This complements Chapter 4 as it shows the context that may influence the process of co-creation.

As a complementary view of the findings, a cross-case analysis has been developed and it shows key emergent insights as follows:

Firstly, this complementary view shows that value outcomes need to be shaped, not only at the project level but also in the higher levels of a project, such as in the programme and/or the portfolio level. There, the governance structure and arrangements play a fundamental role to co-create value between the internal and external stakeholders.

The evidence shows that project teams have weak governance arrangements and structures around the projects. For example, there was a complete absence of governance arrangements in Case Study 2, 3 and 6. In particular, in Case Study 6, there was a complete disintegration between the senior management team and the project team. In that project, the senior management decided to change the initial contract without any consultation to the project team, which has directly affected the value outcomes of the project. Other case studies presented short periods of governance arrangements. For example, in Case Study 1, the project team had only governance arrangements at an early stage of a project, but the arrangements disappeared in the back-end of the project, which ultimately affected the delivery of the value outcomes. The Project Manager reported having a lack of commitment of stakeholders, which ultimately affected the delivery of the value outcomes. From all of the case studies that presented a weak presence of governance arrangements, the value outcomes were negatively perceived and assessed by the end-users. This contrasts Case Study 4 and 5, in which the governance arrangements were strong and value outcomes were positively assessed. This may suggest that the governance arrangements have a strong influence in the co-creation, delivery and assurance of the value outcomes.

The second finding in the cross-tabulation is that some generative mechanisms have more flexibility than others. For example, the client organisation as being part of the public sector had to comply and follow the public procurement regulations set by the EU. If the public sector does not comply with these regulations, the client organisation may be challenged and fined. This shows that some elements within the mechanism are beyond the project boundaries, in particular the regulations, standards, and laws that are set outside the project boundaries. This contrasts other mechanisms, such as the socio-cultural mechanism that the parent organisation might have more control over them. In the case of the socio-cultural, people are at the heart of the co-creation, thus they may be shaped.

The third finding is that funding available for the project plays a key role in the creation of outcomes. Investment is key to the development of the value outcomes. For example, in Case Study 1, the funding available to allocate to the project was limited. There, the client organisation was unable to choose the premium service for the solution during the procurement stage, as these options were far beyond the budget allocated to the project team. Surprisingly, the team was granted the ‘best value-for-money award’ for cost-effective negotiation during this stage. Yet, this cost-effective negotiation was based on the cheapest options for the solution. This shows that there is myopia in the concept of value-for-money used in the public sector. In this example, the concept of value looks per se for the long-term, and the concept of money looks in the short-term, thus the concept itself suffers from myopia towards achieving the value outcomes in the medium- and long-term. The cross-case analysis shows that many of the projects focused more on short-term financial benefits, rather than in the long-term. This suggests that the public sector is highly transactional and have a strong focus on meeting short-term criteria, such as time-cost-quality, assuming these criteria might lead to valuable outcomes in the long-term.

Another finding concerning the funding available is that the permanent organisation needs to invest in the management of the technology and information in order to drive valuable outcomes from the project level. According to the data, the socio-technical mechanism may support the creation of the value outcomes. However, the financial investment may be unavailable to some projects. For example, Case Study 2 required an investment in the automatisation of IT service systems, which were beyond the financial resources allocated to the project.

In addition to this, the data show that the technology and information act as an operant resource, which may enable other mechanisms to co-create or co-destroy value. Linking the systems to certain types of information may prove beneficial to co-creation.

The fourth finding is that value outcomes are co-created primarily by people. People are the heart of the co-creation of value outcomes. Yet, the social-cultural mechanism demonstrates that actors might not be willing to co-create at all times. For example, the data show that actors have a different set of values and beliefs, which may impede to co-create value. According to the data, values and beliefs may need to be socially constructed across the project life cycle.

Additionally, a high presence of unethical behaviour and opportunism, particularly coming from the supplier organisation, makes it very difficult to create trusted relationships. For example, in Case Study 3, the supplier organisation cheated on the initial tender response and during the execution of the project; they started working outside agreed working hours, breaking the contract value propositions. This negatively influenced the experiential value outcomes to form the point of view of the end-user. This suggests that the social-cultural mechanism may directly influence the co-destruction of value outcomes if it is not managed appropriately. The data show that formal legal agreement may avoid the unethical behaviour and opportunism in the project business, for example with the use of NEC contracts, where trust and collaboration are key relationship premises.

The fifth key finding in the cross-case analysis is that the four generative mechanisms, including their key elements, are intertwined. They are all embedded in social reality. The internal connections may play in favour of or against each other. For example, Case Study 1 shows that the elements within the institutional generative mechanism are highly intertwined: the governance and leadership arrangements. In Case Study 1, the governance arrangements were available only for the front-end of the project, yet they disappeared during the execution and delivery phase. This directly affected the enactment of leadership at the back of the end of a project. This suggests that the elements within each mechanism are intertwined and support each other. Thus, the absence of one may also provoke the absence of the other.

Overall, these key findings suggest that the four generative mechanisms found in this study are highly interconnected. There is not one element considered as most important, instead, it is the social orchestration among the four generative mechanisms, which can make value co-creation or co-destruction happen. The combination of the four generative mechanisms suggests that the process is highly constrained by the social context. This goes in contrast to the current narratives in SDL that assumes that co-creation of value can take place at any time. Yet, the findings presented in this section show that the co-creation is not a straightforward process, and it may take a high level of investment and a complete change of working culture.

This section has presented key findings in relation to RQ1.3, which explores how the social context influences the process of co-creation of value outcomes. The four mechanisms also suggest that the process of co-creation of value is socially constructed or destroyed.

The following section will discuss these emergent findings against project and related-literature. This will show the key contributions to knowledge in the context of how the social system influences the co-creation of value outcomes.

5.2 Discussion of findings - Part 2

The previous section has presented the key findings regarding the social context around the co-creation of value outcomes. Recent revisions of SDL (see Vargo and Lusch 2016), it has been reconsidered that value co-creation is generated and highly influenced by institutional arrangements (Scott 2008). Yet, arrangements have not been explored in detail, and categorisation of the institutional arrangements have not yet been provided.

This discussion section has been structured based upon the four specific generative mechanisms themes found in this study: (1) a discussion around the institutional arrangements; (2) a discussion around the resource arrangements; (3) a discussion around the socio-cultural arrangements; (4) a discussion around the socio-technical arrangements.

The four key-generative mechanisms show how the social system has a strong influence on the co-creation of value outcomes. These mechanisms may play in a top-down or bottom-up approach and may be interconnected within the social reality.

A key objective of this section is to explore and answer the last research sub-question (RQ1.3), what are the contextual generative mechanisms to achieve desired value outcomes? what makes it happen? This answer contributes to the main research question (RQ1) to understand the process by which value outcomes are being co-created in the project business.

5.2.1 Discussion of generative mechanism 1: Institutional arrangements

The institutional arrangements mechanism has a top-down influence on the co-creation of value, as some of them are enacted the senior management level or by other institutional logics outside the boundaries of the project organisation.

Vargo and Lusch (2016) have mentioned that the value outcomes are influenced by institutional logics at the higher levels of an organisation (Scott 2008). Yet, clear categorisation of the institutional arrangements has not yet been provided.

In this section, the analysis indicates that value outcomes are influenced by three main elements, which form the institutional arrangements: (1) governance structure; (2) regulations and compliance; (3) strategic leadership. While some of these elements have been explored in the previous project management literature (see Miller and Lessard 2000; Müller 2017), the originality is to present institutional arrangements as a constituent of the process to achieve the co-creation of value.

These elements are usually enacted by senior management or by other institutions who may provide the standards and the regulations. The results show that the project team may need to adapt to the existing institutional arrangements, as the modification of these arrangements may take longer than the project schedule. In addition to this, the project team may not have (enough) power to change rules, standards, or regulations within the project boundaries.

The following sections explore each of the elements and how these influence the co-creation of value outcomes.

5.2.1.1 Governance structure

The governance structure element plays an important role in the development of value outcomes. The governance structure provides authority to the value outcomes, as key and powerful stakeholders are able to make valuable decisions for the medium-, and long-term. Two key findings were presented in how the governance structure may help or destroy the value outcomes in a vertical (across the organisation) or horizontal perspective (across the project life cycle).

In a vertical perspective, the analysis shows that governance structure influences the project, programme and portfolio level. According to the data, which primarily comes from the client organisation, the governance structure may play in a vertical perspective, creating a connection between the three project layers: PM1; PM2; and PM3. This connection is crucial to connect the project with the organisational goals in order to achieve the project mission (Cooke-Davies 2002; Morris 2013). Actors mainly working in the portfolio and programme level, such as directors, programme managers, may provide direction in the development of the value outcomes.

The data show that cases studies use the formal project arrangements, such as project boards, to connect vertically the project, programme and portfolio with the key stakeholders.

For example, in Case Study 1, provides an example of the vertical influence of the value outcomes. The project team created a project board at the front-end stage, where key stakeholders such as the Chief Information Officer, Programme Manager and Legal Manager attended to discuss the initial contract, project specification, and requirements outcomes. This project board created a connection between both the senior management team and the project level, where outcomes were agreed and negotiated. This was in contrast to Case Study 6, where there was a lack of strategic engagement.

In a different type of connection, the horizontal perspective, the governance arrangements are implemented across the project lifecycle, ensuring the project outcomes are tracked and monitored across the project by the key stakeholders. For example, in Case Study 1, while the project ensured the governance arrangements at the front-end of the project, the governance structure disappeared at the execution phase and delivery phase. The Project Manager reported that the delivery of the value outcomes suffered due to the lack of engagement of the key stakeholders at the tail of the project. This suggests that the governance structure have a direct impact across the project life cycle. This finding resonates with the literature in stakeholder management that consider communication as an important factor within any type of organisation (Scholes and Clutterbuck 1998; Turkulainen et al. 2015).

According to the results, both the vertical and horizontal perspective may create trust and quality assurance across the levels and across the lifecycle (Smyth et al. 2010; Müller et al. 2013). For example, in Case Study 1, the project contract was weak due to an absence of testing requirements. Later in the process, the end-users were complaining as the quality of the service was not as expected. In this case, the governance structure at the end of the project could have assured the delivery of the value outcomes. These results go in line with earlier results in project governance (Müller et al. 2013; Müller

2017), which show that governance arrangements play a critical role in the macro-, and micro-level development of a project outcomes (cf. Cardinale 2019).

Another originality in terms of the governance structure is that people may need to have different attributes, such as power, legitimacy, and urgency (Mitchell et al. 1997). These attributes might be enacted or not for the benefit or dis-benefit of the project, thus they are necessary to have for the people working at the governance structure. For example, in Case Study 3, the analysis shows that actors working in a co-creation of value may have different levels of power, which seems to affect often the weakest actors in the co-creation process. These attributes are original contribution as a constituent of the co-creation of value.

Exploring further one of the above attributes, power, the data shows it creates asymmetry in project relationships. This was evident across the six case studies. For example, in Case Study 3, the students, being the weakest actor, were defending their value outcomes, through a strike, by complaining about the quality of the service within the student residence. As a response, the client organisation threatened their students to impose academic sanctions for taking action in a strike against the client organisation. Due to the misuse of their power, the Competition and Markets Authority (CMA), a non-ministerial government department in the UK, decided to protect the end-users in the conflict. This shows how power asymmetry may be played particularly in the co-destruction of value.

In another contribution, while the concept of co-creation may suggest that the more actors involved in the process the better, the analysis shows otherwise, particularly in the governance structure element. According to the evidence, for example in Case Study 5, the project had initially twenty-five actors in the project board. The Project Manager found this as infective and then the membership was reduced to six key stakeholders. Actors selected presented key attributes, such as power to make valuable decisions (see Mitchell et al. 1997). This finding goes in contrast to Vargo and Lush (2016), who theoretically suggest co-creating value with as many people as possible during the process of co-creation. Yet, this might create conflicts (Mele 2011) and overspending or resources (Mills and Razmdoost 2016). In addition to this, it demonstrates that not all actors might provide a contribution in a co-creation process, except the ones who have the right attributes.

In another key finding, the data confirm that an appropriate governance structure may reduce project uncertainty (Geraldi et al. 2011). For example, in Case Study 4, the key stakeholders were providing strategic and in some case confidential information about the roadmap of specific products, services, and the organisation itself, during the process of co-creation among senior managers.

Overall, the results of this study show that the governance structure plays a significant role in the co-creation of value outcomes as it creates a connection between the strategic goals of the business organisation and the project value outcomes (Morgan et al. 2008). According to the analysis, the governance structure needs to be formalised and formulated in the programme and portfolio level so that it may potentially influence the process of the co-creation of value outcomes at the project element.

5.2.1.2 Strategic leadership

The second element within the institutional arrangement mechanism is the strategic leadership enacted by key stakeholders, particular at the senior level. The analysis indicates that leadership plays a role in the co-creation of outcomes, particularly in the governance structure. This element also influences the value outcomes from a top-bottom approach. Leadership creates a balance between the project benefits or sacrifices in a project, as key actors make key decisions at the higher levels of a project organisation. According to the results, leadership plays a role like a project stamina, activating and enabling resources in the project in order to achieve the value outcomes. This finding appears to be in line with previous studies in projects (Miller and Lessard 2000). One originality according to the results is that leadership could be played in two different forms within the governance structure: the horizontal and vertical leadership. These two forms of leadership are explored in the following part.

One perspective is the horizontal leadership that creates the integration between different stages of a project in order to manage the value outcomes across the duration of the project. Horizontal leadership may enable to articulate and communicate the long-term value outcomes in a project. This horizontal leadership may act as transformational in the project level because it may trigger management actions, which may result in impactful value outcomes (cf. Keegan and Den Hartog 2004).

The horizontal leadership is highly supported by the governance structure in place. The data show a strong relationship between both elements within the same mechanism. For example, in Case Study 1, the project team had a project governance structure at the front-end stage but it disappeared for the execution phase of the project. Thus, key stakeholders could not exercise their leadership from the beginning of the project to the back-end of a project (Artto et al. 2016). This lack of engagement with key leaders resulted in a lack of visibility to make valuable decisions.

As an extreme example, in Case Study 6, there was a complete disconnection between the project level and the senior management team (leadership team). The decisions taken from the leadership team were without the considerations of the project team members. From another point of analysis, the senior management team might have another hidden agenda, which directly affected the project outcomes (cf. Kingdon 2011). This suggests that the institutional arrangements within the firm, such as leadership and governance, are socially interconnected and constructed (cf. Friedland and Alford 1991; Thornton and Ocasio 2008).

Extrapolating this data, the absence of one element or generative mechanism might lead to the absence of other elements, which may directly affect the creation of the value outcomes, and might lead to the destruction of outcomes.

Another key finding is the vertical leadership, which creates the connection between the different layers within the project structure, such as PM3, PM2, and PM1. The results show this type of leadership is critical to shaping the project outcomes among key stakeholders of the client organisation (cf. Miller and Lessard 2000). This vertical leadership is reflected in decision-making actions, such as allocating financial and personnel resources. For example, in Case Study 1, the support from the CIO in the project board allowed the project team to have the enough resources to secure initial value interactions, such as co-learning and co-revealing the service system (see Chapter

4 Findings). In addition to this, this type of leadership may also enable to balance the power (asymmetry) among the relevant stakeholders (Fuentes and Smyth 2016; Kujala et al. 2019). It also may balance other internal politics during the front-end stage (Cova and Salle 2012).

The analysis also shows that while the governance structure and strategic leadership are important elements from a top-down perspective, people enact these two elements. Thus, they are dynamic when people act upon. This may suggest that actors need to be willing to co-create. For example, in Case Study 5, end-users reported a lack of benefits coming out from the value interaction. This resulted in a lack of willingness to collaborate. This is in line with recent literature in stakeholder management (Kujala et al. 2019), which argue that actors show interest to collaborate only if there is a win-win situation. This is in contrast to the literature in SDL (Vargo and Lusch 2016), which assumes that actors are willing to collaborate at all times. Yet, the original findings show that actors are willing to co-create value, only when benefits are shared by partied involved.

Overall, the strategic leadership, within the institutional arrangement mechanism, is considered as highly interconnected with the governance structure. These two elements work together to allow the co-creation of value outcomes particularly from the higher levels of the organisation. The following section explores the third element within the institutional arrangement mechanism, regulations and compliance, which appears to be more rigid and difficult to change with the project boundaries.

5.2.1.3 Regulations and compliance

The data indicates that regulations and compliance may influence the development of the value outcomes. Regulations may be set-up by other external organisations, such as the government, commissions, institutions, and authorities, where the Project Manager or other key stakeholders have no control or power over it.

As discussed in the previous elements within this generative mechanism, some elements in the institutional arrangements, such as governance structure and leadership, are more flexible to change. However, the data show that the regulations and compliance are more rigid to be modified. Basically, regulations, and other norms and standards, act like rules of the business game (Scott 2014), which project teams need to comply with.

This study found three major aspects of this element. Firstly, regulations are considered as rules within the project business, thus projects need to comply with these. In the case of the public sector, public organisations need to comply with regulations set by the European Commission, for example, the procurement regulations. According to the analysis, the use of these EU regulations may act as an enabler to ensure fairness and transparency in the project. One of the main purposes of the EU regulations is to ensure that projects are conducted in a fair play and transparent manner by the client organisation. Yet, these regulations may also act as a constraint on co-creating value outcomes due to the fact that in the formal procurement procedures, the regulations dictate in a strict manner how to carry out direct (value) interactions.

Projects in the UK, using the Open Procedure, struggle as the EU regulatory commission strongly constrains the direct interactions among key relevant stakeholders. One of the problems of the lack of interaction is that no innovation can be carried out (Nambisan and Sawhney 2011). In addition to this, emergent requirements cannot be accommodated due to the lack of interaction, openness, and flexibility during the procurement (cf. Smyth 2013). This directly affects the value outcomes, as direct interactions are the main source of value, thus people are unable to offer their skills and competencies for the benefit of the project (Vargo and Lusch 2016). For example, in Case Study 6, the client organisation worked outside the regulations set by the EU commission. This interaction allowed to co-creating a more cost-effective, innovative, and sustainable solution, as compared to other solution in different cases studies that have to comply with the EU regulations.

During the analysis, Case Study 6 was contrasted to Case Study 1 and 2, where the client organisation overspent resources due to the fact that they had to comply with the number of interactions specified in the EU regulations. That is, some EU regulations (procurement procedures) may allow interactions, but they are long, rigid and demanding. However, the client organisation must comply with regulations anyway; otherwise, they might run a legal challenge by the EU.

This shows that client organisations are unable to re-shape existing institutional logics. This contrasts the idea from Vargo and Lusch (2016), who invites client organisations to re-shape existing institutional arrangements at the micro-, meso-, and macro-level at all times (Akaka et al. 2013).

The key finding shows that interactions cannot be carried out at all times, as suggested by Vargo and Lusch (2016), particularly in the public sector, as it highly depends on the existing regulations. Thus, it can be stated that the (EU) regulations and compliance may directly influence the level of co-creation of value outcomes.

The analysis also empirically confirms that the concept of the value-for-money used in the EU regulations is focused on the short-term, rather than long-term value outcomes (Smyth 2015).

As a summary, regulations and compliance is the third element within the first generative mechanism: institutional arrangements. This element is usually set by formal organisations, such as governments and international commission. This suggests that this element is difficult to be re-shaped or modified at the project level. This is in contrast to other institutional arrangements, such as the governance structure and strategic leadership. Although they require significant investment, they are considered more flexible and manageable within the project boundaries, as compared to the regulations.

Overall, the three elements within this generative mechanism: institutional arrangements are played from a top-down approach. They may either enable or constrain the value outcomes at the project level.

5.2.2 Discussion of generative mechanism 2: Resource arrangements

The second key contribution in this section is to present another generative mechanism, which enables and constrains the value outcomes. The second generative mechanism is resource arrangements. Project interactions are the main driver of value co-creation, yet they depend on the availability of resources. The literature of SDL (Vargo and Lusch

2016) suggests that a co-creation approach can be taken at all times. However, according to the contributions of this thesis, the interactions are dependent on the available resources around the project; otherwise, this type of process is not possible.

This study identified three types of resources that highly influence the interactions: (1) the time available to carry out value interactions across the project life cycle; (2) the funding available to carry out value interactions within the project constraints; (3) the human resources that carry out the value interactions. Thus, the following section explores how these enable or constrain the process of value co-creation.

5.2.2.1 Available time

Time is always an important factor to meet in any projects, as delays often represent cost overruns. Interactions are the heart of the value co-creation process, yet these might be constrained by the amount of time the project team has to complete the project. Classic project management literature (Atkinson 1999), argues that the projects must be completed within a defined schedule, thus any type of value interactions need to be completed as well within the given constraints, otherwise it may affect the outcomes, such as the financial ones. The time constraints directly influence the value interactions and this plays in contrast to Vargo and Lusch’s theoretical proposition (2016), which promotes interactions at all times, without considering the consequences and implications.

Vargo and Lusch (2016) assume that time is available, particularly as the foundations of Vargo and Lusch (2016) are coming from permanent organisations, where time might be (relatively) infinite.

Temporary undertakings, such as projects, have a predefined time, not as the permanent undertakings (from the permanent organisation), that time is almost unlimited (for the duration of the organisation). This may suggest that the foundations of value co-creation in SDL (Vargo and Lusch 2016) have strong roots from permanent organisations.

One key finding is that according to the results, timescales sources can influence the available time for co-creation. For example, in Case Study 1, the project had an internal fix end-date. Thus, the project team had to complete the project within these time constraints. Thus, it would be unrealistic to carry out many value interactions, leading to missing the completion date.

Another key finding is that the more value interactions are undertaken, the more financial resources are needed. Thus, project resources, in terms of people and time, may need an increase to cope with the co-creation practices. As an example, in Case Study 5, two Project Managers were hired to deal with the number of project interactions. This suggests project teams need to understand the conditions under each project and decide which co-creation activities to undertake, otherwise, it could be counterproductive to undertake (many) co-creation practices.

Lastly, the analysis shows that the elements within this or other generative mechanisms are interconnected: the time available is highly influenced by the (EU) regulations. For example, in Case Study 4, the project did not have enough time to do a full open tender (under the EU procurement regulations) due to the amount of time available. This demonstrates how generative mechanisms are interconnected in the ground and how they may constrain the amount and type of interactions to undertake.

5.2.2.2 Available funding

The evidence shows that both value interactions and value outcomes are directly dependant on the financial resources available for the project. If funding is unavailable, necessary interactions might not be executed. Surely these still occur but less frequently, at a less intense level and with no or only a basic rather than the enhanced level of co-creation.

The literature of SDL (Vargo and Lusch 2016) assumes that financial resources are always available to carry out the value interactions, coming from the parent organisation, but evidence from the six case studies shows that this is not the case. For example in Case Study 1, the project team had financial constraints set by the parent organisation.

Therefore, the project team selected an efficient (cheap) rather than the effective solution, which ultimately affected the project outcomes in the long-term. The end-users complained about the operational value outcomes, and the examination of the evidence suggests that the client organisation selected the cheapest options in the contract, thus the solution did not meet the needs from the end-users in the long-term.

One key finding is that according to six case studies, the financial resources are agreed at the portfolio level. Once resources have been agreed at this level, project teams found it difficult to increase the available findings at the project level. Evidence shows that the stakeholders working in the governance structure (see generative mechanism 1) have the authority to make decisions as to spending the money. In addition to this, the key stakeholders might be responsible for creating channels of communication with the project team members. This may maintain clarity in the decision-making process concerning financial resources; otherwise, they might create false expectations in the project value outcomes. According to the evidence, hidden agendas (Kingdon 2011) are quite common in the portfolio management level and this may affect the allocation of resources at the project level. For example, in Case Study 6, the senior management team decided to take a different direction to the allocation of the financial resources to this project. The project team members reported that it was still unclear the reason as to why the senior management decided this. This confirms the use of hidden agendas in the portfolio level.

One key finding is to have empirically demonstrated that value interactions per se might be costly to undertake before the contract was awarded, thus interactions might not be welcomed, particularly by financiers and sponsors. Interactions, thus, may consume the financial resources both to client and supplier’s business model.

In particular, suppliers representatives reported that the lengthy value interactions process might be seen as financially risky, thus they might prefer a transactional approach. Yet, the transactional approach may lead to the destruction of value (Smyth and Pryke 2008). For example, in Case Study 3, the supplier did not develop and execute any marketing capabilities, as they were reluctant on the expenditure of these capabilities (cf. Möller 2006). The negative implications show that marketing capabilities may improve other aspects of a project, such as a user experience and brand reputation (Fuentes et al. 2019).

One key issue around the investment of marketing capabilities, perceived both from the client and supplier organisation’s data, is that these marketing capabilities may not ensure the return-on-marketing-investment (ROMI) (Smyth et al. 2015), particularly as financiers are looking for short-term returns. The exploration of ROMI within the six case studies is beyond the scope of this research, yet ROMI appears to be a critical area of research in order to convince project practitioners in order to undertake SDL principles in the business context.

This lack of financial evidence is considered as one key weakness from SDL. Proponents of SDL (Vargo and Lusch 2016) have not provided objective evidence about ROMI (Ostrom et al. 2015) and have disregarded wider sister elements of value creation, such as the value capture in the business model formula (Zott et al. 2011). A slight indication of a positive ROMI in SDL settings might be driven by the evidence provided in the relationship management school (see Smyth 2015), which provides a better ROMI compared to the marketing mix approach. Yet, ROMI in SDL is a crucial area to convince project practitioners in the implementation of marketing capabilities in the market.

Overall, this section has shown that the available funding directly influences the value outcomes and the number of interactions that any organisation may take to ensure these value outcomes for the long-term.

5.2.2.3 Mobilisation of human resources

The last element within this generative mechanism is the mobilisation of human resources. Operant resources, such as people working in a project, are the key source of value in the co-creation process (Vargo and Lusch 2016). This section explores how people (and their attributes, such as knowledge and skills) can enable or constrain the value outcomes.

The first contribution in this section is that human resources are not always allocated and mobilised to the project level. The analysis shows that resources need to be formally agreed through formal buying and agreement of resources. This formal agreement comes from the portfolio level to secure their availability from the permanent to the temporal organisation (in the setting of this research, which is in existing organisations). Vargo and Lusch (2016) induce that resources might be available always but the financial exchange is needed to secure some resources. For example, in Case Study 5, the Project Manager paid the human resources to join the project team. This reveals again that Vargo and Lusch (2016) have stayed too far away from the financial exchange, yet this is needed to secure human resources at the project level.

One key contribution in this section is to have empirically shown that some actors had a lack of competencies in order to undertake a co-creation process. This may lead either not to co-create value or even to co-destruct value due to the lack of certain competencies. Lusch and Vargo and (2014, p.12) defined service as *"the application of competences (knowledge and skills) for the benefit of one another entity or the entity itself".* But, the analysis shows that organisations may not have the personnel with the required competencies to co-create value. For example, in Case Study 3, the client representatives had a lack of competencies, such as emotional intelligence. Skills and expertise are not given by default to actors working in the co-creation process as assumed by Vargo and Lusch (2016).

Results also show that actors need a combination of skills, knowledge, and other operant resources to provide a valuable contribution in the process of value co-creation, otherwise the interaction may not draw the required benefits to the parties involved. For example, in Case Study 2, the inadequate combination and application of skills to tease out the requirements in the contract resulted in poor operational outcomes. The contract was terminated due to the limited operational and financial performance.

Overall, the two examples indicate that value interactions per se do not create value, but it is through the mobilisation of skills and competencies that co-create value (Vargo and Lusch 2016).

Another original contribution around the mobilisation of human resources is to have empirically detected that value interactions are in essence sense-making and cognitive activities, thus people get more physically and emotionally exhausted (see Payne et al. 2008). This could be an original contribution to the normative literature of marketing (Vargo and Lusch 2016). For example, Case Study 5 shows that the project execution was delayed due to the fact the Project Managers, both from the client and supplier organisational, were physically exhausted after the long and intense value interactions. Thus, emotional and cognitive aspects need higher consideration in the co-creation of value both in projects.

Another contribution in this element is to have found that actors they might be unwilling to co-create value as they did not want to share their business model in front of their competitors. This empirically confirms that when commercial risks are involved, the actors might be unwilling to apply their skills for the sole benefit of the client organisation (Prahalad and Ramaswamy 2004).

One last contribution in this section is to have confirmed that the values and beliefs of each actor directly influence the co-creation process. A disconnection of values might misguide project actions and ultimately affect the project purpose (Kelly et al. 2014; Mills et al. 2009). For example, in Case Study 3, the system of values of the client organisation was unaligned to the project outcomes. This disconnection was perceived by the end-users as the client was unethically using their power to impose academic actions (due to the engagement of some end-user in the strike campaign). Similar findings have been found in Mills et al. (2009). According to the analysis, the misalignment of values leaned heavily towards the financial interests, particularly from the supplier perspective (Clarke 1998), and often affects the weakest actors within a system, in this context, the end-users.

This section shows how human resources have a direct influence on the co-creation of value outcomes. People are at the core of the co-creation of value, thus they may lead the project to either co-create or co-destroy value.

Overall, the second generative mechanism: resource arrangements, has been addressed in this section. It has been empirically demonstrated that the value co-creation process is highly dependent on the resources available to carry out interactions of essential and enhanced co-creation. Three key resources, including the available time, available funding and the mobilisation of human resources have a direct influence on the value interactions, hence on the value outcomes. The three key resources play in conjunction to allow the process of co-creation. Probably without these three key resources, interactions may take place less frequently, at a less intense rhythm and with no or only a basic rather than enhanced level of co-creation at the project level.

5.2.3 Discussion of generative mechanism 3: Social-cultural arrangements

The third mechanism found in this study is the social-cultural arrangements. Value co-creation is socially-constructed and led by people. Two key elements were found during the analysis: (1) collaborative relationships; and (2) the role trusted relationships to enhance the co-creation of value outcomes.

The two elements show how value co-creation is embedded in a social system, where cultural norms, behaviours, practices and other ways of working, directly influence the co-creation of value outcomes. The evidence shows that these elements appear to be played in a top-down as well as in a bottom-up approach. The first part of this section explores how collaboration enhances the co-creation of value and the challenges around collaborating. The second part explores the dynamics of trust in working relationships.

5.2.3.1 Collaborative relationships

The first element within this generative mechanism is collaborative relationships. The evidence suggests that collaboration is socially constructed across the project life cycle. The evidence shows that there are a number of challenges during the process of collaboration which needs management. The first finding in the collaboration element was to explore the internal and external collaboration in a value co-creation process.

The first contribution is linked to internal organisational collaboration. It was found that collaboration is not a vacuum process in a closed system. Instead, the process is constructed among project actors.

In terms of existing organisations, both permanent and temporary organisations act together to enhance collaboration in project settings. For example, in Case Study 5, project team members within the same organisation but from different departments, were reluctant to collaborate in the project, as previous projects demonstrated a power asymmetry in the allocation of benefits.

The cross-case analysis shows that teams may lack formal collaboration in day-to-day practices. Thus, it becomes difficult to drive collaboration in the temporary organisation as well. Vargo and Lusch (2016) assume that collaboration is given by default in the co-creation of value, yet it needs to be socially constructed both in permanent and temporary organisations.

Concerning the external collaboration, similar findings have been established: some of the external actors may be unwilling to collaborate in the co-creation process as there are no tangible benefits or shared benefits for them.

Figure 5.3 shows the process by which a platform of co-creation is constructed from an independent to a collaborative level. This may suggest that collaboration may enhance the process of co-creation of value. An intense collaboration among the key stakeholders in the service system may help to reach the co-create level (cf. Smyth and Konstantinou 2015).

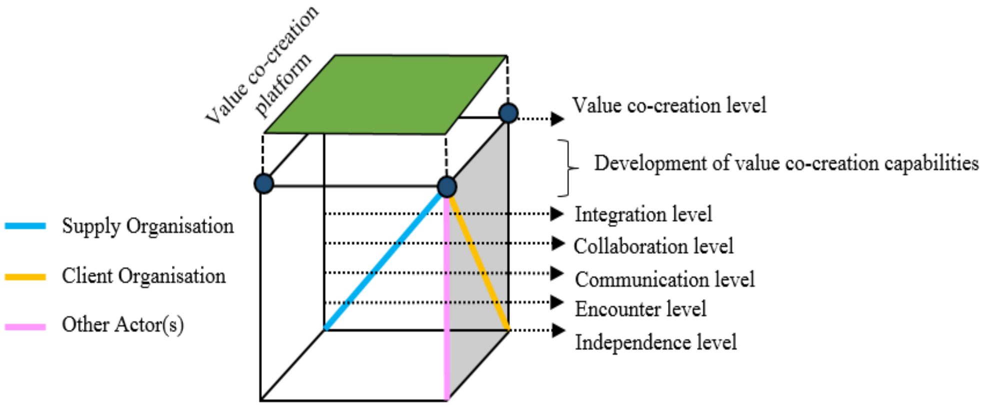

Value co-creation platform
Value co-creation level
Development of value co-creation capabilities
Integration level
Collaboration level
Communication level
Encounter level
Independence level
Supply Organisation
Client Organisation
Other Actor(s)

Figure 5.3. The value co-creation path in the project context (Source: Adapted and developed from Hudson et al. 1998; taken from Fuentes and Smyth 2016).

The second finding in this section is to show how collaboration is unfolded across the project life cycle. According to the evidence, dialogue in early stages of a project may aid to construct a positive relationship, not only from an internal but also from an external point of view. The evidence suggests that in this way, collaboration may be socially constructed through informal and formal interactions rather than being enforced from day one of delivery. For example, in Case Study 1, the supplier Project Manager reported that the interactions that took place during the procurement stage resulted in stronger collaborative practices later in the project process. This may shed light into two original phases of collaboration in projects: (a) the first stage is about building the collaboration in the early stages of a project. This takes place at the front-end of projects and helps to create foundations of the relationship for future situations; (b) the second phase starts in the execution phase and beyond, where the results from the constructed relationship may emerge. This proposition is in line with Grönroos and Voima (2013), which consider that collaboration for co-creation practices may be formed in an early stage of a service, rather than being given as a default at the early stage of a project, as proposed by Vargo and Lusch (2016).

Throughout the construction of the collaboration process, one key aspect was found: the level of trust and confidence from one actor to another plays against or in favour of the relationship. The evidence shows organisations tend to lean towards self-interest, rather than finding a collaborative solution that may benefit all (cf. Clarke 1998). Thus, trusted relationships appear to break free of self-interested behaviours and can then change the culture of the relationship from transactional relationships into collaborative relationships.

Overall, the results empirically confirm that collaboration could foster the co-creation of outcomes (Smyth and Pryke 2006). However, collaboration needs to be socially constructed, internally and externally, across the process of co-creation of value outcomes.

5.2.3.2 Trusted relationships

The second element within the socio-cultural mechanism is the trusted relationship. According to the results, trust plays a key role in the co-creation of value and in the construction of the relationship. The results suggest that trust is not given as default as deduced by Vargo and Lusch (2016), but it needs to be socially constructed, in a similar manner as collaboration. Results indicate that both collaboration and trust are intertwined elements, which together work to achieve the value outcomes (Gummesson 2008; Merrow 2011; Keki and Smyth 2010). This section explores the dynamics of trust in projects, and in particular how the lack of trust may lead to value destruction.

The first key finding in this section is that unethical behaviour may break any relationship. As an aside it is worth noting that corruption, although not found in the cases acts as a co-destroyer of value; it is an illegal rent charge or private tax on value creation and realisation. The data show that trust might be primarily reflected in conflictive situations, including when confronting unethical behaviour. In these situations, it seems that trust can be undone or broken. For example, in Case Study 3, both the client and supplier organisation were behaving unethically. In this context, the client organisation disregarded the students when producing the schedule of works. Furthermore, the supplier was working outside agreed working hours specified in the project contract. This shows how both the supplier and client organisations were unethically working and misusing their power against the weakest actor: end-user. In fact, in the majority of the case studies, the end-users were the weakest actor in the equation, and therefore power asymmetry was playing against them (Fuentes 2019).

The only case study that ethical behaviour and balanced use of power asymmetry was perceived was in Case Study 5. In that project, students were needed to help design the service at an early stage of the project, so when actors have an even power, trust can be enacted (Fuentes 2019).

One original contribution in this section is that the levels of trust perceived in a project might enhance or affect the brand reputation of any organisation. For example, in Case Study 3, the client organisation has reported that the negative media might have had implications, as potential students were aware of the inadequate management on this student residence (see Times Higher Education 2015; The Evening Standard 2015).

In a similar vein to Mills et al. (2009), this study has also shown that the trust might be broken due to the misalignment of values from the actors working in a project. Misalignment of values may provoke that actors to become challenging or even dangerous stakeholders (Mitchell et al. 1997). For example, in Case Study 3, the end-users reported that the values enacted by the client organisation were unfair. Thus, there might be a misalignment of values, which may directly affect the development of value. Values held and shared by people have been off the radar from the narratives in SDL (Vargo and Lusch 2016), yet these may act as enablers of the co-creation of value or challenge the value creation and realisation process. Vargo and Lusch (2016) often assume that actors are always willing to co-create with goodwill, but the evidence from the ground shows otherwise. This suggests that the co-creation of value needs another type of organisational culture, where collaboration and trust are at the heart of any relationship (Rousseau and Schalk 2000).

The cross-case analysis shows that trust is difficult to be constructed, particularly as key players act in a selfish manner. This suggests that trust might need a mechanism to enable it. While the above example is another example of broken (supposedly trusted) relationship, this also shows that the legal contract might be a mechanism to enact trust in a project (Chen 2019). For example, in Case Study 6, the client organisation used the New Engineering Contract (NEC3) contract to enact trust. This is due to the fact that this contract has legal trust and cooperation clauses that obligate any party within the contract to inform in advance about any issue concerning the contract or the project itself.

While this type of contract does enhance the trust and cooperation in the relationship, this may not be used for every project, as NEC3 contracts are often used for large and complex undertakings. One way around this would be to use soft contracts, where clauses and soft promises, such as trust, cooperation, behaviour, and codes of practice might be included to protect the relationship, and ultimately the value outcomes.

Overall, this section has shown that trust is a vital aspect in a project setting in order to co-create value outcomes. Yet, this is difficult to be constructed, as key players tend to act in a self-interested manner. In this generative mechanism: socio-cultural arrangements, the data show that trust and collaboration are difficult to be given or offered by default in a relationship. Instead, they need to be socially constructed and probably controlled through adequate legal systems. This is especially important in B2B relationships where the sale contract is secured first and value creation occurs after the sales rather than vice versa (Smyth 2015).

5.2.4 Discussion of generative mechanism 4: Socio-technical arrangements

The fourth and last generative mechanism is socio-technical arrangements. While the focus on the co-creation of value is on the people, this study confirms that technology can be considered as an operant resource as well. In this section, the social-technical generative mechanism is explored.

The data show that information and technology are key assets in project settings, particularly as many businesses are becoming digital. Thus, the management of both information and the systems have become vital to achieving valuable outcomes.

5.2.4.1 Technology and Information Management

Technology is at the core of any organisation. It may enable the development of co-creation practices within the project network. Three key findings are addressed in this section.

First, it is explored how relevant the information, as an asset, is present in the co-creation of value. For example, in Case Study 2, the project team had lack information about the current systems within the permanent organisation. Thus, the temporary organisation was suffering from this lack of information because the project team was unaware of what types of changes the project may cause to the existing operations. The analysis from the six case studies shows that that key information is not usually documented, including business processes, both within the permanent and temporary organisation. The analysis shows that the information that is stored is largely kept in personal computers, rather than in shared locations. This directly affects the mobilisation of the information across the service system (Maglio and Spohrer 2008), and in turn, affects the co-creation of value. In addition to this, there is a loss of knowledge within the temporary organisation due to the lack of adequate management of information (Duryan et al. 2019).

The second finding is concerning how information is mobilised across the service system. The data show that the physical IT service system in place may help to co-create value between different stakeholders within and outside the client organisation boundaries. For example, in Case Study 1, documents were shared in a collaborative platform called ‘Basecamp’. This contrasts with Case Study 2, in which actors reported a fragmentation of information between relevant actors. This shows that IT systems may play a dual role, both as an operant and operand resource (Orlikowsky 1992).

This suggests that the investment in the physical infrastructure could contribute to connecting internal and external teams, hence to enhance the project value outcomes. However, some project teams may not have financial resources to use or implement new systems to co-create value. There, the synchronisation of resources from the permanent and temporary organisation can create an orchestration to co-create value in the project level. However, the investment in IT infrastructure per se needs to come from the permanent organisation, rather than from the temporary organisation. This investment often fall outside the boundaries of the project and the project team was unable to synchronise systems due to the lack of investment

One contribution is to have found that the absence of the IT systems, to co-create value, may trigger actors to act unethically, directly affecting the value outcomes. For example, in Case Study 2, the supplier organisation had a lack of systems to invoice the client organisation. Thus, there was a lack of visibility of the services.

Lastly, the data show the importance of the dissemination and capture of information across the service system. In terms of dissemination of information, for example in Case Study 3, the information about the construction works was not disseminated across the end-users, so they received no communication about the scheduled works and days the construction people would be working inside the student rooms. In that project, the adequate use of IT systems might help to disseminate the information across the system.

In terms of capture of information, projects managers across the six case studies use traditional forms of the capture of information through email, workshops or meetings. However, the data suggest that modern forms of communication, such as social networks are widely disregarded primarily to capture information at the front-end of a project, where most of this information as input could be valuable to design the service. In none of the case studies, it was reported the use of social networks. Yet, this type of network could potentially enhance the co-creation of value across the service system in asset-specific markets, such as construction (Swarts et al. 2016).

Overall and in line with the perspectives of Vargo and Lusch (2016), technology may play the role of an operant resource. The focus on this section has been on how the information and technology plays a vital role in the co-creation of value, as they may enable the interactions among the actors in the service system. The analysis shows that client organisation need to invest in the management of systems, yet they are perceived as unnecessary additions, particular as there might not be a tangible return on invest investment in the short-term. However, one key contribution in this section is to have demonstrated that the lack of adequate IT systems may lead to destructive practices, such as unethical behaviours in relationships, hence the importance to invest in IT infrastructure systems.

5.3 Chapter Summary

This chapter has addressed the last research question in this study (RQ 1.3): What are the contextual generative mechanisms to achieve valuable outcomes. The chapter has originally contributed with four key-generative mechanisms that may facilitate the co-creation of value outcomes: (1) institutional arrangements; (2) resource arrangements; (3) socio-cultural arrangements; (4) socio-technical arrangements. These generative mechanisms demonstrate that the social system highly constrains the co-creation of value both from a top-down and bottom-up approach. In contrast to the homogenous and broad institutional arrangements described in SDL (Vargo and Lusch 2016), the originality of this chapter has been in presenting these four heterogeneous mechanisms. Each mechanism presents different elements that may be interconnected. While they are presented as separate mechanisms, the reality is that they are highly interconnected on the ground. For example, the socio-technical mechanism may ensure the collaboration among other actors in the business network, hence activating another mechanism to co-create value: socio-cultural mechanism.

In contrast to the narrative of SDL, this chapter has expanded on the challenges and opportunities to co-create value, from a social point of view. The analysis proves that some of the literature aspects in the relationship marketing and collaboration are not usually situated in a B2B context, thus they may differ for project settings.

One key aspect that was discussed across this chapter is that people are at the core of the co-creation value. They may enable or constrain the process of co-creation. In particular, it was found that the system of human values involved in a project may affect the co-creation of value. Unethical behaviour was perceived across the data, as well as the power asymmetry among the project actors. These lead to the destruction of value in different case studies.

This chapter has mainly addressed RQ1.3 to understand what makes value co-creation occur. The four mechanisms presented are part of the social system that enables and, or constrains the process of value co-creation. The exploration of RQ1.3 completes the picture for the main research question (RQ1), which explores *the process by which value outcomes are being achieved.*

Overall, the key research question (RQ1) has been addressed in Chapter 4 and 5. Chapter 4 has addressed both RQ 1.1 and RQ 1.2, and Chapter 5 has address RQ 1.3. These two chapters have presented and discussed four key overarching contributions to knowledge: (1) eight key-value interactions have been found, which may be used as management actions to co-create value across the project life cycle; (2) four key-generative mechanisms that may enable the co-creation of value outcomes; (3) a set of five key integrated value outcomes that appear in the long-term and may be used as a set of integrated outcomes to backcast the information at the front-end of the project; (4) a four-stage process that allows the management of the outcomes as a process. These four key contributions are explored in the conclusion chapter.

CHAPTER 6: CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

6.1 Context of the research and contribution to knowledge

This chapter presents the key contributions to knowledge and practice from this research. This work has explored the overarching research question (RQ1): *from a client perspective, what is the process by which project value outcomes are achieved?* Thus, this research considers that value outcomes are assessed by multiple key stakeholders in the long-term. In this way, value can be collaboratively co-created with varied stakeholders across the project life cycle and beyond. This may increase the functionality and the perception of the value outcomes in the long-term. In addition to this, this work has aimed to understand the process by which the value outcomes could be co-created, taking into account the social system where projects are embedded (cf. Danermark et al. 2002; Edvardsson et al. 2011; Konstantinou and Muller 2016).

This research question has addressed some key issues around the creation of value in projects. Research to date in projects has paid considerable attention in the strategic early stage of a project to ensure an adequate definition of a project (Morris 2013; Edkins et al. 2013). The front-end of projects (Morris 2013) has expanded the traditional perspectives of projects, primarily represented by project management prescriptive methodologies (see PMI 2013). Morris' work has largely focused on the definition of project value inputs, such as capturing the right requirements; developing the right business cases; creating an overarching strategy from PM3 to PM1. While these aspects have indeed advanced the understanding of how value can be configured, Smyth (2015) argues that the work on the front-end of projects from Morris (2013) has not yet addressed the value outcomes in the long-term. Thus, there is still a considerable gap around the discussion of how client organisations can create value outcomes for the long-term (see Laursen and Svejvig 2016; Chih et al. 2019; Smyth 2018).

The key research question has been primarily based on three key project challenges:

(a) research evidence has shown that client project organisation tend to focus on the short-term implications of a project, particularly on the financial implications (see Smyth 2015). Thus, this study has explored how client organisations can co-create a wider set of value outcomes for the medium-and long-term as well;

(b) evidence has demonstrated that project teams tend to focus on the delivery of outputs rather in the (value) outcomes for the long-term (see Fuentes et al. 2019). Thus, this study has explored how value outcomes can be managed across the project life cycle, with an emphasis on the front-end of projects;

(c) research evidence has shown that value outcomes have been primarily designed for suppliers rather than for the client organisations (cf. Brady et al. 2005). Thus, this study has explored how client organisations can play a central role in the co-creation of value outcomes.

Based on the above challenges, new ways to understand value are needed. Thus, conceptually, this research has originally used the concept of the co-creation of value, coming from the framework of Service-Dominant Logic (SDL). SDL is considered to the date, the most relevant framework to address the co-creation of value in the literature of management (cf. Vargo and Lusch 2016; Grönroos 2017).

One originality of this research is to have mobilised, in particular, the co-creation of value concept, in the project business context. Previous studies in the co-creation are primarily coming from hotel management and tourism (see Shaw et al. 2011; FitzPatrick et al. 2013). However, these settings are based on repetitive routines and high volume service provisions (Leon and Davies 2008) rather than unique, complex and uncertain settings (Geraldi et al. 2011).

Research around the co-creation of value outcomes in project settings is largely unexplored, but it has received attention in recent years (see Cova and Salle 2008; Aarikka-Stenroos and Jaakkola 2012; Chang et al. 2013; Liu et al. 2014; Jacobsson and Roth 2014; Mills and Razmdoost 2016; Smyth et al. 2018; Luotola et al. 2017). These studies break the mould of the majority of the research around the creation of value in projects, which largely comes from production and manufactured-oriented approach (cf. Porter 1985; Davies 2004; Brady et al. 2005). Thus, while SDL principles might provide a complementary understanding of how value can be co-created, they need a critical translation into projects.

Within the above research context, this work has then provided four key overarching contributions to knowledge. Each contribution is connected to the RQs presented in the Introduction (see Chapter 1, section 1.4). A full description of each contribution is addressed, including both the originality and challenges around each contribution in the following sections. The contributions are organised using the structure of the set research questions for this study.

6.2 Key contributions to knowledge

This section presents the key contributions to knowledge based on the established research question. In addition to this, each contribution is divided in two parts: (a) major contributions; (b) minor contributions within each section. This provides clarity as to what the key contributions to knowledge are.

6.2.1 Overview and detailed contribution #1

Overview of contribution #1	
Connected to the research question: RQ1.1	From the client perspective, which types of value interactions occur across the project life cycle?
Key contribution #1:	The study has originally shown that there are key interactions that have implications for the medium-, and long-term. This study has identified key-eight value interactions, which can help client project organisations co-create value outcomes for the medium- and long-term: (1) co-learning with internal and external actors; (2) co-revealing the existing service system; (3) co-aligning strategic needs and expectations; (4) co-designing for service experience; (5) co-developing a service with agility; (6) co-solving problems; (7) co-transitioning from project to operations; (8) co-managing value outcomes.

	Interactions from number 1 to 7 can be undertaken across the project life cycle, and the last one can be undertaken during the operations phase. One originality in this set of interactions is to connect both the front- and the back-end of a project, with the operations phase. This could make sure the value propositions are successfully designed, created, delivered and realised. A key originality of this group of interactions is to focus on the development of value outcomes starting from the front-end of a project. The initial pair of interactions, for example, aim to backcast the value outcomes from the perfect future (Pitsis et al. 2003). Thus, these value interactions complement the existing focus on projects, which is highly production-oriented. This contribution, therefore, contrasts the traditional literature of project benefits that focus on the creation of value inputs, assuming that these may lead to appreciated value outcomes (Serra and Kunc 2015). One key aspect found in the analysis is that the process of value co-creation is triggered by uncertain and complex elements (cf. Luotala et al. 2017). This contribution may contrast the conceptual foundations from Vargo and Lusch (2016), who assume that value co-creation occurs as an all-encompassing process. Then, the process of value co-creation is decided by the primary decision-maker as it is the one who hold the accountability of the project and may decide when to carry out activities independently or collaborative. While these set of value interactions might be an indication of practices elsewhere, these are not considered as inclusive. Other challenging settings, particularly coming from the private sector may reveal another set of interactions.

Table 6.1. Overview of contribution #1 (Source: Author’s own).

One overarching major contribution in the literature of project management of this study is to have found eight key-value interactions that have implications for the medium-, and long-term for the literature of projects. These set of value interactions originally connect the project life cycle and the operations phase in a systematic view (Cleland and King 1968; Morris 2013). Thus, this broadens the traditional project life cycles, where the responsibilities of a Project Manager end once the project has been delivered (PMI 2013). These results suggest that the management of value outcomes need to integrate both the project and operations phase, particularly as the value outcomes are largely assessed during the operations phase.

Overall, the answer of RQ1.1 presents a set of eight key-value interactions that may improve the value outcomes in the medium-, and long-term. When to use these interactions? In line with the findings from Luotala et al. (2017), the results empirically demonstrate that complexity and uncertainty elements may initially trigger the need for co-creation activities. This is, co-creation is not needed at all times. A co-creation approach rather a transactional approach is needed only when complexity and uncertainty elements are at stake. This contribution is original as Vargo and Lusch (2016) assume that value co-creation needs to occur as an all-encompassing process across the project life cycle, yet in projects, the results suggest that complexity and uncertainty are vital to trigger the co-creation process.

Major Contributions:

Some of the elements of the eight key value interactions are major contributions. For example, the first value interaction is co-learning with internal and external stakeholders. The original contribution for the literature of projects is to show that two types of knowledge can be gained through co-learning: (a) explicit knowledge, which refers to the learning of tangible aspects, such as previous project documentation; (b) implicit knowledge, which refers to the learning of tacit aspects, such as experience in negotiations with suppliers. This learning interaction shows that the co-learning may as well minimise transaction costs, as the interaction helps in avoiding management mistakes (Grönroos 2011) through the critical reflection of previous project practices (e.g. Kelly et al. 2013).

One key contribution in the co-learning interaction is to present one original tipping (negative) point: project practitioners might need to stop the co-creation (co-learning) process if one of the actors in the process lacks contextual awareness. This suggests that not everything that is learned or recommended is useful if the external actor is unaware of the global contextual and organisation conditions. For example, in Case Study 1, one external actor was suggesting to undertake certain management actions. Yet, the external actor was not aware of the organisational context of the client organisation -as some information was confidential and hidden to the external actor-. In this case, the learning elements were not useful and might be dangerous to the client organisation. This study empirically shows that full empowerment to external actors might lead to a co-destruction of value and "*fatal management decisions and actions*" (Grönroos 2011, p.288).

Other contribution for the project literature is through the co-revealing existing service systems interaction. This value interaction may enable client organisations to imagine and visualise future perfect outcomes (cf. Pitsis et al. 2003; Razmdoost and Smyth 2015).

This value interaction is particularly useful when existing service systems are in place. The interaction is original because it can enable client organisations to observe intangible aspects, such as the physical environment, the service delivery process; the back-office support (see Zomerdijk and Voss 2010), and in intangible aspects, such as the organisational culture (see Groysberg et al. 2018). For example, the client organisation B found difficulties to assess intangible aspects during the procurement process, such as how friendly the customer service team behaved in difficult situations. However, with this value interaction, the client was able to perceive in real-time situations how approachable the supplier's service team was.

This contribution may be only applicable for repetitive solutions present in IT project markets, for example in hardware solutions, which use repeatable solutions to achieve economies of scale (Brady et al. 2005). However, this interaction might not be possible for unique and new sites, such as in construction, where contractors usually produce one-off undertakings. In addition to this, in construction, the physical environment and the service delivery has not been built before the contract has been signed-off, thus there is no available system to reveal. Smyth (2015) argue that project teams tend to exaggerate in terms of project uniqueness. In a low scale of co-revealing, the client organisation might reveal intangible aspects, even for one-off solutions, such as the culture of the supplier organisations because culture might be replicated from project-to-project (Tijhuis and Fellows 2012).

Another key contribution to the literature of projects comes from the co-designing for service experience, which is regarded in this study as a novel contribution. The original results show that this value interaction can be used for designing two types of experiences in a project: (1) the service experienced during the execution; (2) the service experienced during operations (Fuentes and Smyth 2016). One key originality in this interaction is the application of the service design tools, such as the customer journey (Clatworthy 2011; Erin and Flowers 2016), and the blueprinting technique (Shostack 1984). This application is one of the first of its kind in the construction sector, where the service design concepts have been off the radar (Smyth 2018). The application of the service design tools may help project practitioners to visualise a service and understand where value can be co-created with relevant stakeholders, such as end-users.

The application of service design tools may provide a strategic advantage in the project business (Jaakkola et al. 2015). Particularly as end-users can be considered as a potential source of value (Freeman 2010) during the design of the service (cf. Donaldson and Preston 1995); rather than being treated as consumers or as static instruments (Huemann and Zuchi 2014).

The application of these service design tools might need investment from the parent organisation. While it may need a substantial initial investment in the short-term, it may avoid the co-destruction of experiential and financial value in the long-term.

Another major contribution to the project literature is the co-developing a service with agility interaction. This exploration of this interaction might be considered as relatively new, as the concept of agility has been largely unexplored in project settings (Levitt 2011). In contrast to traditional project planning, where the initial value propositions are frozen at an early stage of a project, this value interaction empirically shows that benefits can be drawn out when re-shaping the initial value propositions during the execution of a project. This re-planning of value propositions resulted in an increased customer delight during the operations phase (Pryke 2017). As a key contribution, the results empirically show that this flexible and iterative planning is more expensive than the traditional approach, as it requires a wider mobilisation of resources across the project life cycle (cf. Serrador and Pinto 2015).

According to the results, the co-developing interaction requires mobilisation and configuration of resources, as actors from the project and operations phase need to work together across the development of the project. This integration could avoid throwing the issues ‘over the wall’ and other challenging issues of integrated delivery and effective impact upon completion (Morris 2013). The evidence from this interaction is coming from IT projects, where the project and operations team can more easily be integrated. However, in construction, projects are often more fragmented and silo working more commonplace. Exceptions might exist, for example with the Build–Operate–Transfer type projects, where services are supplied from the project to facilities management (Fuentes and Smyth 2016). Thus, this interaction might not be as straightforward to adapt to all project sectors. Yet, the evidence presented by Gann et al. (2017) suggests that flexible approaches are highly required in projects.

Minor contribution:

Some minor contributions have been identified as well for this section. One minor contribution for the project literature is the value interaction: co-aligning strategic needs and expectations. For example, the evidence shows that the alignment of expectations might be conflicting, particularly when many actors, with different interests and powers, are involved in the co-creation process. The results show that power asymmetry tends to affect negatively the weakest actor in the system, usually the end-users. In addition to this, this interaction shows a tipping point: some actors might not be willing to co-create value, particularly when commercial risks are involved. Thus, this study empirically confirms that commercial risks may hinder the co-creation of value, as competitors and other external actors, may steal valuable information during this engagement (cf. Prahalad and Ramaswamy 2004). This might ultimately affect the business model of any organisation (Zott and Amit 2008).

Another minor contribution for the project literature comes from co-solving problems. This management action has been previously explored in the literature (see Prahalad and Ramaswamy 2004; Smyth and Pryke 2008; Pryke et al. 2018). The originality of this exploration shows that this interaction is highly human-oriented, thus actors require key skills and competencies to co-create value. For example, emotional intelligence skills are highly required to deal with problematic situations, particularly as actors tend to act aggressively and defensively when solving difficult situations. Thus, this study confirms that emotional intelligence plays a key role during co-problem solving (cf. Druskat and Druskat 2006).

Another minor contribution comes from the co-transitioning from project to operations interaction. One key contribution within this interaction is to have divided the transition into operand (tangible resources, such as new systems) and operant (intangible resources, such as knowledge). In particular, the transition of intangible and tacit aspects (Kelly et al. 2013), gained during the development of service, are neither well-articulated, documented nor shared among key stakeholders. Furthermore, the evidence shows that client organisation could run service developmental sessions in order to enhance the current skills and competences of the user base (Karpen et al. 2012) so that service users can continue their own value creation (Normann and Ramirez 1993).

6.2.2 Overview and detailed contribution #2

Overview of contribution #2	
Connected to the research question: RQ1.2	To what extent do these value interactions contribute to achieving the client value outcomes? What do value outcomes look like in the medium- and long-term?
Key contribution 2:	This study has originally found a set of five types of outcomes that emerge in the medium- and long-term: (a) Operational outcomes; (b) Financial outcomes; (c) Environmental outcomes; (d) Experiential outcomes; (e) Social outcomes; Traditionally, project success has been considered by meeting short-term criteria, such as cost-time-quality/scope (Atkinson 1999). This study has confirmed that project sponsors often design short-term value outcomes, typically defined in terms of execution outputs, rather than long-term value outcomes. This may suggest that project sponsors disregard the implications of projects in the long-term, as presented in the five set of value outcomes. This set of value outcomes is an original contribution as the literature in benefits management has widely considered value outcomes as homogenous entities (Chih and Zwikael 2015). In contrast, this study has specified different streams of value outcomes. In this set of value outcomes, while the financial outcomes are still considered as important, other unexplored forms of value, such as social and experiential value outcomes, have been incorporated.

	The evidence suggests that these value outcomes are intertwined, thus, the modification of one may produce intended and unintended consequences to other value outcomes in the project business. This original identification of these value outcomes may help project practitioners to develop business cases with a focus on value outputs and outcomes.

Table 6.2. Overview of contribution #2 (Source: Author's own).

This study originally found a set of five types of value outcomes: (a) Operational; (b) Financial; (c) Environmental; (d) Experiential; (e) Social. This set of long-term value outcomes might be considered as a revision of the short-term project success criteria (Atkinson 1999), but these outcomes are with a focus on long-term success. This set of value outcomes was analysed and mapped as implications of the eight key-value interactions presented in Contribution #1.

This set shows that outcomes have different expressions, rather than being homogenous entities (see Chih and Zwikael 2015). This comprehensive set of value outcomes is considered as an original contribution to knowledge under the lens of co-creation as they expand the phenomenological interpretation of value from Vargo and Lusch (2016).

These set of value outcomes could inform strategic business cases and specifications so that strategic value propositions can be adequately envisioned and created at the front-end (Razmdoost and Smyth 2015). This study suggests that project teams could firstly backcast, envision and imagine the value outcomes and then work on the value inputs, governed and influenced by the desired strategic value outcomes. However, the results and practices from the six case studies indicate otherwise: project teams design value inputs, such as inputs from the supply chain, assuming this may lead to achieve and realise the value outcomes in the long-term (see Serra and Kunc 2015).

Major contribution:

As an original contribution, this research has presented two phases of the value outcomes in the project literature: (a) the first phase is the emergence of value outcomes during the execution phase (value-in-use Phase 1); (b) the second phase is the emergence of value outcomes during the operations phase (value-in-use Phase) (see Smyth 2015; Fuentes and Smyth 2016). These two phases are original in the literature of projects, as benefits have been treated as a long-term element only (Serra and Kunc 2015). This contribution may suggest that the management of value outcomes need to occur across the two phases, but being the early stage of a project the most critical.

Some of the elements of the value outcomes in the long-term are original. For example, the operational value outcomes have been previously examined in the literature of projects (Morgan et al. 2008; Zerjav et al. 2015; Zerjav et al. 2018). The originality of this study is to show that operational value outcomes need an integrated design at the front-end of a project. According to the results, this integrated design could be divided into the following elements: (a) key performance agreements; (b) service level agreements; (c) operational level agreements; (d) performance level agreements; (e) outcomes level agreements. All of these need strategic management at an early stage of a project from both project and operational actors. In addition to this, this study empirically demonstrates that current project practices have a technical and short-term performance measurement, rather than a strategic and operational long-term focus (Deng 2015).

The evidence confirms that project teams often disregard the implications of projects in current routines and existing service systems. This may indicate that project and operations teams need to work in collaboration with change and operations management teams in order to address business changes in current service systems. This suggests that project, operations and change management offices may need to integrate resources to ensure the adequate delivery of operational outcomes, primarily, in existing settings.

One originality of this study is to explore service design tools, as a solution to address the operational value outcomes (Shostack 1984; Erin and Flowers 2016; Fuentes 2019). The evidence suggests that the value interaction co-designing for service experience may be also used to design the operational outcomes. Yet, little evidence is coming from practice about the application of these techniques.

Another value in the long-term is the financial outcomes both in the medium- and long-term. One originality of this study was to demonstrate that co-destructive practices may have unintended negative implications to business models (cf. Kujala et al. 2010; DaSilva and Trkman 2014). In addition to this, the analysis shows that the value outcomes are highly intertwined with other types of outcomes.

Contrary to the narratives in SDL (Vargo and Lusch 2016), this study shows that the financial value outcomes (the value-in-exchange) play a fundamental role in any project. Vargo and Lusch (2016) have widely emphasised the value-in-use and disregarded value-in-exchange (Vargo and Lusch 2016), yet the evidence shows these are not competing perspectives, instead they are complementary and both form part of the perception of value outcomes for the long-term.

One key contribution is the exploration of the experiential value outcomes. According to the results, this type of value outcomes show that projects produce service experiences, particularly for the end-users, in the medium- and long-term, which may create a positive or negative perception of the value outcomes.

The study demonstrates that the experiential value outcomes directly contribute to the corporate brand and reputation of both the client and supplier organisation in B2B contexts (Berry 2000; Keh and Xie 2009). According to the results, the project brand can, in turn, positively and negatively the competitive advantage of either the client or/and supplier organisation in the market (Porter 1985). The brand concept has been largely disregarded in projects, yet it has been recently considered as a valuable enterprise asset (see Madden et al. 2006; Merz et al. 2009).

As an original contribution to the management of experiential value outcomes, this study has presented and applied service design tools in order to design the experiential outcomes in projects. The application of those techniques is, probably, one of the first application in asset-specific markets, such as construction (Fuentes 2019). For example, this study has applied the blueprinting technique (Shostack 1984) and the customer journey (Erin and Flowers 2016) in order to design the service experience from the end-user point of view. In addition to this, the application shows that these tools may operationalise some of the value co-creation capabilities in the project business (Karpen et al. 2012). In construction, these tools need to be carefully selected as not the entire project may require the application of these tools as it may consume more resources than planned, thus, in construction, the key experiences need to be selected so these tools could be applied.

Overall, the empirical exploration of the experiential value outcomes confirms that these outcomes are ‘off the radar’ both in project research and practice. However, attention is needed on these, as the mismanagement of the experience may lead to the destruction of value (Smyth 2015; Fuentes 2019).

Minor contribution:

This study shows that project practitioners often work to achieve short-term value outcomes, typically defined in terms of execution outputs, rather than long-term value outcomes (cf. Smyth and Pryke 2008). Thus, the evidence shows that the client project organisations are largely focused on: (a) the successful delivery of systems and value outputs (operand resources); and (b) the financial aspects, including the cost-reduction of the tangible resources (cf. Smyth 2015).

The evidence empirically confirms that the value-for-money concept used in the public sector is primarily looking for short-term benefits, rather than for the effective long-term value outcomes. Thus, in the equation value-for-money, the financial part plays a central yet only one; the focus is on inputs per se role in the creation of value (cf. Smyth 2015).

One minor contribution is to have explored both the social and environmental outcomes. According to the results, projects produce positive and negative environmental implications in the medium- and long-term. The results show that project sponsors have a focus on the short-term and disregard the environmental outcomes in the long-term. The application of the SDL framework in current practices may push project sponsors to find alternative solutions to inadequate practices, such as the disposal of waste materials and burning waste, as those may use the energy less effectively. Thus, this study supports the proposition that project teams need to design the environmental impacts at the early stage of a project (Tharp 2012; Smyth 2013; Martinsuo and Killen 2014; Brookes and Locatelli 2015). For example, environmental practices, such as re-use, recovery and recycle of project resources need to be highly considered in the project business, as well as the prevention of the use of hazardous materials for the project (Murtagh 2016). In addition to this, the decommissioning of projects (Locatelli et al. 2019), particularly in terms of materials, has been highly ignored in the project business, even though it is part of the classic design management processes (see RIBA Plan of Work 2013). The mobilisation of SDL concepts may drive projects to use the resources and energy more effectively and environmentally.

The above contribution promotes environmental responsibility in the project business (Wang et al. 2018). In particular, the 2030 Agenda for Sustainable Development established by the United Nations may indicate how to address environmental value outcomes on a global scale.

The analysis may suggest that both the social and environmental outcomes are considered more by the client organisations, rather than from the supplier organisations, probably because supplier organisations are financially driven, and client organisation are entitled to be value-driven towards the society (Vargo and Lusch 2016).

6.2.3 Overview and detailed contribution #3

Overview of contribution #3	
Connected to the research question: RQ 1.3	What are the contextual generative mechanisms to achieve desired value outcomes? What makes it happen?
Key contribution 3:	This study has originally found a set of four key-generative mechanisms that can enable or constrain the co-creation of value outcomes: #1: Institutional arrangements (governance structure; regulations and compliance; and strategic leadership).

	#2: Resource arrangements (available time; available resources; and mobilisation of human resources). #3: Socio-cultural arrangements (collaborative relationships; trusted relationships). #4: Socio-technical arrangements (technology and information management). These generative mechanisms play both within the temporary and permanent organisation. Thus, the management of the social context requires the synchronisation of the internal organisation and its external structures. The mechanisms are generative, meaning that project actors are unable to control fully the value outcomes; instead, they may create the required conditions to facilitate the co-creation of value outcomes at the project level. As an original contribution, the study shows that the mismanagement of the social context may lead to the co-destruction of value.

Table 6.3. Overview of contribution #3 (Source: Author's own).

Projects are embedded in a wider social context (Konstantinou and Müller 2016). This may suggest that the process of value co-creation does not depend entirely on the interactions at the project level, but it also depends on the social norms and rules (arrangements), where these interactions are taking place. In the last revision of SDL (Vargo and Lusch 2016), the authors argue that the co-creation of value is highly influenced by the social context (see Edvardsson et al. 2011). However, the SDL authors have not specified how contextual arrangements influence this process. Therefore, one originality of this study is to have found four key-generative mechanisms, which may enable and/or constrain the co-creation of value outcomes.

Major contributions:

Some of the elements of the generative mechanisms are original in the project literature. This study found that institutional arrangements directly influence the co-creation process. The results show this mechanism influence the co-creation in a top-down role and its generation will not necessarily be confined to a specific organisation, as there are inter-organisational and sometimes network inputs and influences. It suggests that this mechanism is either set in the high level of the parent of the organisation, such as the client and/or contractor governance structures, or outside the parent organisation by wider organisations, such as the European Commission, which sets the regulations of the public procurement in the EU.

One originality in the project literature is to have found three elements within this mechanism that work together to co-create value: (a) governance structure; (b) regulations and compliance; and (c) strategic leadership. As an original contribution within this element, and building upon Mitchell et al. (1997), the evidence shows that actors working in decision-making outcomes at the project board level need to have key attributes, such as power, legitimacy, and urgency to co-create value. Otherwise, the co-creation among many-to-many actors -without the above attributes- may create conflicts (Mele 2011), consume time and/or overspend resources.

Another element in this mechanism is strategic leadership. As an original contribution in this arrangement is to have found two perspectives of strategic leadership when working towards value outcomes: (a) horizontal leadership; (b) vertical leadership. The results show that horizontal perspective may enable to connect the process, systems and key stakeholders across the project life cycle in order to achieve the value outcomes. This type of leadership may drive the project vision across project development. As a complement, the vertical leadership may enable the connection between the different layers of a project, such as PM1; PM2; PM3. The evidence shows that both perspectives of leadership require constant communication among different actors within the permanent and temporary organisation. Finally, the results also show that project actors need to enact strategic leadership to solve internal socio-political issues to secure and protect the value outcomes in the long-term (Miller and Lessard 2000; Cova and Salle 2012).

The second generative mechanism is the “resource arrangements”. This study found that project resources directly influence the process of co-creation. The results show that the interactions are highly constrained by the resources working towards achieving the project value outcomes. If there are no available resources, in terms of people, time and money, co-creation of value outcomes may not occur.

This mechanism has originally found three specific elements: (a) available time; (b) available resources; and (c) mobilisation of human resources.

This mechanism plays in a top-down approach, as most of these resources are assigned and allocated in a top-down approach. The data suggest that the allocation of these resources occur at the portfolio level, rather than at the project level. These resources, however, enable the interactions at the project level.

One key contribution in the marketing literature is to have shown that contrary to Vargo and Lusch (2016), time is not an infinite resource in project (temporary) settings. Projects have limited time to complete interactions, otherwise, delays might lead to consuming extra financial resources (Echeverri and Skålén 2011), hence enhancing one long-term outcome may be constrained by another short-term outcome although this is not an automatic trade-off for more time can also lead to revising decisions with the consequence of co-destroying value (Smyth et al. 2018).

The second element analysis within the resource arrangements is the available funding to undertake certain value interactions. Value interactions are expensive and require a substantial investment from the parent (client) organisation. Thus, the evidence shows that sponsors and financiers, particularly coming from the supplier organisations, are concerned as to whether these value interactions produce a return-on-marketing-investment (ROMI) (Smyth 2015). This study presents no objective evidence concerning whether a co-creation process might lead to a better ROMI (as this was out of the scope of this research). However, as an original contribution, this study presents evidence that the lack of implementation of value interactions at the project level might have negative financial implications in the long-term (Fuentes 2019).

The third generative mechanism is the socio-cultural arrangements. This mechanism shows that the process of co-creation is socially constructed or destroyed. This mechanism has two specific elements: (a) collaborative relationships; (b) trusted relationships, which may play in both a top-down and bottom-up approach. This suggests that actors from the upper level of the organisation, such as the portfolio level, and from the bottom, such as project level, have the agency to influence the creation of the value outcomes.

This mechanism shows that the project business requires a change of culture to focus on value outcomes. The evidence suggests that the behaviours from the actors working in the co-creation might not be aligned, creating asymmetries that destroy the value outcomes. In contrast to Vargo and Lusch (2016) who assume that all actors are always willing to co-create, this study originally shows that some actors may be unwilling to collaborate and to enact trusted relationships to underpin co-creation.

Concerning collaborative relationships, the results show that collaboration is socially constructed across the project life cycle (cf. Smyth and Pryke 2008). This finding is in contrast to the propositions from Vargo and Lusch (2016) who assume that collaboration is given as a default in the working relationships. In terms of internal collaborative relationships, the evidence shows that some actors might be unwilling to collaborate in the process of value co-creation if there is not a win-win outcome. One way to influence the level of collaborative engagement, according to the results, is through financial incentives with external actors. This suggests that financial and non-financial rewards need to be given when co-creating value outcomes, which again brings in an element of exchange.

When working in collaboration, the evidence shows that actors have different sets of values in the sense of beliefs, confirming the work from Mills et al. (2009). This might create asymmetries in the relationships because if human values are not aligned, then the process of co-creation becomes challenging. The evidence shows as well that some actors might be unwilling to change their current set of values and beliefs during a process of co-creation of value.

The second element within the socio-cultural mechanism is the role of trusted relationships. This study confirms that trust plays a vital role in the co-creation of value (Smyth and Pryke 2008; Smyth et al. 2010; Xu 2019). This study considers that trust, as well as collaboration, are socially constructed through interactions, rather than being given by default as deduced by Vargo and Lusch (2016).

This study originally emphasises the role of trusted relationships may be reflected particularly during conflictive situations. The evidence shows that legal contracts might ensure the principles of trust and collaboration in the co-creation process. For example, in Case Study 5, the project used the New Engineering Contract (NEC3) in order to induce trust and ensure collaboration principles. This might be taken forward, particularly, for complex projects. However, other less complex projects might use soft contracts in order to ensure positive working principles, codes of practice, and some types of working values (Mills et al. 2009).

The fourth Generative Mechanism is the Socio-technical arrangements. One key finding is to have shown that the management of technology and information is not adequate both in the temporary and permanent organisation. The findings show that the temporary organisation does not invest substantially in IT systems. For example, across the case studies, only the project team from Case Study 1 used an online platform where diverse actors could share information. Thus, the synchronisation of efforts between the temporary and permanent organisation needs to take place in order to establish an adequate IT service system.

One original contribution is to show that the adequate IT service system may enable other generative mechanisms to emerge, such as the social-cultural arrangements. For example, the lack of adequate IT systems, in Case Study 2, to track the service billing, produced a lack of clarity in the accounting system. The supplier organisation took advantage and unethically charged the client organisation at higher rates. This suggests that the mechanisms presented in this study are intertwined.

Minor Contribution:

One minor contribution within the institutional arrangement is the regulation and compliance element. Regulations are rules and norms made by external bodies and directly influence the co-creation of value outcomes at the project level. Regulations in this study are found, for example, in public procurement (but this can be extrapolated to other types of regulations, such as health and safety). These regulations were found to have a dual role: (a) they may act as an enabler to ensure fair play and transparency across the project; (b) they may act as a constraint to co-create value. For example, some public procurement regulations do not allow direct interactions, such as negotiation. The lack of flexibility of having limited direct interactions constrain the innovation and problem-solving in projects (Nambisan and Sawhney 2011). According to the results, direct interactions are vital, for example, to address emergent requirements. This aspect can work to constrain the theoretical constructs being enacted or seen on the ground. This finding empirically confirms that the EU regulations negatively influence the co-creation of value outcomes (see Smyth 2015). Existing literature in marketing suggests regulations may be re-shaped (Akaka et al. 2013). However, this study considers that changing existing (EU) regulations might be unrealistic within the project remits.

Another minor contribution around the funding element in the co-creation process (within the resource mechanism) is to have detected that the permanent organisations may use hidden agendas (Kingdon 2011). Hidden agendas play a detrimental role in the co-creation of value, as the allocation of financial resources might be redirected to other projects or operations. For example, in Case Study 1, the Chief Information Officer confirmed that that the available budget for the project was constrained by the internal forces (as the client organisation was looking to invest more financial resources in the construction of new facilities rather than in the project itself). The Chief Information Officer reported, during the interview, that this information was hidden to the project team to avoid conflicts. This shows how hidden agendas in project organisations directly affects the development of value outcomes at the project level.

The third element within the resource arrangements is the mobilisation of human resources. This study considers that people are the main source for creating valuable outcomes (Vargo and Lusch 2016). The evidence shows that in temporary endeavours, human resources need to be formally mobilised, agreed, and financially bought from the permanent to the temporary organisation. Thus, this study confirms that Vargo and Lusch (2016) have strayed too far from the value-in-exchange, assuming resources can always be formally allocated or made available.

Overall, this contribution shows the importance of the social context on the development of the value outcomes.

6.2.4 Overview and detailed contribution #4

Overview of contribution #4	
Connected to the research question: RQ1	From a client perspective, what is the process by which project value outcomes are achieved?
Key contribution 4:	One key original contribution to this study is to have created a social process, which shows how value outcomes are being co-created from a client perspective. The original process is comprised of four phases, in which outcomes are envisioned, designed, implemented, and then realised: Phase 1: Identifying and envisioning strategic value outcomes Phase 2: Designing and configuring value propositions Phase 3: Refining and delivering value outcomes Phase 4: Managing and realising emergent value outcomes The process is original as it aims to initially identify and envision value outcomes in its first phase. This contrasts traditional project approaches, which have a strong emphasis on engineering inputs and outputs coming from the supply chain. The process is also original as it connects the front-end and the back-end of a project, with the operations phase. Frequently, the operations phase is out of the scope of the project, yet the evidence presented in this study shows that project and operations need tighter integration to secure value outcomes in the long-term. Each phase contains key-value interactions that can be undertaken in order to co-create value (see Contribution #1). The process ultimately aims to enhance the value outcomes for the medium- and long-term (see Contribution #2). This process of value co-creation is embedded in a social system. This process presents key-generative mechanisms that may enable and facilitate the co-creation of value outcomes at the project level (see Contribution #3). Overall, the originality of the process is to have shown both the micro- and macro-dynamics of the co-creation of valuable outcomes in projects. Fair to note that the process is not automatic and it cannot be fully controlled. Instead, they might be vulnerable to disruptive human behaviour. This may suggest that the process is socially constructed and that people have the power to either co-create or co-destroy value outcomes in the long-term. This process has been built using the SDL framework, which is considered the modern home of value creation in the wider literature of management. This research is among the first PhD works to have employed the SDL framework in project settings.

Table 6.4. Overview of contribution #4 (Source: Author's own).

This contribution explains the process by which the value outcomes are being co-created and achieved in project settings. Figure 6.1 aims to encapsulate the key contributions to knowledge (see Contribution #1, #2, #3), presented earlier in this research.

One originality of this overarching process is to have tracked the co-creation elements in the micro-level for the client organisation (see Leroy et al. 2013; Storbacka et al. 2016). For example, this process presents eight key managerial actions to co-create value. This micro-level perspective is original because previous literature in relationship management and collaboration management have remained highly abstract and have not addressed how value can be co-created (cf. Prahalad and Ramaswamy 2004; Ballantyne and Very 2006; Smyth and Pryke 2008). For example, Prahalad and Ramaswamy (2004) mentioned that dialogue is part of the key foundations to co-create value, but what kind of dialogue is needed? This has been unspecified to date. In addition to this, the literature of value co-creation (Vargo and Lusch 2016) has been largely criticised for being conceptual, prescriptive and normative (Wright and Russell 2012). Instead, this research has originally presented eight key-managerial value interactions that aim to mobilise the concept of value co-creation in real settings.

Major contributions:

One key originality of this process is to have empirically demonstrated that the co-creation of value might be a valuable process, not only to enhance the future value outcomes (Pitsis et al. 2003; Vargo and Lusch 2016) but also to reduce the complexity and uncertainty in current situations (Geraldi et al. 2011). In addition to this, the data suggest that a co-creation process is not required when the actors have full expertise. In these cases, a more transactional approach may be adequate for some clients and projects. This goes in contrast to the narratives in SDL that suggests a value co-creation process as an all-encompassing process (cf. Vargo and Lusch 2016; Fuentes et al. 2019).

Another overarching contribution is that the results show that people are at the heart of the process to co-create value (Vargo and Lusch 2017). This suggests that the process is vulnerable to passive, negligent, maverick and other disruptive human behaviour. This means people might decide to act unethically during the co-creation process and destroy the value outcomes (Echeverri and Skålén 2011). The process presented in this study introduces both strengths and the weaknesses of this theoretical construct. This provides a critical analysis of the concept of value co-creation, which in contrast to the normative and positive agenda of value co-creation presented in SDL (cf. Mele 2011; Wright and Russell 2012; Vargo and Lusch 2017).

The process presented in Figure 6.1 presents four original phases in which the value outcomes are being co-created.

Phase 1 of the process to co-create value presents three key-value interactions that project practitioners can undertake to co-create value outcomes: (a) co-learning with internal and external stakeholders; (b) co-revealing existing service systems; (c) co-aligning strategic needs and expectations. This phase is used for identifying and envisioning the strategic value outcomes. This phase is original because it aims to envision and discuss what type of value outcomes are required for the long-term. Traditionally, project research has focused on the development of the value inputs, such as the materials coming from the supply chain (Serrador and Pinto 2015; Morris 2013). In addition to this, projects have widely used the new product development (NPD) cycles in the creation of value outcomes. Instead, this process to understand the project mission, vision and overall value outcomes, before designing the value inputs.

Phase 2 is concerning the designing and configuring value propositions. The second phase aims to design the value propositions, including the valuable inputs and outputs, but based on the value outcomes from Phase 1. One key originality in this phase is to cascade the strategic value outcomes from Phase 1 to Phase 2.

Two value interactions are presented in this phase to co-create value: (1) co-designing for service experience interaction; (2) co-developing for service with agility. One key originality in this phase is to have applied and mobilised the concept of value co-creation (Vargo and Lusch 2016) using the recent advancements from service design literature (see Romme 2003; Zomerdijk and Voss 2010; Kimbell 2011). For example, this phase has used service design tools, such as the blueprinting technique (Shostack 1984) and the customer journey (Erin and Flowers 2016).

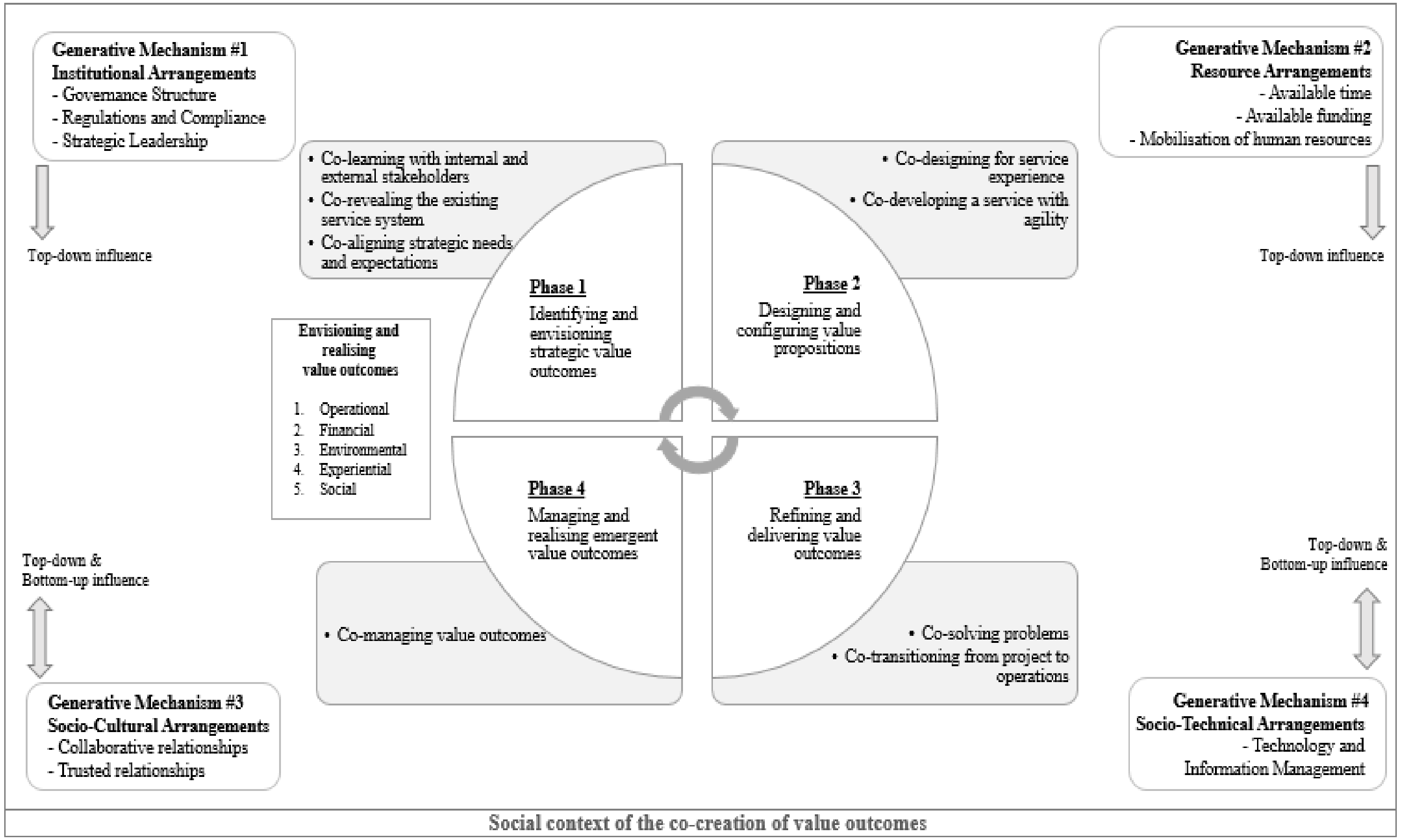

Generative Mechanism #1
Institutional Arrangements
- Governance Structure
- Regulations and Compliance
- Strategic Leadership
Top-down influence
Generative Mechanism #2
Resource Arrangements
- Available time
- Available funding
- Mobilisation of human resources
Top-down influence
• Co-learning with internal and external stakeholders
• Co-revealing the existing service system
• Co-aligning strategic needs and expectations
• Co-designing for service experience
• Co-developing a service with agility
Phase 1
Identifying and envisioning strategic value outcomes
Phase 2
Designing and configuring value propositions
Envisioning and realising value outcomes
1. Operational
2. Financial
3. Environmental
4. Experiential
5. Social
Phase 4
Managing and realising emergent value outcomes
Phase 3
Refining and delivering value outcomes
• Co-managing value outcomes
• Co-solving problems
• Co-transitioning from project to operations
Top-down & Bottom-up influence
Top-down & Bottom-up influence
Generative Mechanism #3
Socio-Cultural Arrangements
- Collaborative relationships
- Trusted relationships
Generative Mechanism #4
Socio-Technical Arrangements
- Technology and Information Management
Social context of the co-creation of value outcomes

Figure 6.1. Processes by which value outcomes could be co-created in the project business (Source: Author's own).

This is to my knowledge among the first application of service design tools in asset-specific markets (cf. Fuentes 2019; cf. Duryan and Smyth 2019; Smyth et al. 2019). These tools may help project teams to undertake a customer-oriented approach in the planning and delivery of projects.

In terms of the second interaction within Phase 2: co-developing the service with agility, the evidence shows that projects are far from linear in approach. Thus, the idea of this interaction is to unfreeze the initial requirements and provide a room for further developing the propositions. This flexibility may either provide the opportunity to avoid the co-destruction of value during execution (Echeverri and Skålén 2011) and to provide service delight at the point of delivery (Pryke 2017). Scholars have made calls for this type of flexible approaches (see Gann et al. 2017), yet little evidence of flexible approaches have been provided particularly in construction projects (Levitt 2011).

Phase 3 in the process of the co-creation of value outcomes is concerning the refining and delivering the value outcomes. This phase has two value interactions: (a) co-solving problems; and (b) co-transitioning from project to operations. This phase is original as it considers that projects are made of social constructs, which may result in problematic situations. Thus, this phase aims to work in collaboration with other stakeholders to address emergent and unexpected requirements. In addition to this, Phase 3 considers the back-end of a project as strategic, as it delivers the value outcomes at the back tail of a project.

Phase 4 is concerning the management of the emergent value outcomes, where one key-value interaction has been found: co-managing value outcomes. This phase is original as it connects the project with the operation phase. In the traditional project management methodologies, such as the PMBOK from PMI, the project life cycle ends at the delivery of the project outputs. This process, however, shows that value outcomes emerge both in medium-term (such as in execution and delivery) and long-term (such as in operations). Thus, the process connects project and operations in a systematic view (Cleland and King 1968; Morris 2013).

The above process explored is comprised of four phases and eight key-value interactions to co-create value outcomes. However, these are not automatic. The results show that they are highly influenced by the social system where the project is embedded (cf. Danermark et al. 2002; Edvardsson et al. 2011; Konstantinou and Muller 2016). This process has originally shown four key-generative mechanisms that may positively facilitate the co-creation of value outcomes: institutional arrangements, resource arrangements, socio-cultural arrangements, and socio-technical arrangements. The four key comprehensive generative mechanisms may provide a clear indication of how the social system may act as an enabler and constraint of the value co-creation. This is in contrast to the Vargo and Lush (2016) that have unspecified how to manage the project context.

The results show that some of the mechanisms are more flexible to modify than others. This goes in line with the narratives from SDL (Vargo and Lusch 2016) that suggests that (some) institutional logics might be re-shaped in positive and/or negative ways. However, the findings also show that some mechanisms are difficult to re-shape within the boundaries of the project, although the processes to achieve compliance can be changed albeit in part.

One key contribution is to have shown what value outcomes look like on the ground in the long-term as a result of this process. This study complements previous research on strategic project success (Shenhar and Dvir 2007), by introducing five types of value outcomes that emerge in the long-term: operational; financial; environmental; experiential; social. These dimensions of value outcomes contrast the homogenous, largely phenomenological, nature of value presented in SDL (Vargo and Lusch 2016). In projects, previous conceptualisations of value have considered individual outcomes, such as operational (Morgan et al. 2008; Zervaj et al. 2018) or environmental (Martinsuo and Killen 2014). Thus, this integrated set provides a more integrated perspective of value creation.

One key aspect of this process is that there is no objective evidence that this might lead to better return-on-marketing-investment (Smyth et al. 2015; Ostrom et al. 2015). Thus, it would be imperative to understand whether these management actions might actually lead to better profits. The empirical evidence presented in this study suggests that these investments might yield a return in the long-run rather than in the short-term. The evidence also suggests that project sponsors and financiers might be unwilling to undertake these sets of collaborative practices if financial support has not been provided yet. However, Smyth et al. (2015) argue that some of the SDL and co-creation practices might have a positive ROMI because SDL has been built in line with many of the principles from the relationship approach. Previous evidence presented by Smyth (2015) has objectively proven positive ROMI using a relationship approach. This may suggest that SDL may produce positive financial results in the long-term. What it can be certainly argued in this study, based on the evidence presented, is that the *lack* of co-creation practices might lead to a destruction of financial value in the enterprise business model (e.g. DaSilva and Trkam 2014; Fuentes 2019). For example, in Case Study 3, the mismanagement of the experiential value outcomes resulted in the tangible leakage of financial value (compensation to the end-users of £300,000). Therefore, one key originality of this study is to have presented how the value-in-exchange and the value-in-use are complementary and equally important elements in the co-creation of value outcomes (cf. Smyth et al. 2016).

Another key contribution is to have made this exploration in the public sector, as the majority of project research is within the private sector. Another key contribution in this study is to have demonstrated how the end-users are often positioned as the weakest actors in the co-creation process and they rarely benefit from the strategic outcomes (Smyth 2019).

Lastly, the phenomena of co-creation may look different from the private sector, specially from megaprojects, where multiple actors interact, thus, there is a need to explore how the contribution to knowledge presented in this section could be extrapolated to other settings.

Overall, this thesis has explored the process by which desired value outcomes could be achieved. The process has presented key management actions that project practitioners may use to co-create value outcomes. In addition to this, the process shows how the social system may be managed to achieve a set of valuable outcomes in the long-term.

6.3 Managerial recommendations

Based on the theoretical contribution, this section provides a set of managerial recommendations.

1. This research presents eight key management actions (value interactions) that project practitioners can undertake, at the project level, in order to co-create value for the long-term. Realistic assessments are needed by Project Managers to understand when these value interactions can be used to improve the value outcomes in the long-term. The data show that these interactions might be triggered by uncertain and complex situations, thus Project Managers may need to assess and recognise when these elements are present so they can be used favourably. The overuse of these value interactions might lead to overconsume (financial) resources. Thus, project practitioners may need to assess when and how to use them. Project practitioners should be aware that the process of co-creation is not automatic, meaning that the outcomes might not be fully controlled. Senior management teams may use the four key-generative mechanisms found in this study to promote the necessary organisational conditions to co-create value at the project level.

2. People are the key source of strategic value. Senior management should consider that it is difficult to predict or control people's dynamics and behaviours. For example, the results show that opportunistic and unethical behaviours may affect the interactions at the project level. In addition to this, the evidence shows that humans are per se conflictive and self-interested. To promote and facilitate the co-creation of value, it is recommended that senior management teams invest in a change or organisational culture to move forward from transactional practices in projects. The recommendation to senior management teams is to provide training and development with a focus on collaboration with both internal and external stakeholders.

3. The evidence from this research has shown that actors have asynchronous perspectives as to what value means in the long-term. To align the meaning of value outcomes at the early stage of a project, it is recommended that project practitioners use the set of five types of value outcomes found in this study to develop the business cases. The set of value outcomes could then be used to envision and create intense value

propositions at the front-end of a project. In addition to this, senior management teams may introduce these set of value outcomes during collaborative sessions, such as value management workshops, to promote the discussion of the strategic value outcomes.

4. The results show that public organisations need an upgrade to develop modern processes and systems, which can positively influence and facilitate the co-creation of value. The results of this thesis inform that value co-creation is not a luxury practice in projects. Instead, the evidence shows that the lack of co-creation practices might result in the destruction of value. For example, in Case Study 3, the lack of investment of co-creation capabilities from the parent organisation resulted in negative financial implications of £300K. Thus, it is recommended to senior management teams to invest in modern collaborative capabilities, processes, and systems, not only to enhance value outcomes for the long-term but equally important to avoid the destruction of outcomes in the short-term.

5. Senior management teams could induce and promote levels of trust and collaboration through the use of hard and soft contracts. For example, the New Engineering Contract (NEC3) could be used as a legal hard driver of both trust and cooperation. In the NEC3 contracts, trust and collaboration form part of the key premises, thus this may benefit the client organisation. However, not all projects may implement the use of NEC3 contracts, as they are designed for large and often costly projects. One way around to implement levels of trust would be by the use of soft contracts, which may be promising in terms of working expectations and behaviours from one party to another.

6. Project Managers could induce the use of co-creation practices by implementing modern service design tools, such as the blueprinting technique (Shostack 1984) and the customer and the customer journey (Erin and Flowers 2016). Service design is a new form of management that has not been fully exploited by senior management, yet it may mobilise and operationalise project practice and theory (see Romme 2003; Zomerdijk and Voss 2010; Kimbell 2011). For example, the gaming industry has widely used service design tools to design experiential value outcomes. This industry, for example, has achieved a reputation of highly customer-oriented industries. Thus, the

implementation of service design tools may provide a strategic advantage in the project business, which in turn may help to improve the brand reputation of the organisation.

7. Many of the current organisational practices are focused on short-term benefits, particularly financial ones. Thus there is a need to align projects with global challenges. One way to connect global issues would be to introduce global agendas within organisations, such as the 2030 Agenda for Sustainable Development by the United Nations. This could help to re-align the strategic goals of the project organisations with global societal goals.

6.4 Research limitations and future research

Key limitations have been found and addressed in this research:

One key limitation is that only two organisations have been used to examine the phenomenon of the co-creation of value. In particular, I have used (largely) organisation B as a focal firm: five out of the six case studies are coming organisation B. From a positive aspect, the focal firm context has indeed allowed me to understand wider dynamics of the case studies, as some of them were interrelated or undertaken by similar project actors. Thus, the organisational context and history of both the organisation and case studies were perceived (Engwall 2003). Yet, this is a key limitation because the majority of the results are stemming out from organisation B. This study might be used as an initial point of reference to explore other project settings; however, future studies might need to explore the micro-level dynamics of the co-creation of value across different organisations. I have provided sufficient data on how this study can be replicated in different settings.

Another limitation is that both organisations are from the Higher Education Sector, thus, there is a need to explore other project sectors to understand to what extent co-creation occurs and how it is enacted. This further investigation may create a wider understanding of the phenomenon of value co-creation.

One key aspect to note about the above limitation (focal firm), is that there is little research in the area of value co-creation on projects. Thus, it was key to understand deeply one or two organisations rather than only surfacing multiple organisations without strong foundations as to what value co-creation means in a single setting. For that reason, this study has created strong foundations for later studies coming from two organisations. One key aspect to mention is that this study did not aim to generalise results. Instead, the critical realism vehicle allows researchers to develop a causal explanation of the phenomenon in stake.

One key weakness in retrospective studies is that the researcher is unable to observe the process in real-time and relies on the memory of the participants, which might create a bias in the investigation (Denzin and Lincoln 2000). While this is considered as a key limitation, I used secondary data, such as project documentation, contracts, key performance indicators, user complaints, and internet sources to enhance the research validity. This allowed the examination of the phenomenon using data as events unfolded (Yin 2017).

The prospective study has allowed me to observe the challenges and dynamics in the formation of the value propositions at the front-end of the project. These micro-dynamics were unable to observe from the retrospective studies, as they allowed examining the big picture of the events after the completion of the project. The combination of retrospectives and a prospective study has allowed me to examine the phenomenon at stake from different angles in terms of time. Yet, it is acknowledged that prospective studies may provide more nuances on how value co-creation is enacted on the ground. Future studies may use prospective studies to understand further the process of co-creation.

Another key limitation is the number of interviews undertaken for this study. While the number of interviews was substantial (fifty-nine interviews), the majority of the interviews were carried out using the client organisation. This might have created a bias in the analysis, as the majority of the data was coming from an actor in the co-creation process. The idea of fully exploring the client organisation, rather than the supplier organisation, is because of the theoretical constructs of value co-creation position the client organisation as a decisive role in the co-creation process. However, future studies may explore an even number of interviewees from each side.

SDL has been scarcely applied in project settings, thus this might be considered as a limitation. SDL is a relatively modern theory, compared to others with long-time tradition, such as complexity or institutional theory. However, SDL provides a medium-range set of principles for addressing global issues. In particular, SDL presents an alternative perspective on how to address value, particularly for the long-term. SDL is a unique framework that combines the perspective of the client organisation and other key beneficiaries, such as the end-users, as the main drivers of value outcomes. In addition to this, SDL covers a wider spectrum of value beyond the traditional engineering and production systems. By using the SDL lens, other aspects, such as the social, experiential and environmental become integral in the delivery of service. Thus, SDL presents a set of principles that can help to enhance current practices and may help to reorient organisational strategic goals.

Having mentioned the limitations, it provides a way to introduce future research. Thus, I provide a set of avenues for future research concerning value co-creation in the project settings:

1. This study has found key-value interactions to co-create value at the project level. Project actors are at the core of these value interactions. Thus, it is important to identify and categorise different types and roles of project actors when working on co-creation activities. For example, what types of skills and competencies do project actors need to co-create value? To map this, a large project with an extensive number of actors could be helpful to understand the different roles of co-creators, for example across the supply chain tiers. The work from Mitchell et al. (1997) (in stakeholder management) is ideal to start the exploration of different roles and actors. The authors have set out different roles in a network and they can be extrapolated to co-creation settings. In addition to this, the literature of stakeholder management and value co-creation still needs to be integrated for project businesses (see Mitchell et al. 1997; Aaltonen et al. 2016), and this

could be a fruitful contribution, for example in the International Journal of Project Management.

2. The process of value co-creation presents several management tensions at the micro-level. The work from Storbacka et al. (2016) might be used as a framework to scope the engagement in the micro-level. In addition to this, the focus of the engagement could emphasise the conflicts during the process of co-creation. This exploration might reveal realistic aspects of co-creation and co-destruction. Research on co-creation in the micro-level is highly rooted in positive and conceptual terms, thus further research is needed to explore negative and problematic aspects of co-creation in the micro-level (see Plé 2017).

3. Power asymmetry plays a key role in the allocation of value for the long-term. It is therefore important to explore how it can be managed. At the time of writing, there is little work on how Project Managers deal with power asymmetry during interactive and collaborative practices.

4. According to the results of this work, the social system highly influences the co-creation process. There is still scope to understand how to manage the social system within the process of value co-creation (Edvardsson et al. 2011). The revised work from Scott (2014) on institutions and organisations could be used as an anchor to fully explore the social context. Furthermore, other social phenomena can also be explored under the lens of co-creation and co-destruction, such as corruption. For example, the work from Castro and Ansari (2017) could explore how corruption and other unethical practices may destroy the value outcomes for some stakeholders.

5. Service design has made progress in the management literature, which can be used as modern management tools to design the service experience in projects. Thus, there is a need to explore service design tools in projects, such as the user design (Redström 2006), service experience areas (Zomerdijk and Voss 2010), touch-points (Clatworthy 2011) and multi-level design (Patrício et al. 2011; Teixeira et al. 2012). This research has originally applied the blueprinting technique (Shostack 1984) and the customer journey (Erin and Flowers 2016), yet several applications are largely unexplored in project settings. Fuentes' research (2019) could be used as initial guidance on how to use

service design tools in the project context. The construction sector has been highly reluctant to apply and embrace modern techniques in the design of experiential outcomes.

6. Much of the work on co-creation is clearly in isolation to wider organisational concepts, such as strategy and business models (cf. DaSilva and Trkman 2014). This study has demonstrated that value co-creation is embedded within an organisational context, suggesting that there is a lot of work to do across the management research silos. In particular, the concept of business model, value capture and value-in-exchange has been disregarded during the process of co-creation. Thus, it is necessary to explore how value co-creation is embedded in the wider context of the commercial enterprise.

7. The study has found eight key-value interactions to co-create value. These eight key-value interactions are not inclusive, meaning that there may be other interactions that need further exploration. For example, the data show that co-innovating a service; co-capturing financial value; co-terminating a service; and co-decommissioning a service, need further exploration. These and other interactions might be helpful to create a wider portfolio of value interactions for different project scenarios and challenges (see Fuentes et al. 2019).

8. SDL needs objective evidence on the return-on-marketing-investment. Thus, there is a need to undertake financial analysis on the process of value co-creation. This would demonstrate whether SDL is financially viable (Ostrom et al. 2015; Smyth et al. 2015).

9. Research is highly needed to understand the dynamics of value co-creation in the macro-level, for example, in using the lens of service ecosystems (Moore 1993; Akaka et al. 2013). This may help to explore how value is being co-created with other organisations, industries, and governments.

10. SDL is well aligned with global agendas, such as the 2030 Agenda for Sustainable Development (and its Sustainable Development Goals). Thus, SDL might be integrated and aligned with global agendas, which are focused on value outcomes.

11. This project has taken two public organisation as focal firms, yet there is a lack of research in the public sector. Further research can be undertaken within this sector,

particularly there is a need to explore co-creation capabilities that can change the current dynamics in the public sector. In the public sector, the work from dynamic capabilities (Teece 2013) can be merged with the ecosystem approach (Moore 1993) and may provide fruitful results for public organisations and governments in the development of policies, such as the mission-oriented innovation policy (Kattel and Mazzucato 2018).

12. Overall, there is plenty of room to further examine the phenomenon of co-creation of value using the theoretical constructs of SDL in project settings (Vargo and Lusch 2016; Grönroos 2017). The literature of co-creation remains conceptual, and this provides an opportunity for researchers to incorporate some of the theoretical elements of co-creation in project settings. However, the incorporation needs to be carried out with care, as many elements of value co-creation, coming from service-related settings are coming from repetitive and high volume products and services (Leon and Davies 2008). There lies a challenge for future researchers and students in the project management community.

APPENDICES

Appendix 1 – Research Article 1

This research has generated the following research article (complementary output) as part of the dissemination process:

Title: Co-creation of value outcomes: A client perspective on service provision in projects.

Journal: International Journal of Project Management.

Authors: Marcos EG Fuentes, Hedley Smyth, Andrew Davies.

DOI: https://doi.org/10.1016/j.ijproman.2019.01.003

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Co-creation of value outcomes: A client perspective on service provision in projects

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Abstract

Client organisations, as financiers, owners, and users, face the challenge of generating and delivering value outcomes for a wide range of stakeholders. However, research has demonstrated that projects constantly fall short of providing valuable outcomes in the medium- and long-term. The value outcomes start to appear in the latter stages of a project, yet, they have a link back to the project definition phase, where value outcomes can be purposely designed for the long-term. Value outcomes per se have been historically researched from a supplier and financial perspective. However, the research around the client perspective has been scarce, particularly the exploration of the co-creation of value outcomes for the long-term. To this end, the Service-Dominant Logic is an established framework to analyse the co-creation of value outcomes in the long-term from a client perspective. Thus, this framework is being used in this research to analyse six project case studies from two public sector client organisations in the United Kingdom. The results show eight managerial value interactions, which may enhance a set of five value outcomes from a client perspective in the medium- and long-term. Additionally, tensions around the co-creation process have been identified, which require management attention to secure and to defend the value outcomes. Overall, this study may prompt project practitioners to undertake a set of co-creation practices in order to formulate projects as service provision, as well as to avoid negative financial impacts to business models.

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Keywords: Benefits; Business model; Co-creation; Outcomes, Service Dominant-Logic; Value; Co-destruction

[redacted]

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Table 3

[redacted]

[redacted]

[redacted]

[redacted]

Table 5
Cross-tabulation of the co-creation themes vs. the case projects

[redacted]

[redacted]

[redacted]

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[redacted]

[redacted]

Appendix 2 – Research Article 2

This research has generated the following research article (complementary output) as part of the dissemination process:

Title: Co-creation and co-destruction of experiential value: a service perspective in projects.

Journal: Built Environment Project and Asset Management.

Authors: Marcos EG Fuentes

DOI: https://doi.org/10.1108/BEPAM-02-2018-0052

The current issue and full text archive of this journal is available on Emerald Insight at:
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Co-creation and co-destruction of experiential value: a service perspective in projects

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Abstract

Purpose – One way in which to induce an advantageous position is to improve the value outcomes experienced from commissioned projects. The purpose of this paper is to consider project stakeholders, such as end-users, as active co-creators of value. This may be achieved by taking into account interactive capabilities and service design practices. This may influence experiential and financial value outcomes for a range of project stakeholders.

Design/methodology/approach – A single case displayed as a pilot study helps to establish the transferability of the co-creation and the service experience to the construction context.

Findings – Findings show that project managers pay insufficient attention to the service experience. The analysis demonstrates users are treated as destroyers of value, rather than as co-creators of value. In addition to this, the findings suggest contextual aspects, such as unethical behaviour, misalignment of values, power asymmetry and lack of contextual awareness, may ultimately affect the project outcomes.

Practical implications – The implication for the construction context is to create awareness of interactive capabilities and service design practices, which permit the enhancement of experimental value outcomes.

Originality/value – Service-dominant logic is used as a variant perspective to analyse the project usefulness and benefits for a range of stakeholders. The originality comes from the initial exploration of how benefits could be collaboratively configured through interactive capabilities and service design practices with a range of stakeholders.

Keywords Service, Value, Service experiences, Co-creation, Co-creation capabilities, Co-destruction

Paper type Research paper

[redacted]

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[redacted]

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[redacted]

Table I.
Value co-creation capabilities for the project context

[redacted]

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Table II. Description of participants in refurbishment case study

[redacted]

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Figure 1.
The functionality of alue co-creation in a project setting

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Figure 2.
Application of
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service blueprinting
tools in the
efurbishment project

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Appendix 3 – Conference Paper 1

This research has generated the following conference paper (complementary output) as part of the dissemination process:

Title: Value co-creation at the front-end of project management: a service-dominant logic perspective.

Conference: Proceedings of the 32nd ARCOM Annual Conference (Association of Researchers in Construction Management), 2, pp. 1059-1068.

Authors: Marcos EG Fuentes and Hedley Smyth

DOI: http://www.arcom.ac.uk/-docs/proceedings/edb7e7176768bcb59ac66ec7d387b4e0.pdf

VALUE CO-CREATION IN A PROJECT SETTING: A SERVICE-DOMINANT LOGIC PERSPECTIVE

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Research is needed to understand how value co-creation could improve project outcomes and benefits. Many studies have shown projects do not meet mandatory objectives. Further, few projects configure and design value propositions to deliver a service experience and value beyond the minimum requirements. A solution to these problems may lie in a shift on projects: from production to a service focus. Service-Dominant Logic (yet a contested arena) has become a paradigm in the marketing and is providing influence in management studies. It offers a fresh perspective to see projects as a service with a focus on outcomes. It also provides an alternative standpoint to analyse the benefits delivery and effectiveness for the long-term: value-in-use and context. However, Service-Dominant Logic needs to be operationalised as it might not work in isolation. Service Design could be used to make a bridge between practice and theory. Contrary to Service-Dominant Logic, Service Design is rooted in practical applications and could mobilise a service logic. This paper contributes to the research community by exploring the link among value co-creation, service-dominant logic and service design in the project context.

Keywords: service design, service-dominant logic, value co-creation

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Appendix 4 - Request letter for interviews

This letter was used as a formal request to arrange access for interviews in both Organisation A and B.

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Research Team:

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Context

The project outcomes have a link back to the design phase of a project. As known, the planning stage of a project e.g. procurement, is where major decisions are taken to secure/enhance the financial benefits whilst delivering other project outcomes as well. Furthermore, the planning stage is where solutions are jointly developed with a variety of stakeholders (e.g., Project Managers; Technical Managers; Procurement Managers; End-users; Main Contractors; Architects) to improve the project outcomes. Once the planning stage is concluded, most of the requirements/benefits/targets are set. Changes after this planning stage could be quite costly therefore an effective configuration and design of the project could have positive implications in subsequent project stages.

This research will offer to the organisation:

- A set of practices to co-create value in projects for the long-term.
- A set of integrated benefits for the long-term for the client organisation.
- A set of mechanisms that could be implemented to improve project outcomes.
- A lessons learned to showcase the process by which stakeholders interact to co-create project outcomes.
- Possibility: Involvement in thematic workshops concerning collaborative methods.
- Intended: Publications in leading academic and practitioner journals.

Aims and objectives

We propose to conduct a research that would explore some projects as to investigate how the service and project outcomes are being collaboratively created/designed. The aim is to find out collaborative capabilities aimed to improving the outcomes and service from a project perspective. This research will employ the lens of a new paradigm in the Service Science: Service-Dominant Logic, which theoretically is focused to improving the outcomes and service experience.

Method

- Initially we would like to carry out an explorative interview to understand further aspects of the project.
- We would like then to approach several key informants/stakeholders across the levels from the organisation (e.g., Project Manager, Procurement Manager, Technical Managers, and User Groups) who have a major influence during the project.
- The average duration of an interview would be about 30 mins to 1 hour and it would consist of a series of questions that we could send in advance.
- It is possible that in the course of these interviews reference may be made to other documents such as project minutes, project plans, designs, specifications and other records which will provide us more insight. In such circumstances we would discuss the possibility of accessing these documents.

	• Careful planning and flexibility will be carried with the participants to minimise disruption in their daily job. • All information given by the participants will be treated with the utmost confidentiality and their anonymity will be respected at all times.

Appendix 5 - Standard questionnaire

The following table shows the standard set of questions. Those questions were tailored for each project. Yet, the main set and logic of questions were the same across all interviews. This interview protocol was divided into 4 blocks:

(a) the questionnaire started with general perspectives about the project;

(b) then, some questions were set to explore different actor-to-actor interactions across the project life cycle;

(c) later, it was explored how the organisational context influenced the project; and

(d) the interview was concluded with the exploration of the meaning of value for that particular project.

For the retrospective studies, the researcher used secondary data to initial explore interactions with the co-creators of this project. In addition to this, the participants were drawing a wider set of co-creation practices from their project experience. For the prospective study, the dynamics were observed in real-time.

Interview questions						
	Theme	**Question**	1	1.1	1.2	1.3
1	Retrospective views	Looking back at the whole project, what do you think it went well?	X		X	
2		What do you think it could have been done differently to obtain better results/benefits?	X		X	
3	Pre-project interactions	During the planning stage, tell me about a particular interaction you had with an *[external actor]* to discuss the requirements/benefits. What was best about it, what was worst about it	X	X	X	X
4		During the planning stage, tell me about a particular interaction you had with an [*internal actor]* to discuss the requirements/benefits. What was best about it, what was worst about it?	X	X	X	X
6	Project interactions	During the procurement, tell me about a particular interaction with a *[external actor]* to discuss the requirements/benefits? What was best about it, what was worst about it?	X	X	X	X
7		During the project execution, tell me about a particular interaction with the [*internal actor]*? What was best about it, what was worst about it?	X		X	X
8	Post Project interactions	When the operations started, tell me about a particular interaction with the *[external actor]* to discuss the usefulness of the project/benefits? What was best about it, what was worst about it?	X		X	X
	Post Project interactions	When the operations started, tell me about a particular interaction with the *[internal actor]* to discuss the usefulness of the project/benefits? What				

		was best about it, what was worst about it?				
9	Context	In your opinion, what organisational aspects most influenced this project and its benefits?			X	
10		What do you think is worst about the regulations for this project, e.g. procurement regulations?			X	
11		What do you think is best about the regulations for this project, e.g. procurement regulations?			X	
12	Value	Overall, what do you mean by value for this project?	X			

Appendix 6 - Synthesis of results (Findings Part 2)

The following table shows the synthesis of the results using the Gioia’s analysis concerning the context of the process of value co-creation. This table has been used to present the results shown in Chapter 5. Table 3.5 has been used to present the results shown in Chapter 4.

Synthesis of results (Findings Part 2)			
1st order of synthesis	**2nd order of synthesis**	**Aggregated synthesis**	**Sources of the generative mechanisms**
Lack of governance arrangements in terms of resources and processes to connect different layers in a project, both vertically between the programme/portfolio/project and horizontally across the project lifecycle.	Governance structure	Institutional arrangements	Generative Mechanism #1: Institutional; which appears to influence the co-creation of value outcomes in a top-down perspective.
Collaboration among key actors in the project, which may increase communication and clarity on the value outcomes.			
Required key stakeholders working in the governance level need to have an appropriate set of attributes, such as power, to make key decisions in a project.			
Vertical and horizontal leadership may transmit the vision on the contract/project outcomes for the long-term and across and beyond organisation.	Strategic leadership		
Leadership may provide the power to call on resources and work on the internal politics to get the required value outcomes.			
(Lack of) sponsorship from key stakeholders to promote and invest in the value outcomes.			
EU regulations ensure that projects are run with clarity and transparency,			

EU regulations are too rigid to change and they do not offer enough room for interactions/negotiations.	Regulations and compliance		
EU regulations are focused on the short-term success in the main concept of value-for-money, and disregards the benefits and dis-benefits for the long-term.			
Being outside the EU regulations may enable the teams to be more creative and run negotiations, particularly in terms the design of the specification.			
Timescales could be pre-given by external or internal forces, which may influence the amount of interactions to carry out in a given period.	Time available	Resource arrangements	Generative Mechanism #2: Resources; which appears to influence the co-creation of value outcomes in a top-down perspective.
Time pressures may come from other generative mechanism, such as the institutional arrangements.			
Lack of time and financial resources within the project timeframe to carry out the required interactions.			
The (lack) of implementation of value interactions depend directly on the financial resources allocated to the project. Hidden agendas may also influence the allocation of resources at the project level.	Funding available		
Value interactions are costly and may absorb limited financial resources. Resources to be agreed in the portfolio level.			
The investment in value interactions may have a return in the medium- and long-term, hence the reluctance from key stakeholders to adopt some co-creation practices.			
The achievement of the value outcomes depend of the investment of financial resources in the project.			
Human resources need to be formally agreed and secured from the portfolio level, which can be used in the project level.	Mobilisation of human resources		
Lack of competencies, skills and expertise, such as negotiation skills, lack of contextual awareness, can influence the co-creation of value. Actors are not perfect machines.			
Lack of readiness and willingness to co-create value.			
The values of an actor may act in favour or against the co-creation of value.			

Internal and External collaboration enhances the co-creation of value outcomes.	Collaborative relationships	Socio-Cultural arrangements	Generative Mechanism #3: Socio-Cultural; which appears to influence the co-creation of value outcomes in a top-down perspective, as well as in a bottom-up perspective.
Financial incentives enhances collaboration in the co-creation of value.			
Collaboration is socially constructed across the project life cycle.			
Trust acts as an enabler of collaboration.			
Trust is socially constructed across the process of value outcomes and reflected in conflictive and problem solving situations. Yet, suppliers tend to act in a (financially) self-interest manner.	Trusted relationships		
Unethical behaviour directly influence the level of trust in the relationship.			
Legal contracts may enable the value of trust in a relationship.			
The misalignment of values (e.g. trust) influence how the relationship unfolds.			
Lack of practices to document business processes and service information.	Management of information and IT service systems	Socio-Technical arrangements	Generative Mechanism #4: Socio-Technical; which appears to influence the co-creation of value outcomes in a top-down perspective, as well as in a bottom-up perspective.
Sharing information with other actors within the service system.			
Lack of investment in IT service systems for the synchronization of the service.			
Lack of adequate dissemination and capture of information both during the project delivery and post-completion.			

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THE END

Thank you mom!

Dear Gael and Emiliano, this is your starting point, you two are Aztec warriors, best of luck!