# Analysing Value Co-creation for the Public Services Sector in India

**THESIS**

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By

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# CERTIFICATE

This is to certify that the thesis titled **Analysing Value Co-creation for the Public Services Sector in India** submitted by **Victor Saha** ID No **2017PHXF0411P** for the award of Ph.D. of the Institute embodies original work done by him/her under my supervision.

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## *ABSTRACT*

Value co-creation in the public services sector has gained rapid traction over the years (Engen et al., 2020; Best et al., 2019). Specifically aided by the evolution of the 'public service logic' (PSL), value co-creation is being conceptualized as "*an interactive and dynamic relationship where value is created at the nexus of interaction*" (Osborne, 2018; pp. 225). To that end, Saha and Goyal (2019) defines value co-creation in the public services sector as "*an interactive process based upon the principle of relationship, trust, commitment and transparency where multiple stakeholders come together with a purpose of mutual value creation and with an intent to generate overall social well-being, instead of economic profits*" (pp. 4).

Value co-creation in the public services sector, in sharp contrast to the private sector, aims at social welfare of the citizenry (vs. economic profits based on repeat business) and strives towards creation of public or collective value (vs. individual or private value) (Osborne, 2018; Engen et al., 2020). Hence, the process of value co-creation in the public services sector requires the public service administration to involve the citizenry in every aspect of planning, designing and implementing the public welfare schemes, and not just involve them during the service delivery phase only (as traditionally practiced) (Osborne et al., 2016). However, the involvement of the citizenry in a value co-creation process is not straight-forward. It requires extensive planning on the part of the public service administration and requisite systems need to be put in place. Accordingly, there are specific factors (which hinder the success of a co-creation process) that need to be mitigated before institutionalizing an effective co-creation process in the public services sector. These factors, known as the barriers, need to be identified for enabling successful implementation of various public service schemes and initiatives through the process of value co-creation. Additionally, there are various factors that need to be put in place for ensuring a successful and effective VCC mechanism in the public services

sector (Baptista et al., 2019). These factors, known as enablers, are to be present for facilitating successful implementation of various welfare service initiatives through the process of VCC in the public services sector.

Though public management research has implied various enablers and barriers for the successful implementation of value co-creation in the public services sector (Torfing et al., 2019; Baptista et al., 2019; Voorberg et al., 2015), however, no study in the literature has yet analysed and modelled these enablers and barriers to provide insights about their priority rankings (in order of importance) and their role in resource optimization during a value co-creation mechanism in the public services sector. That is, research on analysing and modelling the enablers and barriers of value co-creation in the public services sector is still lacking. Absence of such evidence-based analysis not only hampers the proper implementation of VCC as an effective strategy, but also risks wastage of valuable resources in the public services sector. Therefore, this lack of research on analysing and modelling the enablers and barriers of VCC in the public services sector indicates a formidable gap in the literature.

Additionally, though several studies have attempted to conceptualize the concept of value co-creation in the public services context (Alves, 2013; Osborne et al., 2016; Torfing et al., 2016), there has not been any study yet that provides with a comprehensive framework for value co-creation in the public services sector from a policy implementation perspective, more specifically so from an Indian context. That is, studies providing a comprehensive framework for the successful implementation of the process of value co-creation in the public services sector of India is still lacking in the extant literature. This provides us with another formidable gap in the public services literature.

Consequently, our study has six specific objectives that have been derived based on the above stated gaps in the extant literature. The *first objective* is to identify the enablers and

barriers of value co-creation in the public services sector within the context of India; The *first objective* is to identify the enablers and barriers of value co-creation in the public services sector within the context of India; the *second and third objectives* are to respectively develop and validate a hierarchical model for both the enablers and the barriers of value co-creation in the public services sector of India; the *fourth* and *fifth objectives* are to assess these enablers and barriers into cause and effect groups for the implementation of value co-creation in the public services sector of India; and finally, the *sixth objective* is to develop a comprehensive framework for successful implementation of the process of value co-creation in the public services sector of India.

To address these stated objectives, we have adopted a case-study based analysis for identification of the different enablers and barriers of value co-creation in the public services sector of India, and subsequently have analysed and modelled them using an integrated multi-criteria decision making (MCDM) approach combining *Fuzzy Analytical Hierarchy Process* (Fuzzy AHP) and *Fuzzy Decision Making Trial and Evaluation Laboratory* (Fuzzy DEMATEL). The Fuzzy AHP method would develop hierarchical structure (in order of priority) of the enablers and barriers, while the Fuzzy DEMATEL method would develop respective causal relationships for these enablers and barriers. For developing the comprehensive framework, we have adopted a qualitative approach based on in-depth interviews of public services experts. Accordingly, the case study chosen for modelling the enablers and barriers is that of the *'Clean India Mission'* (an initiative to enhance cleanliness, hygiene and sanitation across India). Given the vibrant public services sector present in India, a country with a population of around 1.3 billion of which around 66% reside in the rural parts of the country (UNDESA, 2019), we have, therefore, chosen our case study from the Indian context. Since, Saha and Goyal (2019) have already established '*Clean India Mission*' as a

'classic example' of value co-creation in the public services sector, we have, thus, chosen it as the focal case for our study.

The results obtained from this study provide us with several notable academic and practical implications. This study provides key insights regarding optimization of resources based on the *priority rankings* and subsequent development of *causal diagrams* of the enablers and barriers of value co-creation in the public services sector of India. Since the public services sector faces scarcity of available resources (Witell, 2017; Fuglsang, 2010), these insights would be highly valuable for implementing various public service schemes through the process of value co-creation. Also, the comprehensive framework developed would provide a definitive approach for the effective implementation of value co-creation in the public services sector of India. This would not only improve the effectiveness of various services schemes and initiatives in the public services sector of India, but would also generate higher trust and confidence among the stakeholders (e.g., citizenry, government etc.) of this sector.

**Keywords:** Value co-creation, public services sector, India, Multi-criteria Decision Making, Fuzzy AHP, Fuzzy DEMATEL, Enablers, Barriers, Comprehensive Framework.

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| **Abbreviations** | **Full Form** |
|---|---|
| VCC | Value Co-creation |
| S-D Logic | Service-Dominant Logic |
| Fuzzy AHP | Fuzzy Analytical Hierarchy Process |
| Fuzzy DEMATEL | Fuzzy Decision Making Trial and Evaluation Laboratory |
| PSO | Public Service Officials |
| DART | Dialogue, Access, Risk Assessment and Transparency |
| ICT | Information and Communication Technology |
| B2B | Business-To-Business |
| B2C | Business-To-Consumer |
| CE | Cognitive Enablers |
| CoRE | Communication-Related Enablers |
| FRE | Facilitating-conditions Related Enablers |
| CRE | Competence-Related Enablers |
| CRB | Culture-Related Barriers |
| RRB | Resource-Related Barriers |
| CoRB | Competence-Related Barriers |
| MRB | Management-Related Barriers |

## 1.1. Chapter Overview

This chapter provides an introductory overview of this study. The chapter is divided into seven sections. First, we provide a background of the study, followed by a detailed illustration of the concept of value co-creation. Next, we state the research questions and the objectives of this study. Then, we move on to defining the scope of this study, followed by our motivation behind this study. Finally, we conclude this introductory chapter by providing a brief outline of this thesis. A pictorial overview of the chapter is provided in Figure 1.1.

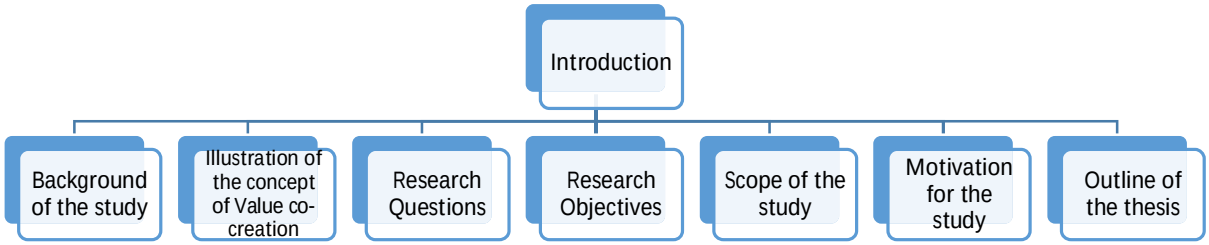


**Figure 1.1: Overview of the Chapter**

## 1.2. Background of the Study

Since the early part of the 21st century, value co-creation has gradually evolved into an effective strategic tool owing to the growing interest among practitioners and academicians worldwide. Value co-creation is an interactive and collaborative process that focuses on creating value for consumers during the process of usage and consumption, and not during the process of exchange (Gronroos, 2008; Kao et al, 2016, Galvagno and Dalli, 2014). Value co-creation derives its meaning from the 'value-in-use' concept of Service-Dominant (S-D) Logic (Vargo and Lusch, 2004, 2008). Ever since the evolution of the S-D logic (Vargo and Lusch, 2004), the narrative around value co-creation has gained momentum in multiple dimensions. Various studies have been carried out hence forth to conceptualize and enumerate the concept

of value co-creation from multifarious perspectives concerning various stakeholders (Durugbo and Pawar, 2014; Boyle, 2007; Gronsroos, 2011). The earliest definition proposed by Prahlad and Ramaswamy (2004) describes value co-creation as the joint creation of value where the only actors involved were the company and the customers (Bharti et al, 2014). In subsequent years, researchers have illustrated the concept of value co-creation to include varied dimensions of phenomenological interactions. For instance, Gronroos and Ravald (2009) explain value co-creation as dyadic interactions between two parties involved in joint activities of creation. Williams and Aitken (2011) perceive value co-creation as a reciprocal process where value is conditioned by consideration of responsibilities. One notable aspect in the conceptualization of value co-creation is the representation of the concept as a joint collaboration between the producer and the consumer only. The role of retailers and other channel partners of the value chain have largely been disregarded. However, successful co-creation initiatives in more complex settings need the co-operation of all the channel partners of a value chain and essentially require them to be co-creators of value.

Consequently, the process of value co-creation, at present times, holds the cornerstone of reforms in the public policy realm around the world (Osborne et al., 2016). The notion of service users bringing in their resources and expertise to contribute to the end outcomes of public service delivery mechanisms is particularly an important aspect of the value co-creation process (Farr, 2016). Unlike the industrialized sector where the participants of value co-creation need to take over specific activities and responsibilities in the overall process (Vargo and Lusch, 2004; Von Hippel, 2007), the end-users of the public service sector are essentially the ordinary citizens (Voorberg et al., 2015). Thus, in instances where citizens face lack of expertise and unwillingness to participate, the service delivery mechanism may adversely impact the co-creation process. However, passive involvement can sometimes still be sufficient in such a scenario (Voorberg et al., 2015). For successful implementation of public service

schemes, the welfare benefits are to be focused upon and the citizens are to be communicated the effects of value creation that can be entailed through their active participation. For sustainable and efficient public services systems, there should be enduring relationships between the stakeholders (Bovaird, 2006; Osborne et al., 2015). The concerned stakeholders need to have trust in each other (Davis and Walker, 1997; Kale et al., 2000; Osborne, 2006), and more importantly from a public services context, there should be sufficient transparency and commitment in the whole process of interaction (Gundlach et al., 1995). Value co-creation in the business world has proven to be an effective strategy for brand building, improving service quality and leveraging improved profit margins. However, in the public service sector, the prominent aim of this strategy is to generate overall well-being for the society, rather than earning economic profits. Promoters of any public service scheme have to ensure that the target consumers are better-off due to the provided benefits of the service. Another important aspect of the process of value co-creation lies in the creation of a continuous feedback system that would drive the process of resource integration through a continuous loop (Gummesson and Mele, 2010; Chen et al., 2017). This ensures that the provided service is monitored and improved upon with gradual progress across various stages of implementation of a public service scheme.

For efficient implementation of the various public services schemes, active citizenry participation is equally important as that of Government involvement. According to a report on 'principles for a better public sector' by Mckinsey and Company (Mckinsey, 2013), it is argued that to solve the problems of the public sector, governments need to make efficient use of data analytics, involve citizens (co-creation), invest in its employees and also collaborate with other sectors. However, non-consideration of these factors essentially leads to bottlenecks and inefficient implementation of various schemes on the ground. In that light, there lies the need to understand the various factors that potentially affects the growth and prosperity of the public

service sector in emerging economies such as India. This study is an effort in that regard to identify the potential enablers and barriers of value co-creation in the public services sector, and also to develop a comprehensive framework for implementing value co-creation as an effective strategy in the public services sector of India. The findings of this study would not only enhance the implementation of various schemes and initiatives in the public services sector but would also increase the participation of the citizenry in aspects of policy formulation and execution.

### 1.3. Illustration of the Concept of Value Co-creation

The consumers of present times are inundated with a myriad of choices. Companies invest a lot of resources to gain mind-share of consumers and differentiate themselves from their competitors (Prahalad and Ramaswamy, 2004). Yet not every firm succeeds; not every company manages healthy revenues and sound profits. Essentially, for a growth-oriented firm to flourish, value creation lies at the centre of all its business activities. Yet, understanding what constitutes value for consumers can be a very elusive task (Gronroos, 2011). Even before designing value propositions, it is important for firms to properly comprehend the perception of customers as to what constitutes 'valuable' for them (Sakyi-Gyinae and Holmlund, 2018; Sarmah and Rahman, 2018). Traditionally, firms relied on an overall understanding of the market opportunities and hence focused on providing products that, in their view, would be beneficial and valuable to the consumers (Gronroos, 1994; Gummesson, 1995). But subsequently marketers have started to realize that these are not the tangible products that are central to their value creation endeavours, but rather these are the intangible services, processes and relationships that are of utmost importance (Vargo and Lusch, 2004; Gronroos, 2008).

Accordingly, the discipline of marketing gradually made its shift from the Goods-Dominant (G-D) logic towards the Service-Dominant (S-D) logic, where operant resources, rather than operand resources, took the primary stage of concern for firms in building core

competencies and organizational processes (Vargo and Lusch, 2004; Gronroos, 2011; Gummesson and Mele, 2010). Stemming out of this S-D logic is the concept of co-creation, where it is proposed that firms cannot create value for consumers unless consumers themselves take participative action in the value creation process (Prahalad and Ramaswamy, 2000, 2004; Vargo and Lusch, 2004; Ramaswamy, 2009). Value co-creation is based on the principle of 'value-in-use' where it is propounded that firms can only offer value propositions, but cannot create value on their own (Penaloza and Venkatesh, 2006; Edvardsson et al., 2011; Gronroos, 2008; Shamim et al., 2017). The basic premise of co-creation is based on sharing experiences based on deep interaction between the shareholders concerned (Fawcett et al., 2014). Evidently, relationship management between a firm and its consumers lie at the heart of a value co-creation process and, thus, emotional engagement, knowledge sharing, and positive surprise constitute the essential elements of this process (Payne et al., 2009; Kohtamaki and Helo, 2015; Kao et al., 2016). Thus, value co-creation leads to enhanced personal engagement, higher productivity, lower costs and reduced turnover for companies (Ramaswamy and Gouillart, 2010).

Though there is a general consensus that value co-creation is beneficial for consumers, yet the mechanism that constitute the actions and behaviors required for the process are still to be fully deciphered (Gustafsson et al., 2012; Witell et al., 2011). To address this conundrum, research on this area has taken diverse directions over the years, and various researchers have investigated its applicability across multiple contexts. One of the important considerations for value co-creation is its usefulness as a strategic tool for businesses (Frow et al., 2015; Hoyer et al., 2010). It has been found that successful implementation of value co-creation as a business strategy helps increase customer satisfaction (Hoyer et al., 2010; Jouny-Rivier et al., 2017), enhances customer engagement (Van Doorn et al., 2010) and also leads to effective new product development (Hoyer et al., 2010; Hsieh and Chang, 2016). The DART model by

Prahalad and Ramaswamy (2004) suggests that consumer-company interaction is the locus of value creation and thus *dialogue, access, risk assessment* and *transparency* form the key building blocks of value co-creation. Etgar (2008) further suggests a model of customer engagement in value co-creation and discusses the linkage between value co-creation and customization. Gronroos (2012) then conceptualizes and elaborates value co-creation as joint collaborative activities of stakeholders involved in direct interaction with each other. Similarly, various other conceptual frameworks for the process of brand co-creation have been suggested by Payne et al., 2008; Kao et al., (2016); Boyle, 2007; Ramaswamy and Ozcan (2016). A resounding inference that can be drawn from all these conceptualizations and investigations carried out so far is that value co-creation can be a successful endeavor only when the focus is on enhancing the experiences of all the stakeholders concerned (Ramaswamy and Gouillart, 2010; Sandhu et al., 2019). Thus, successful co-creators maintain a positive attitude and cooperate among themselves to allow seamless execution of the co-creation process (Tommasetti et al., 2015; Shamim et al., 2017).

### 1.4.Research Questions

Research on value co-creation in the public services context has predominantly been focused on understanding the role of citizens and the scope of their involvement in the overall process. There are a very limited number of comprehensive studies that have made a focused attempt in exploring the main enabling factors that, in essence, renders the process of value co-creation to be successful (Torfing et al., 2019; Voorberg et al., 2015). Further, the essential factors that need to be mitigated (i.e., barriers) in implementing the process of co-creation in the public services context have also been scarcely researched (Voorberg et al., 2015). This study aims to fulfil this existing research gap by identifying the key enablers and the key barriers of the process of value co-creation in the public service sector. Further, this study would develop a comprehensive framework that would enhance the implementation of value

co-creation process in the public services sector of India. In essence, this proposed study would attempt to answer the following research questions:

1. What are the key enablers and barriers of value co-creation in the public service sector of India?
2. How are these enablers and barriers positioned in terms of their hierarchical importance?
3. What are the cause-and-effect relationships among the respective groups of enablers and the barriers?
4. How can the process of value co-creation be successfully implemented in the public services sector of India?

**1.5. Research Objectives**

1. To identify the enablers and barriers of value co-creation in the public service sector of India.
2. To develop and validate a hierarchical model for the enablers of value co-creation in the public service sector of India.
3. To develop and validate a hierarchical model for the barriers of value co-creation in the public service sector of India.
4. To assess the enablers into cause-and-effect groups for the implementation of value co-creation in the public service sector of India.
5. To assess the barriers into cause-and-effect groups for the implementation of value co-creation in the public service sector of India.
6. To develop a comprehensive framework for successful implementation of the process of value co-creation in the public services sector of India.

## 1.6. Scope of the Study

This study aims to identify and model the enablers and barriers of value co-creation in the public services sector of India. Accordingly, the study develops and validates a hierarchical model for the enablers and barriers, and subsequently, assesses them into cause-and-effect groups (causal relationships). Further, the study develops a comprehensive framework that provides insights about how value co-creation can be implemented as a strategy to enhance the implementation of various schemes and initiatives in the public services sector.

In that regard, we have considered the public services sector of India as the scope of our study. Given India is a country of more than a billion people with majority of the population being economically challenged (Vahed and Desai, 2017), the country needs a vibrant public services sector to meet the needs of its people and to ensure welfare of its citizens. Yet, the public services sector of India has reportedly been plagued with implementation issues, thus rendering the framed policy initiatives as largely unsuccessful (Mukhopadhyay et al., 2018). Hence, it would be really beneficial for the country if the process of value co-creation can be utilised for enhancing the implementation of various public policy initiatives in the country. The process of value co-creation will ensure the active participation of the citizenry and all the other involved stakeholders while implementing various policy initiatives (Lember et al., 2019). Further, value co-creation will also ensure better policy frameworks as more ideas would be generated from the beneficiaries of those policies (Torfing et al., 2021). Accordingly, our study is an attempt to show how the process of value co-creation can be used to enhance the implementation of various public service schemes and initiatives in the public services sector of India. Thus, the public services sector of India has been chosen as the scope of this study.

### 1.7. Motivation for the Study

The public services sector is one such sector that directly and indirectly affects every member/citizen of a society/country (Nabatchi et al., 2017). All sections of the society are equally impacted by the initiatives and schemes of the public services sector. Also, the success of government policy is also dependent on the successful implementation of these policies though public services. This shows the vitality and importance of this sector for any given society or country. Thus, it is important to ensure that a country's public services sector functions effectively and efficiently for the welfare of all its citizens. More specifically, for a developing country such as India whose majority of the population is economically challenged, it is even more essential to enhance the functioning of its public services sector. In that regard, the following factors served as key motivations for this study:

- One of the most important bottlenecks for the public services sector of India is its implementation of the various public schemes and policies (Vahed and Desai, 2017). While the framing of the policies on paper are deemed to be quite commendable for the country, its on-ground implementation has always been mired with inefficient implementations (Mahapatra and Mahanty, 2018). Thus, our study is an attempt to provide some key evidence-based insights to the public services sector of India that can serve as a necessary impetus to the implementation concerns of the public schemes and initiatives of this country.
- While active involvement of the citizens in the public services sector of India has always been desired by the public service administration for long, yet lack of visible value propositions has served as a key hindrance to the active engagement of the citizenry during the implementation phase of key public schemes and initiatives. The process of value co-creation, in that regard, can serve as a game-changing strategic intervention for the public services sector of India. The process of value co-creation

ensures not only active engagement of the citizenry during the implementation phase, but also helps in ensuring their participation in providing valuable inputs while drafting of the policies as well. This study not only aims to bring the concept of value co-creation in the forefront of public policy discussions in India, but also aims to provide the public service administration of India with a definitive guide towards the adoption of the concept of value co-creation for the effective implementation of key policy initiatives and schemes in this sector.

- Various studies have attempted to identify the barriers and enablers of value co-creation within the context of the public services sector (e.g., Torfing et al., 2019; Voorberg et al., 2015). However, these studies have not been based on any empirical evidence. Moreover, these studies have looked at the public services sector from a broader perspective, and geography specific variations have not been accounted for. That is, these studies have overlooked the country-specific variations (e.g., *developing countries* vs. *developed countries*) in their derived results. The motivation for this study, therefore, is to address these identified gaps in the extant literature. Accordingly, by modelling the various enablers and barriers of value co-creation on the basis of empirical evidence in the public services sector of India, this study addresses both these gaps of the extant literature.
- The process of value co-creation can be successful in enhancing the implementation of various public schemes and policies only if there is a comprehensive framework that directs the involved actors (e.g., public service officials, citizenry etc.) towards the proper adoption of this process in the public services sector. However, the extant literature does not provide any such framework yet. This serves as another key motivator for this study, i.e., to provide a comprehensive framework for the successful

implementation of value co-creation as a strategic intervention in the public services sector of India.

## 1.8. Outline of the Thesis

### *Chapter 1: Introduction*

This chapter provides an introductory background of the study, clearly explicates the concept of value co-creation, puts forth the research objectives and research questions, and also defines the scope and motivation of this study. The chapter-wise outline of the thesis has also provided in this chapter.

### *Chapter 2: Literature Review*

This chapter presents a detailed review of the various concepts related to this study. The chapter first starts with a discussion around value and value creation, followed by a discussion on Service-Dominant logic and value co-creation. Subsequently, the chapter presents a detailed review on the concept of value co-creation, based on which the research gaps for this study's objectives have been developed. This chapter also outlines the research questions and objectives of the present study that have been derived from the established research gaps. Next, a review of research methodology adopted for the study is presented.

### *Chapter 3: Identification and review of relevant Enablers and Barriers*

This chapter discusses the detailed process through which the relevant enablers and barriers of value co-creation in the public services sector have been *identified* and *validated.* Subsequently, a brief review of each of the enablers and barriers have been provided for a comprehensive understanding of each of the variables in the context of value co-creation in the public services sector.

***Chapter 4: Research Methodology***

This chapter discusses the research methodology adopted to address the research objectives of this study. It elaborates upon the research design, sampling and overview of the techniques adopted in this study.

***Chapter 5: Modelling of the Enablers of Value Co-creation in the Public Services Sector of India***

This chapter provides a comprehensive description of the analysis and results derived from modelling of the enablers of value co-creation in the public services sector of India. The modelling was carried out using integrated Multi-criteria Decision Making (MCDM) techniques namely Fuzzy AHP and Fuzzy DEMATEL.

***Chapter 6: Modelling of the Barriers of Value Co-creation in the Public Services Sector of India***

This chapter provides a comprehensive description of the analysis and results derived from modelling of the barriers of value co-creation in the public services sector of India. The modelling was carried out using integrated Multi-criteria Decision Making (MCDM) techniques namely Fuzzy AHP and Fuzzy DEMATEL.

***Chapter 7: Comprehensive Framework for Value Co-creation in the Public Services Sector of India***

This chapter illustrates the detailed approach adopted for developing the comprehensive framework for successful implementation of the process of value co-creation in the public services sector of India. The case of *"Clean India Mission"* was used to validate the proposed comprehensive framework.

***Chapter 8: Discussion, Implications, Limitations and Future Research Directions***

This chapter discusses the findings of the study, followed by the academic and practical implications of these findings. Subsequently, it presents the key limitations of this study, thus offering directions for future studies that value co-creation scholars can undertake going forward.

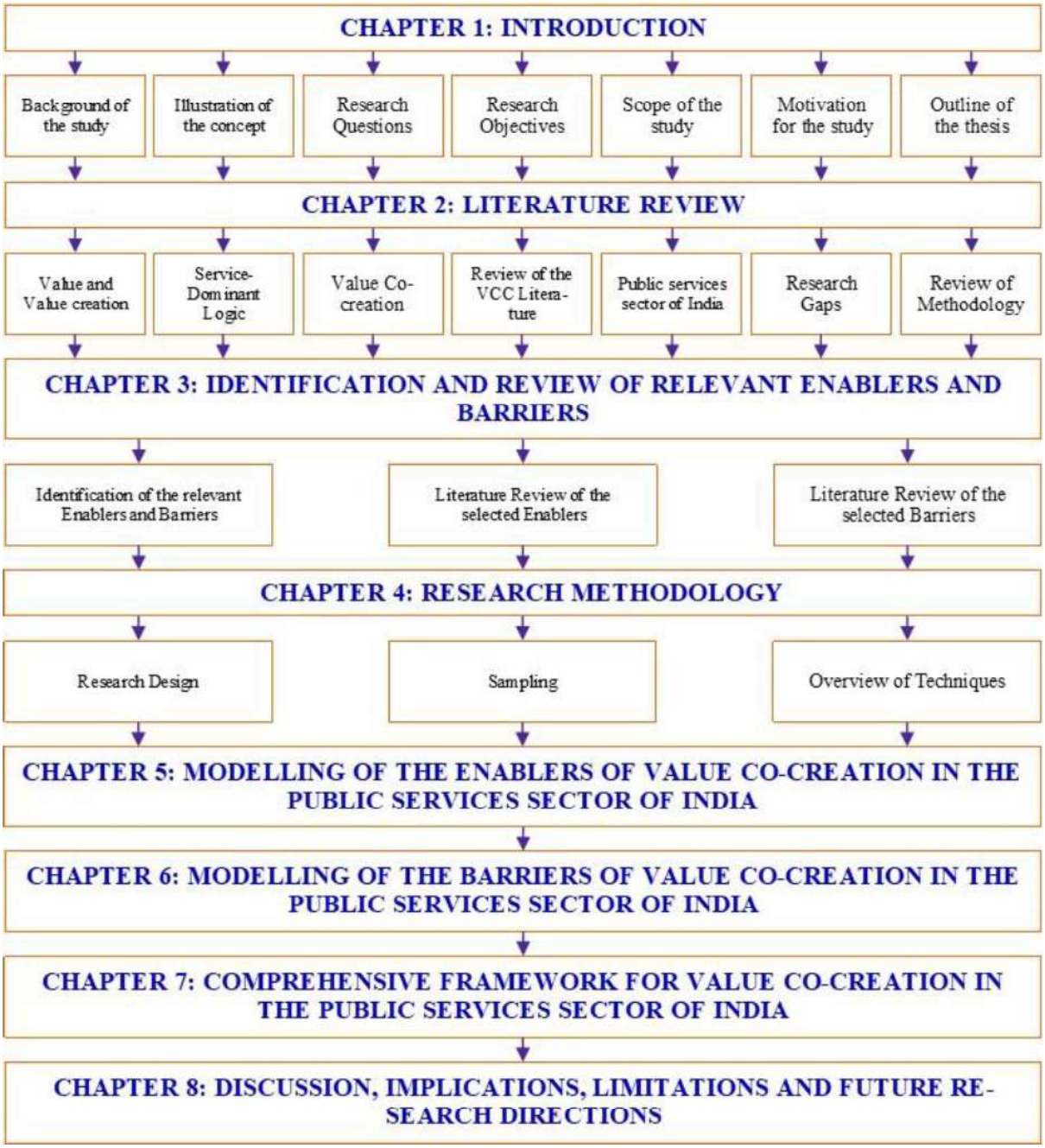


**Figure 1.2: Outline of the Thesis**

## 1.9. Conclusion

This chapter presented an introductory overview to this Doctoral research work. First, it highlighted the background of this study, followed by an illustrative discussion on the concept of value co-creation. Next, the chapter highlighted the research questions and the consequent research objectives of this study. This was followed by explicating the scope and motivation of the study. Finally, the chapter concludes by providing the outline of this thesis work. In the next chapter, a detailed literature review, based on which this Doctoral work has been ideated and executed, is being provided.

## 2.1. Chapter Overview

The previous chapter provided an introductory overview of this study. This chapter, consequently, provides a detailed literature review of the concept of value co-creation and also elaborates upon how the research objectives of this study have been derived based on the identified research gaps in the extant value co-creation literature. Accordingly, this chapter is divided into seven sections (see Figure 2.1). In the first section, we introduce the concept of *value* and discuss how *value* is being created by various actors in a service delivery mechanism. In the second section, we discuss the emergence of the theory of *Service-Dominant logic*, and henceforth show how the theoretical underpinnings of *value* creation has transitioned from the *Goods-Dominant logic* to the *Service-Dominant logic*. In the next section, we show the emergence of the concept of *value co-creation* from the theory of *Service-Dominant logic*, and accordingly provide an elaborate understanding of the concept of *value co-creation* as perceived in the extant literature. In the fourth section, we carry out a detailed review of the extant literature and consequently provide valuable insights about the concept of value co-creation; we also discuss some of the key *developing trends* emerging out from the value co-creation literature in this section. In the fifth section, we provide an overview of the public services sector of India and elaborate upon the present state of the sector in India. Subsequently, in the sixth section, we outline the *research gaps* that have been identified from the extant literature based on our review, and consequently based on these outlined gaps, we provide the rationale for undertaking this extensive study. Finally, we end this chapter with a brief review of the methodologies that have been adopted in the context of value co-creation in the public services sector, and the concluding remarks pertaining to this chapter.

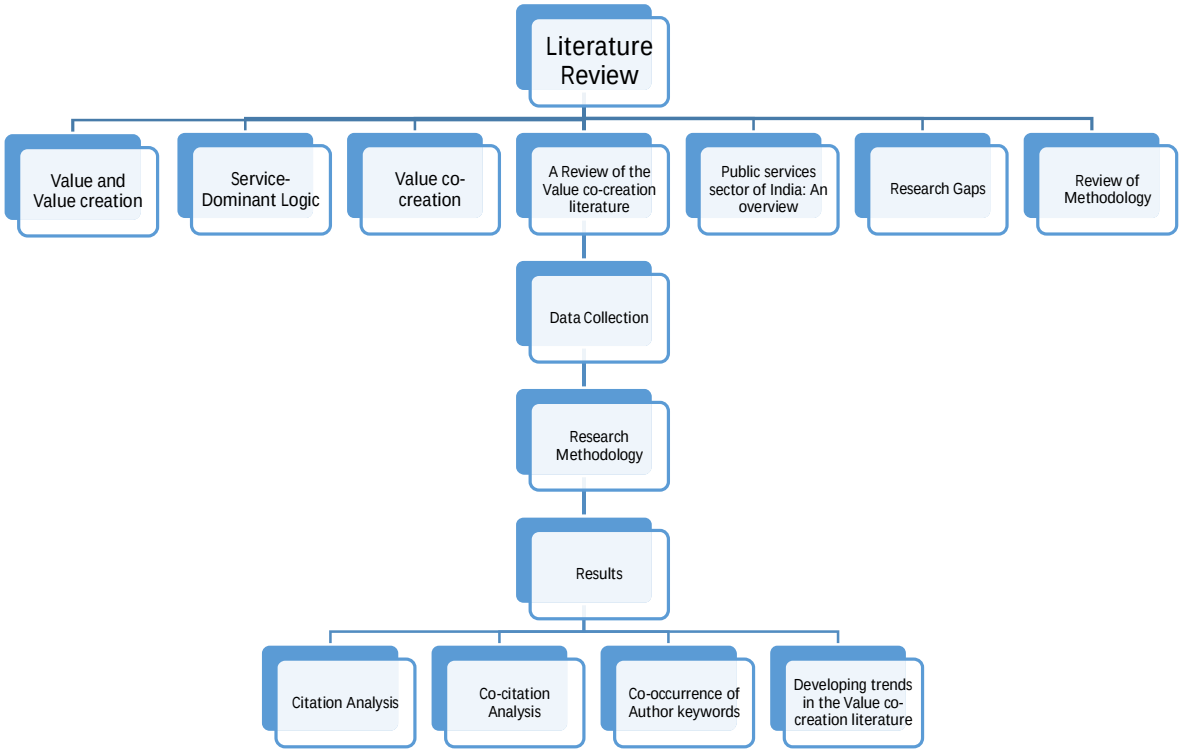


**Figure 2.1: Overview of the Chapter**

## 2.2. Value and Value Creation

The core purpose of any economic exchange is *creation of value* for the involved actors (Vargo et al., 2008). Yet the conceptualization of *value* still remains quite elusive and ill-defined in the services marketing literature (Gronroos and Voima, 2012). Typically, value has been referred to as an assessment of benefits received vis-à-vis costs incurred (Zeithamal, 1988; Woodruff and Gardial, 1996). Various other conceptualizations of value refer it as the hedonic appreciation of the consumed objects (Holbrook, 1994), monetary gains created reciprocally by the involved actors (Gronroos and Helle, 2010) and even as experiential perspective of the beneficiaries (Helkulla et al., 2012). However, one of the most widely used definitions of value

pertains to that of Gronroos (2008), which states that: "*Value for customers means that after they have been assisted by a self-service process (cooking a meal or withdrawing cash from an ATM) or a full-service process (eating out at a restaurant or withdrawing cash over the counter in a bank) they are or feel better off than before*." (p. 303). Put simply, value creation is a process that increases the well-being of the customers (Gronroos and Voima, 2012).

Broadly, value can be classified into two types: *use value* and *exchange value* (Vargo et al., 2008). This classification of value is quite ancient and dates back to the times of Aristotle who first classified value into these two types. This classification was made primarily to differentiate between things (e.g., a car) and their attributes (e.g., quality, features, etc.). *Use value* has been referred to as the "collection of substances or things and the qualities associated with these collections." (Vargo et al., 2008; p. 146), while *exchange value* has been referred to as "the quantity of a substance that could be commensurable value of all things" (Vargo et al., 2008; p. 146). This classification of value was applied by Adam Smith (1776) in the study of market exchange. Smith referred to these two types of values as 'value-in-use' and 'value-in-exchange', and gradually laid the foundation for the notion of *goods-dominant (G-D) logic*. The G-D logic predominantly focused on value-in-exchange and hence conceptualized value creation from the perspective of *exchange* of goods and money between a firm and its customers. However, with the postulation of the *Service-Dominant (S-D) logic* by Vargo and Lusch (2004), the conceptualization of value in the marketing literature started undergoing a gradual transition from being '*exchange'-driven* to being '*use'-driven*. We discuss more about this aspect in the subsequent section.

### 2.3. Service-Dominant Logic

As discussed in the previous section, there are two specific general meanings of value that reflect the different ways of conceptualizing value creation (Vargo et al., 2008). These are: *goods-dominant (G-D) logic* and *service-dominant (S-D) logic* (Vargo and Lusch, 2008; 2016).

The G-D logic proffers that value is created by the firm during the manufacturing of a product and is being distributed in the market in exchange of goods and money (Vargo et al., 2008). That is, the roles of the firm and the customers are distinct in the purview of G-D logic. On the contrary, S-D logic proffers that the roles of the firm and the customers are not distinct, and value is always being *co-created* (Vargo and Lusch, 2004; 2008). For example, let us consider that a firm applies its skills, knowledge, efforts and capabilities to produce an electronic item. According to S-D logic, the produced electronic item is only an input into the value creation process, and actual value creation occurs only when the customers use the electronic item. If no customer knew about the electronic item and had not used it, then the item would have no value. It is only when customers use the item in the context of their requirements, the item has value. Thus, in this case, the firm and the customers together *co-create* value: the firm using its knowledge and skills to produce the item, and the customers using their knowledge and skills to use the item.

Consequently, the Service-Dominant (S-D) logic forms the foundational theory based on which the concept of value co-creation has been conceptualized (Vargo and Luscho, 2008; Petri and Jacob, 2016). This theory, originally proposed by Vargo and Lusch (2004), proposes that the roles of the firm and the customers in a value creation mechanism are intertwined, rather than being separate and distinct (Yu et al., 2019). The fundamental proposition of the S-D logic is that value is always co-created by the firm and the customers, and that value can be realized only in terms of experience through usage by the participants (Hughes et al., 2108; Chen et al., 2018). Accordingly, this theory suggests firms to focus on the use of operant resources (such as knowledge and skills) for engaging the customers into the process of value co-creation (Lusch and Vargo, 2014; Busser and Shulga, 2018). Hence, given the role of this theory in the very origin of the concept of value co-creation, many studies in the literature have

used the S-D logic as an over-arching theoretical perspective to explain the value co-creation mechanism.

### 2.4. Value Co-creation

Value co-creation has been gaining increasing attention over the past decade among practitioners and academicians alike. With the advent and pervasiveness of a more networked economy, value co-creation has become a prominent area of research in the marketing literature (Kohtamaki and Rajala, 2016). Firms such as Unilever, IKEA and Lego have been quite successfully using value co-creation as an effective business strategy to expand their base of loyal customers. For over half a century, creation of value has been perceived to be the prerogative of the firms only (Verma et al., 2012). Moreover, a clear distinction was being made between value creation in case of marketing of services and marketing of goods. In fact, the fundamental premise behind such a distinction is the Good-Dominant (G-D) logic which suggests that value is created at the point of exchange, i.e., "an offering can be of value only when it can be exchanged for something else, usually money" (Ng et al., 2012, p. 4).However, with the advent of the Service-Dominant (S-D) logic, this perspective of value being created at the point of exchange has transformed into the perspective of value being created at the point of use (Vargo and Lusch, 2004; 2008). That is, the S-D logic suggests that a firm can only offer a value proposition to the customers; and that value is created only when the customers have actually used the product (Payne et al., 2008; Vargo et al., 2008).Stemming out of this S-D logic is the concept of value co-creation where it is proposed that the customers and the firm are joint collaborators in the creation of value-in-use within a service system (Prahalad and Ramaswamy, 2004; Ng et al., 2012).

Value co-creation entails that consumers and the firm jointly create value during a service encounter, and that value cannot be created without the active involvement of either of them (Saha and Goyal, 2019; Vargo and Lusch, 2008). Given the various advantages that value

co-creation avails to the involved actors such as higher customer satisfaction and loyalty, higher firm profitability, better quality customized products and services, etc., this concept has become increasingly popular among businesses across diverse range of sectors. Consequently, the academic interest in this concept sparked, leading to a wide number of studies being carried out to conceptualize it and also to make it more advantageous and relevant for the business managers.

The DART model developed by Prahalad and Ramaswamy (2004) elaborates on the building blocks of implementing value co-creation as an effective strategy in business. Post the conception of DART model (Prahlad and Ramaswamy, 2004) and its wide acceptance across industry and academia, many researchers have devised their own conceptual models and frameworks to present value co-creation with a more entrenching enunciation. Boyle (2007) developed a five-stage model of brand co-creation, followed by a conceptual model by Payne et al (2008) describing how co-creation of brand relationship experiences can be managed. Subsequently, frameworks and models were developed applying the concept of co-creation to social media, new product development and politics among many other facets (Hoyer et al, 2010; Kao et al, 2016; Kushwah et al, 2017). A selected listing of the prominent conceptual models developed in the past decade has been provided in Figure 2.2.

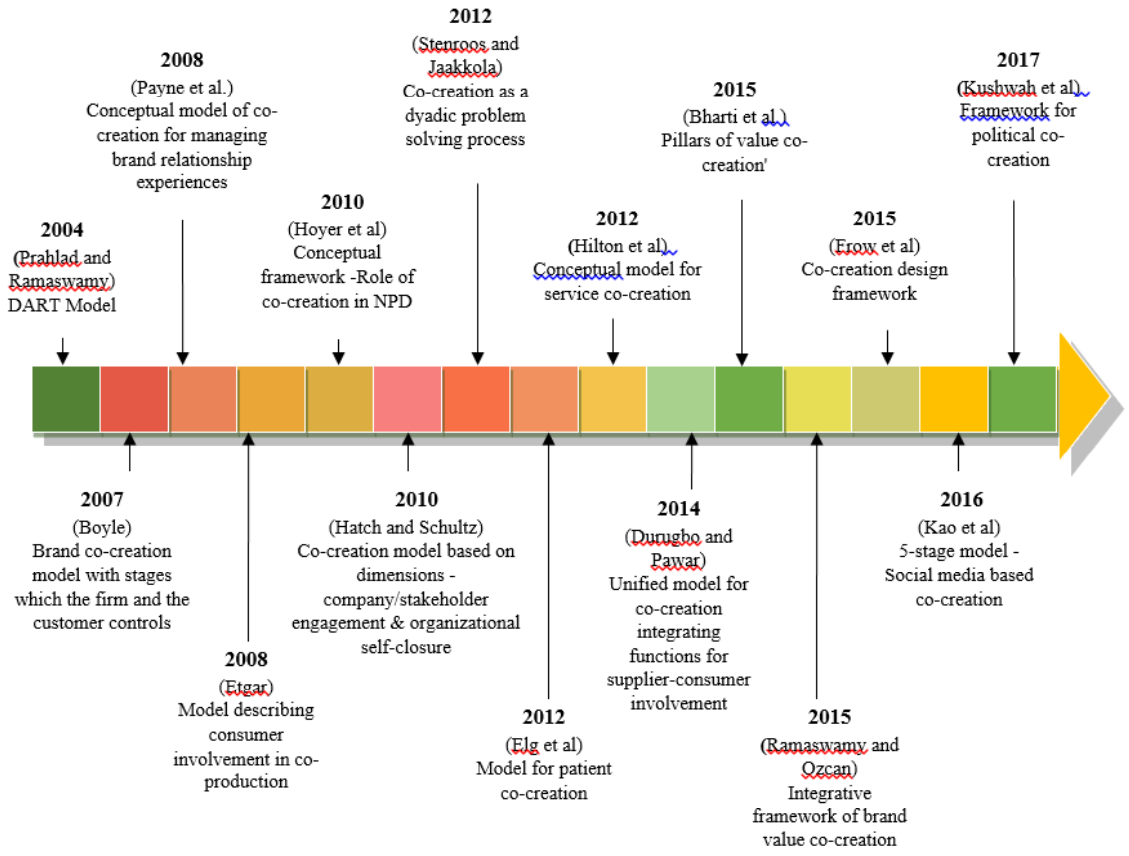


**Figure 2.2: Selected conceptual models and frameworks of Value Co-creation**

Further, various researchers have defined value co-creation consistence with the above stated conceptualisations. A selected list of the prominent definitions of value co-creation developed over time has been provided in Table 2.1. Each of these definitions almost unequivocally explain value co-creation as a process where value is created mutually for the involved actors, and where integration of resources take place. For instance, Galvagno and Dalli (2014) define value co-creation as a joint, collaborative, and concurrent process of creating value for the involved actors, while Sugathan et al., (2017) and Penaloza and Mish (2011) explain value co-creation from the perspectives of integrating resources, such as knowledge, skills, and efforts.

**Table 2.1: Key definitions of Value Co-creation**

| Author(s) | Definition of Value co-creation |
|---|---|
| Hein et al., (2019) | "Process of value creation between actors within a service ecosystem on a service platform" (p. 505) |
| Ramaswamy and Ozcan (2018) | "Enactment of interactional creation across interactive system-environments (afforded by interactive platforms), entailing agencing engagements and structuring organizations" (p. 200) |
| Delpechitre et al., (2018) | "Joint creation of value by the firm and the customer" (p. 9) |
| Chen et al., (2018) | "From the firm's perspective, co-creation reflects the organization's perceived value, which may include strengthened business relationships through interacting with service system actors. From the customer's perspective, co-creation implies the perceived value accruing from firm-based interactions which may arise from service staff responsiveness, empathy, etc" (p. 1155) |
| Sugathan et al., (2017) | "Customer participation in various stages of production and use processes through the application of operant resources such as knowledge, skills, and effort" (p. 64) |
| Ranjan and Read (2016) | "A process where consumers assume an active role and create value together with the firm through direct and indirect collaboration across one or more stages of production and consumption" (p. 291) |
| Galvagno and Dalli (2014) | "Joint, collaborative, concurrent, peer-like process of producing new value, both materially and symbolically" (p. 644) |
| Ramaswamy (2011) | "Process by which mutual value is expanded together, where value to participating individuals is a function of their experiences, both their engagement experiences on the platform, and productive and meaningful human experiences that result" (p. 195) |
| Penaloza and Mish (2011) | "Integration of skills, knowledge and competency resources by all economic actors" (p. 10) |
| Williams and Aitken (2011) | "A reciprocal process where value is delivered when all parties involved in the process realise their roles in the process and fulfil their responsibilities" (p. 445) |

However, one of the major points of difference that is distinctively noticeable in these definitions is the way the interpretation of value co-creation has gradually transitioned from being a dyadic interaction between two actors (e.g., customer and firm) to being a process that includes multiple actors who are involved in complex interactions among themselves. For

instance, in the earlier years, Penaloza and Mish (2011) explain value co-creation as integration of operant and operand resources by all economic actors. However, in subsequent years, researchers expanded the concept of value co-creation to include multiple actors involved in complex interactions. For instance, Galvagno and Dalli (2014) perceive value co-creation as "*joint, collaborative, concurrent, peer-like process of producing new value, both materially and symbolically*" (p. 644). Similarly, Hein et al., (2019) describe value co-creation as a process of creating value between all the involved actors within a service ecosystem. Thus, this gradual conceptual evolution of value co-creation has made the value creating process more inclusive. It is also noteworthy that a greater emphasis has been placed on value co-creation concept in the B2B context in recent years. Since the B2B context contains contemporaneous interactions among multiple actors, executing value co-creation strategy there becomes even more challenging. Value co-creation in the B2B context is discussed further later.

The preceding discussion indicates the diverse illustrations and definitions of the concept of value co-creation and the complexities involved in its conceptualisation. Also, the nature of the fragmented conceptualisation of value co-creation is quite evident here. Research on this concept is still developing, and many more insights are yet to be unearthed for its effective conceptualisation and implementation. However, as a resource-integrating mechanism, value co-creation has already shown promising signs of success, and thus it continues to be a subject of interest among practitioners and academics alike. Hence, we synthesise the extant literature on value co-creation in this paper and attempt to provide useful insights to the industry and academia.

Given its central role in S-D logic, VCC explicitly features in several of S-D Logic's Foundational Premises (FPs). More specifically, VCC is mentioned in four of Vargo and Lusch's (2016) S-D Logic's Foundational Premises (FP6, FP7, FP10 and FP11). First, FP6 asserts that value is being *co-created* by the *involvement* of multiple actors, including the

*service beneficiary actor*. For example, in a university setting, value is created only when there is active involvement from all the involved actors such as the faculty, the administrators, the non-teaching staff and the students (beneficiary actor). Without the active involvement of each of the actors, value cannot be successfully co-created. Second, FP7 states that value *cannot* be *delivered* by the actors; rather, actors can only *offer* value propositions to one another. For example, in a classroom setting, a teacher can only offer the lecture (value proposition), but value would be created only when the students actively participate and learn from the imparted knowledge. Third, FP10 states that creation of value is always determined by the *perceived experience* of the *beneficiary* actor. For example, an electronics firm may provide the best-in-class (in terms of features) products to its customers; but the creation of value would be determined only by the perceived experience of the consumers (beneficiary actor). Finally, FP11 asserts that value is co-created through formation of *institutions* (actor-devised rules, norms etc.) and *institutional arrangements* (set of interrelated institutions) among the involved actors. For example, for value to be co-created between a firm and its consumers, there needs to be specific rules and norms (e.g., platform to be used, feedback mechanisms etc.) set up for their interaction.

To this end, the above-mentioned S-D logic FPs reflect upon VCC's evolved conceptualization, and thus presents us with a number of interesting observations. First, the FPs suggest that VCC follows a *network* structure where actors *integrate* their operant resources (e.g.., skills and knowledge) and/or operand resources (e.g., raw materials, machinery etc.) within the ambit of a *service ecosystem*, thus contributing to each other's *well-being* (e.g., Ekman et al., 2016; Storbacka et al., 2016; Yu et al., 2019). Vargo and Lusch (2016) define *service ecosystems* as self-adjusting systems where value is created mutually through service exchange. Thus, in an S-D logic-informed VCC mechanism, actors mutually co-create value

through resource integration in a *service ecosystem*-based exchange, resulting in overall *well-being* of the actors.

Second, since VCC was previously considered in terms of a *dyadic* (firm-consumer) service exchange (e.g., Aarikka-Stenroos and Jaakkola, 2012; Gronroos, 2011), it was, thus, majorly perceived that value can be co-created only when there is a *direct* and *personal* interaction between the provider (e.g., firm) and the beneficiary (e.g., customer) (Gronroos and Voima, 2013). But the latest S-D logic FPs clarify that VCC is a *multi-actor* phenomenon with the referent *beneficiary* (e.g. customer) playing a key integrative role at the *center* of the process (Vargo and Lusch, 2016) (e.g., Quero and Ventura, 2019; Waseem et al., 2018; Johnson and Neuhofer, 2017). Further, Vargo and Lusch (2016) suggest that the *multiple actors* in a VCC mechanism may often be *unaware* of each other's' presence during the process. That is, actors can also co-create value with each other while being totally incognizant of any interaction among themselves. For example, in case of legislative reforms, not all citizens are present when the reform is being made, but they are nevertheless bound by it, thus affecting their VCC.

Finally, S-D logic FPs introduce the idea of *institutions* and *institutional arrangements* in the renewed conceptualization of VCC. Vargo and Lusch (2016) define *institutions* as "humanly devised rules, norms, and beliefs that enable and constrain action and make social life predictable and meaningful", while *institutional arrangements* as "sets of interrelated institutions" (pp. 11). S-D logic suggests that *institutions* and *institutional arrangements* provide the building blocks of cooperation and coordination for VCC by enabling resource-integrating and service-exchange related activities (Vargo and Lusch, 2016; 2017) (e.g., Ramaswamy and Ozcan, 2018; Yu and Sangiorgi, 2018; Diaz-Mendez and Saren, 2019). However, *institutions* may also have a VCC-hampering (value *destruction*) effect on the involved actors. For instance, consumers of a luxury firm may co-create value with the firm

(through development of *institutions* and *institutional arrangements*) by purchasing items that are deemed to be 'exclusive' and 'limited edition' by the firm. However, as word-of-mouth recommendations from the focal customers draw in more customers, the idea of 'exclusivity' may wane in the perception of the existing customers; thus, leading to *value destruction* for the existing customers. For the luxury firm, however, it's a benefit in terms of expanding customer base and higher revenues (Clark et al., 2020). Hence, *institutions* may sometimes have a VCC-hampering effect as well for any of the involved actors.

In the next section, we carry out a review of the value co-creation literature in order to gain valuable insights about the concept, and also to identify key research gaps that may emerge from the extant literature.

### 2.5. A Review of the Value Co-creation Literature

To understand the prevalent gaps in the value co-creation literature, we have carried out a review of the entire value co-creation literature. Accordingly, we have provided a detailed account of the process of data collection, the research methodology adopted, and the results obtained from this comprehensive review of the value co-creation literature.

#### 2.5.1. Data Collection

This study has retrieved data from the Web of Science (WoS) Core Collection (CC), a comprehensive database that has been used extensively by various researchers for carrying out analysis in multiple domains (Dzikowski, 2018; Apriliyanti and Alon, 2017). The primary reason for choosing WoS database over Scopus is its availability of cleaner data (devoid of duplications) as compared to that from the latter (Strozzi et al., 2017). Though coverage of Scopus is nearly 60% larger than that of WoS (Zhao and Strotmann, 2015), yet many of the paper in Scopus are not uniquely identified as that of WoS (Strozzi et al., 2017). This makes WoS much cleaner than that of Scopus, thus reducing the probability of duplicity of articles retrieved from WoS database. The author(s), hence, searched for articles that would be relevant

for this study from WoS database with the following keywords: “co-creation”, “cocreation”, “value cocreation”, “value co-creation”, “coproduction”, “co-production”. The study restricts its analysis only to the discipline of ‘business’ and ‘management’ given our specific focus of investigation on value co-creation pertaining to these two disciplines only. The publication dates of the articles range from 2004 to July 2018. The rationale for selecting 2004 as the starting year for this study lies in the fact that co-creation became a popular terminology in the field of management and business only after the publication of the following two seminal articles: Vargo and Lusch (2004) on “Service-Dominant Logic” and Prahalad and Ramaswamy (2004) on “Co-creating unique value with consumers”. Prior to that, though co-creation was a popularly used term in various other disciplines such as public services, medicines etc., the discipline of business and management witnessed a proliferation of research investigations and applications on co-creation since the year 2004. Additionally, articles and reviews published only in journals have been considered for this study; conference papers and book chapters have been excluded from this study since content in these materials are usually cited from journals (Ngai, 2005; Goyal et al., 2013). Moreover, journal publications, in comparison to conferences and book chapters, generally undergo a much more rigorous review process which, therefore, improves the credibility of published research in journals. Finally, the articles published only in English language have been considered for this study, given the authors’ competence in the language (see Table 2.2).

**Table 2.2: Search syntax on Web of Science**

| Data Source | Search syntax |
|---|---|
| Search syntax on Web of Science (Search performed on www.webofscience.com) | ((TITLE-( "cocreation") OR ("value cocreation") OR ("value co-creation") OR ("production") OR ("co-production")) AND (TIMESPAN- (Custom year range-2004 to 2018)) AND (CATEGORIES- ("BUSINESS") OR ("MANAGEMENT")) AND (DOCUMENT TYPES- ("ARTICLE")) AND (LANGUAGE- "ENGLISH")) |

Source: Authors’ compilation

A search query with the above-mentioned boundary conditions retrieved a total of 466 articles. The query searched for articles with the mentioned keywords in the following sections of the journals: abstract, title and keywords. However, on thorough reading of the abstracts, title and keywords of the retrieved articles, we found that some of the articles were not actually about co-creation; even though the term was mentioned in the abstracts and keywords. For instance, in the abstract of the seminal paper by Vargo and Lusch (2004) titled, "Evolving to a New Dominant Logic for Marketing", the term 'cocreation' has been mentioned. But the paper itself is not about co-creation. Thus, such papers have been excluded from our study. A total of eight such instances have been found in the set of 466 papers, and those papers have been excluded from this study. Finally, 458 papers have been selected and a rigorous methodology has been carried out to address the proposed research questions of this study.

### 2.5.2. Research Methodology

A rigorous review has been carried out for this study with an aim to address all the pre-defined research questions. This review manifests interconnections among the articles in respect of the frequency with which an article is cited and co-cited by other articles (Apriliyanti and Alon, 2017; Punjani et al., 2019). The following techniques of have been adopted for this study: *citation analysis, co-citation analysis and co-occurrence of author keywords.* The methodological guidelines for this study are in accordance to the studies of Dzikowski (2018), Martinez-Lopez et al., (2018) and Apriliyanti and Alon (2017).

The first technique used in this study is *citation analysis.* This technique analyses different aspects of a research field based on selected units such as productivity in terms of publications per year; eminent authors; influential journals, institutions, and countries (Leeuwen et al., 2003; Dzikowski, 2018). In this analysis, citations are considered to be the measure of influence (Van Raan, 2003). The next technique adopted in this study is *Co-citation analysis* that is used to account for the linking structures of cited works (Das et al., 2018). Two

articles are considered to be strongly co-cited if they share a large number of similarly cited references (Small, 1973). In essence, co-citation analysis represents the frequency with which two articles are cited together (Marshakova, 1973; Castro and Frazzon, 2017). Co-citation analysis further allows mapping out of key research streams through identification of key clusters pertaining to the given concept. A content analysis of these developed clusters then helps in identifying the major research streams. The final technique adopted for this study is *Co-occurrence of author keywords.* This technique measures the frequently occurring keywords that appear below the abstract, and also those keywords that appear in the same articles (Su and Lee, 2010; Martinez-Lopez et al., 2018; Rocha et al., 2019).

To carry out these aforementioned techniques, two software packages have been used. For the execution of citation analysis, the chosen tool is HistCite. This software enables visualization of the citation structure of articles and also their historical records (Tho et al., 2017). For carrying out the techniques of co-citation analysis and co-occurrence of author keywords, the visualization tool VOSviewer has been used. VOSviewer is especially used for displaying maps that are easily interpretable (Eck and Waltman, 2010). Once the key clusters have been identified through *co-citation analysis*, a content analysis has been conducted to identify the key themes derived from those clusters. Both the tools have been extensively utilized by various researchers and thus provide substantial reliability for a thorough and rigorous analysis (Dzikowski, 2018; Martinez-Lopez et al., 2018).

### 2.5.3. Results

This section provides with the results of the analysis through the explained techniques. The first part of the section would present the results of the *citation analysis;* subsequently being followed by *co-citation analysis and co-occurrence of author keywords* respectively.

#### 2.5.3.1. Citation Analysis

This analysis would portray the following results: general statistics pertaining to the study; number of publications per year; most cited documents; most influential authors; most influential journals; most influential institutions and most influential countries.

***General results-***

This section takes into consideration a total of 458 articles from 156 journals, written by 1037 authors affiliated to 571 institutions from 57 countries, with a total number of references cited at 19,678 (see Table 2.3). These general results provide us with a snapshot of all the articles being reviewed for our review of the field of value co-creation.

**Table 2.3: Summary of General Results**

| Criteria | Quantity |
|---|---|
| Articles | 458 |
| Journals | 156 |
| Authors | 1037 |
| Institutions | 571 |
| Countries | 57 |
| Cited References | 19678 |

***Number of publications per year-***

The trend in the number of publications on value co-creation starting from 2004 to July-2018 shows two interesting stages. Firstly, *from the year 2004 to 2009*: these were the early days for the concept of co-creation in the business context. Understandably, the publications in those years were minimal in numbers. But for the *period 2010-2018*, there has been an almost consistent and healthy growth in the number of publications. The year 2016 witnessed the highest number of publications so far, with a slight dip in the year 2017 (see Fig 2.3). But looking at the number of publications already received so far as on July 2018, it can be well conjectured that 2018 would receive even more publications as compared to its previous years.

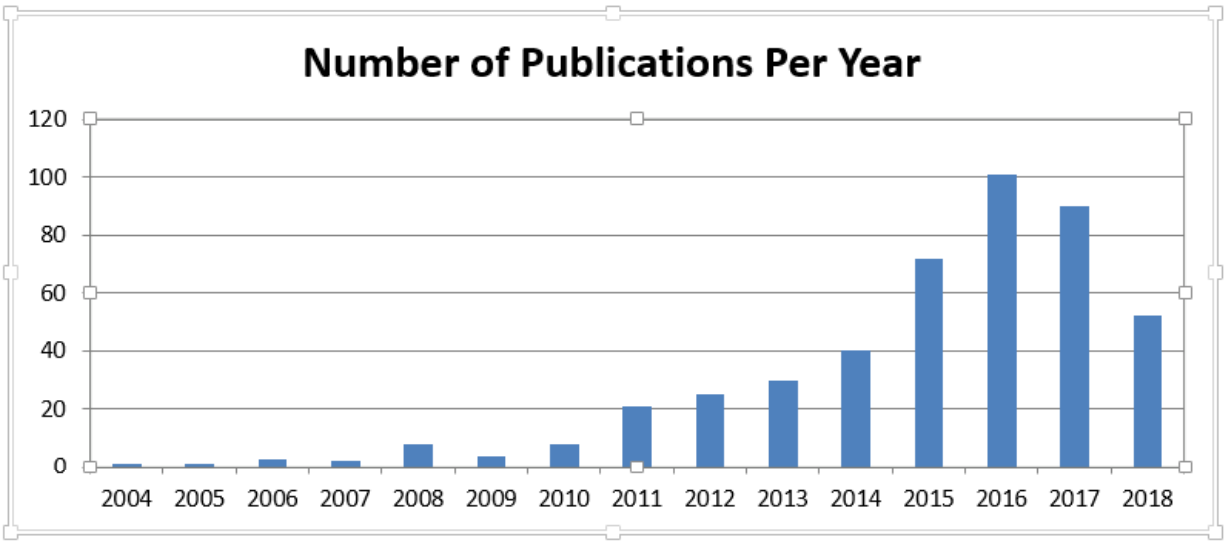


**Figure 2.3: Number of Publications per year**

***Most cited documents-***

This section shows the top twenty-four most cited documents that have citations of at least 100 (see Table 2.4). The documents are ranked in descending order of the number of citations received. Only 5.24% of the articles have received 100 citations or more, with the article "Managing the co-creation of value" (Payne et al., 2008) being the most cited article with 936 citations.

In this article, the authors develop a comprehensive framework for understanding value co-creation and then explore this concept from the context of Service-Dominant (S-D) logic. The next most cited article is "Critical service logic: making sense of value creation and co-creation" (Gronroos and Voima, 2013). In this article, the authors conceptualize value co-creation by analytically defining the role of the involved consumers and the firm. Since both of these articles essentially deal with conceptualization and definition of the concept of value co-creation, hence they have received a very high number of citations in the value co-creation literature.

**Table 2.4: Most cited Documents in the Value Co-creation Literature**

| Rank | Document | Citations |
|---|---|---|
| 1 | Payne et al., 2008 | 936 |
| 2 | Gronroos and Voima (2013) | 418 |
| 3 | Edvardsson et al., 2011 | 342 |
| 4 | Gronroos (2011) | 338 |
| 5 | Hoyer et al., 2010 | 316 |
| 6 | Etgar (2008) | 293 |
| 7 | Auh et al., 2007 | 269 |
| 8 | Nambisan and Baron (2009) | 210 |
| 9 | McColl-Kennedy et al., 2012 | 208 |
| 10 | Zwass (2010) | 197 |
| 11 | Downing (2005) | 169 |
| 12 | Yi and Gong (2013) | 167 |
| 13 | Aarikka-Stenroos and Jaakkola, 2012 | 165 |
| 14 | Echeverri and Skalen, 2011 | 164 |
| 15 | Fuller, 2010 | 158 |
| 16 | Lee et al., 2012 | 152 |
| 17 | Kristensson et al., 2008 | 151 |
| 18 | Pohl et al., 2010 | 151 |
| 19 | Jaakkola and Alexander (2014) | 151 |
| 20 | Fuller et al. (2009) | 142 |
| 21 | Brandsen and Pestoff (2006) | 136 |
| 22 | Ple and Caceres (2010) | 114 |
| 23 | Grissemann and Stokburger-Sauer (2012) | 106 |
| 24 | Pestoff (2006) | 100 |

***Most influential authors-***

This section shows the most influential authors in the area of value co-creation. The influence of the authors is measured by the number of articles they have published pertaining to co-creation vis-à-vis the citations received by each of them. In term of the total number of citations received, *Kaj Erik Storbacka* and *Pennie Frow* are the most influential authors with 1024 and 1005 citations respectively (see Table 2.5).

**Table 2.5: Most influential Authors (in terms of total citations received)**

| Rank | Author | Documents | Citations |
|---|---|---|---|
| 1 | Storbacka K | 3 | 1024 |
| 2 | Frow P | 3 | 1005 |
| 3 | Payne AF | 1 | 936 |
| 4 | Gronroos C | 3 | 779 |
| 5 | Edvardsson B | 6 | 451 |
| 6 | Fuller J | 5 | 440 |
| 7 | Jaakkola E | 4 | 434 |
| 8 | Voima P | 1 | 418 |
| 9 | Gruber T | 3 | 403 |
| 10 | Tronvoll B | 3 | 361 |

Again, on a measure of average citations per document, *Adrian F. Payne* and *Kaj Erik Storbacka* are the most influential authors with 934 and 341.3 citations per document respectively (see Table 2.6).

**Table 2.6: Most influential Authors (in terms of average citation per document)**

| Rank | Author | Documents | Citations | Average citation per document |
|---|---|---|---|---|
| 1 | Payne AF | 1 | 936 | 936 |
| 2 | Storbacka K | 3 | 1024 | 341.3 |
| 3 | Frow P | 3 | 1005 | 335.0 |
| 4 | Chandy R | 1 | 316 | 316.0 |
| 5 | Dorotic M | 1 | 316 | 316.0 |
| 6 | Hoyer WD | 1 | 316 | 316.0 |
| 7 | Krafft M | 1 | 316 | 316.0 |
| 8 | Singh SS | 1 | 316 | 316.0 |
| 9 | Etgar M | 1 | 293 | 293.0 |
| 10 | Auh S | 1 | 269 | 269.0 |

***Most influential journals***

This section shows the most influential journals that have shaped the narrative around the concept of value co-creation. On a measure of the highest number of articles published so

far, *Journal of Business Research* ranks the highest with number of published articles at 30; followed by *Industrial Marketing Management* with number of published articles at 25. In terms of the total number of citations received, *Journal of the Academy of Marketing Science* proves to be the most influential journal with the number of total citations at 2142, followed by the *Journal of Service Research* and *Marketing Theory* with a total citation count of 791 each (see Table 2.7).

On the parameter of average citations received per article, *Journal of the Academy of Marketing Science* once again proves to be the most influential journal with 267.8 average citations per article; followed by the *Journal of Retailing* with average citations per article at 269 (see Table 2.8).

**Table 2.7: Most influential Journals (in terms of total citations received)**

| Rank | Journal | Articles | Citations | ABDC Journal Ranking |
|---|---|---|---|---|
| 1 | Journal of the Academy of Marketing Science | 8 | 2142 | A* |
| 2 | Journal of Service Research | 12 | 791 | A* |
| 3 | Marketing Theory | 13 | 791 | A |
| 4 | Public Management Review | 20 | 590 | A |
| 5 | Industrial Marketing Management | 25 | 568 | A* |
| 6 | Journal of Business Research | 30 | 521 | A |
| 7 | Journal of Service Management | 18 | 441 | A |
| 8 | MIS Quarterly | 4 | 303 | A* |
| 9 | Journal of Retailing | 1 | 269 | A* |
| 10 | Journal of Product Innovation Management | 2 | 263 | A* |

**Table 2.8: Most influential Journals (in terms of average citation per document)**

| Rank | Journal | Articles | Citations | Average citation per article | ABDC Journal Ranking |
|---|---|---|---|---|---|
| 1 | Journal of the Academy of Marketing Science | 8 | 2142 | 267.8 | A* |
| 2 | Journal of Retailing | 1 | 269 | 269.0 | A* |
| 3 | International Journal of Service Industry Management | 1 | 151 | 151.0 | NA |
| 4 | Journal of Product Innovation Management | 2 | 263 | 131.5 | A* |
| 5 | Entrepreneurship Theory and Practice | 2 | 180 | 90.0 | NA |
| 6 | California Management Review | 3 | 253 | 84.3 | A |
| 7 | Journal of Management Information Systems | 2 | 168 | 84.0 | A* |
| 8 | MIS Quarterly | 4 | 303 | 75.8 | A* |
| 9 | Science and Public Policy | 3 | 214 | 71.3 | C |
| 10 | Journal of Service Research | 12 | 791 | 65.9 | A* |

***Most influential institutions***

This section illustrates the most influential institutions that have contributed to the research on value co-creation. The organizations are mapped with respect to the authors who have been published and cited while their association with these organizations. On a measure of the total number of articles published, *Karlstad University* and *University of Innsbruck* tops the list. From the parameter of total citations received, once again *Karlstad University* ranks the highest with a total citation count of 1079, followed by the *University of Sydney* with a count of 1036 (see Table 2.9).

**Table 2.9: Most influential Institutions (in terms of total citations received)**

| Rank | Institutions | Country | Documents | Citations |
|---|---|---|---|---|
| 1 | Karlstad University | Sweden | 16 | 1079 |
| 2 | University of Sydney | Australia | 4 | 1036 |
| 3 | University of New South Wales | Australia | 2 | 982 |
| 4 | Nyenrode Business University | Netherlands | 1 | 936 |
| 5 | University of Innsbruck | Austria | 10 | 689 |
| 6 | University of Manchester | United Kingdom | 8 | 479 |
| 7 | University of Turku | Finland | 7 | 437 |
| 8 | Hanken School of Economics | Finland | 8 | 431 |
| 9 | University of Cambridge | United Kingdom | 5 | 404 |
| 10 | Hedmark University College | Norway | 2 | 361 |

On the basis of average citations received per article, *Nyenrode Business University* is the most influential institution with 936 average citations per document, followed by *University of New South Wales* with average citations per document of 491 (see Table 2.10).

**Table 2.10: Most influential Institutions (in terms of average citation per document)**

| Rank | Institutions | Country | Documents | Citations | Average Citation per document |
|---|---|---|---|---|---|
| 1 | Nyenrode Business University | Netherlands | 1 | 936 | 936 |
| 2 | University of New South Wales | Australia | 2 | 982 | 491 |
| 3 | Hanken School of Economics | Finland | 8 | 431 | 53.9 |
| 4 | London Business School and University of Munster | United Kingdom and Germany | 1 | 316 | 316 |
| 5 | College of Management | Israel | 1 | 293 | 293 |
| 6 | Hedmark University College | Norway | 2 | 361 | 180.5 |
| 7 | University of Texas at Austin | USA | 2 | 326 | 163 |
| 8 | University of Houston | USA | 2 | 324 | 162 |
| 9 | MIT | USA | 2 | 300 | 150 |
| 10 | University of Groningen | Netherlands | 3 | 352 | 117.3 |

***Most influential countries***

This section illustrates the most influential countries that have based some of the highly cited works pertaining to the literature on value co-creation. On the measure of total citations received, USA proves to be the most influential country with the citation count at 2823; followed by UK at 2191 (see Table 2.11).

However, on the measure of average citation per document, interestingly, the countries of Bolivia, Nepal and Kenya top the list (see Table 2.12). This is owing to the publication of a highly cited article by three authors belonging to these respective countries. The subsequent influential countries in this list are Israel, Netherlands and Peru with number of average citation per document at 147, 62.5 and 57.5 respectively.

**Table 2.11: Most influential Countries (in terms of total citations received)**

| Rank | Country | Documents | Citations |
|---|---|---|---|
| 1 | USA | 99 | 2823 |
| 2 | UK | 98 | 2191 |
| 3 | Australia | 48 | 1874 |
| 4 | Netherlands | 27 | 1687 |
| 5 | Sweden | 32 | 1555 |
| 6 | Finland | 32 | 1406 |
| 7 | Germany | 21 | 772 |
| 8 | Austria | 18 | 709 |
| 9 | Norway | 17 | 636 |
| 10 | South Korea | 9 | 499 |

**Table 2.12: Most influential Countries (in terms of average citation per document)**

| Rank | Country | Documents | Citations | Average citation per document |
|---|---|---|---|---|
| 1 | Bolivia, Nepal and Kenya | 1 | 151 | 151 |
| 2 | Israel | 2 | 294 | 147 |
| 3 | Netherlands | 27 | 1687 | 62.5 |
| 4 | Peru | 2 | 115 | 57.5 |
| 5 | South Korea | 9 | 499 | 55.4 |
| 6 | Switzerland | 4 | 215 | 53.8 |
| 7 | Sweden | 32 | 1555 | 48.6 |
| 8 | Finland | 32 | 1406 | 43.9 |
| 9 | Austria | 18 | 709 | 39.4 |
| 10 | Australia | 48 | 1874 | 39 |

### 2.5.3.2. Co-citation Analysis

This analysis would portray the following results: *most frequently-cited first authors* and *most frequently-cited journals.*

***Most frequently-cited authors***

This section shows the results of author co-citation analysis with cited authors as the basic unit of analysis (Dzikowski, 2018). From the analysis of the cited references of the 458 articles, a total of 13,262 authors have been identified. For the purpose of comprehensive analysis, this set was narrowed down to authors with at least 40 citations resulting in a total of 64 articles. A co-citation analysis was performed that obtained the names of the most frequently cited authors as indicated by the enlarged nodes (see Fig 2.4). The most frequently cited authors as evident from the analysis are Gronroos, C (453 citations) and Prahalad CK (372 citations); further followed by Lusch RF (204 citations), Payne A (150 citations), Edvardsson B (139 citations) and Vargo S (123 citations). This list of frequently-cited authors indicate the enormous contributions of these authors to the value co-creation literature.

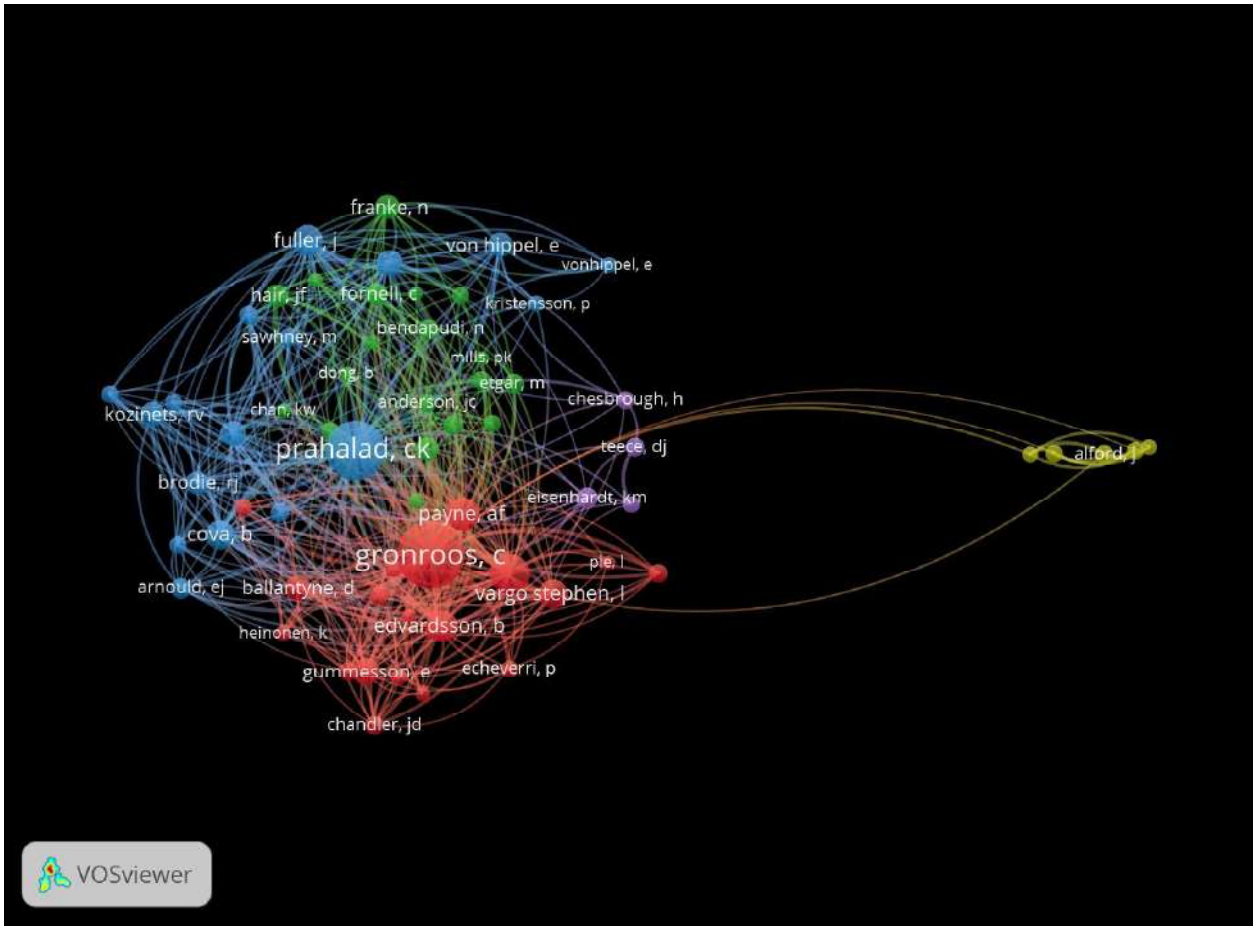


**Figure 2.4: Network of co-cited Authors**

***Most frequently-cited journals***

This section shows the results of journal co-citation analysis with cited journals as the basic unit of analysis. Out of the 458 articles, a sample of 7374 distinctively cited journals has been identified. This set was narrowed down to include the journals with at least 100 citations resulting in a total of 42 items divided into 4 clusters (see Table 2.13). A co-citation analysis was performed to find out the most frequently cited journals.

**Table 2.13: Most frequently-cited Journals**

| Cluster 1 (20 items)- Marketing | Cluster 2 (14 items)- General Management | Cluster 3 (4 items)- Quantitative Research in Marketing | Cluster 4 (4 items)- Public Policy and Psychology |
|---|---|---|---|
| Journal of Marketing | Academy of Management Journal | International Journal of Research in Marketing | Journal of Applied Psychology |
| European Journal of Marketing | Harvard Business Review | Journal of Consumer Research | Public Administration Review |
| Journal of Marketing Management | Journal of Management | Journal of Interactive Marketing | Public Management Review |
| Industrial Marketing Management | California Management Review | Journal of Marketing Research | Journal of Personality and Social Psychology |
| Journal of the Academy of Marketing Science | Academy of Management Review | | |
| International Journal of Service Industry Management | Administrative Science Quarterly | | |
| Journal of Business and Industrial Marketing | Journal of Product Innovation Management | | |
| European Management Journal | Management Science | | |
| Journal of Business Research | MIS Quarterly | | |
| European Business Review | MIT Sloan Management Review | | |
| Journal of Retailing | Organization Science | | |
| Journal of Service Management | Organization Studies | | |
| Journal of Service Marketing | Research Policy | | |
| Journal of Service Research | Strategic Management Journal | | |
| Managing Service Quality | | | |
| Management Decision | | | |
| Marketing Theory | | | |
| Service Industries Journal | | | |
| Tourism Management | | | |

The enlarged nodes (see Fig 2.5) indicate the names of the most frequently cited journals. The most frequently cited journals, as evident from this analysis, are *Journal of the*

*Academy of Marketing Sciences, Journal of Marketing, Journal of Business Research, Journal of Service Research* and *Industrial Marketing Management.* This list of frequently cited journals indicate the importance that these journals hold for researchers in the value co-creation literature.

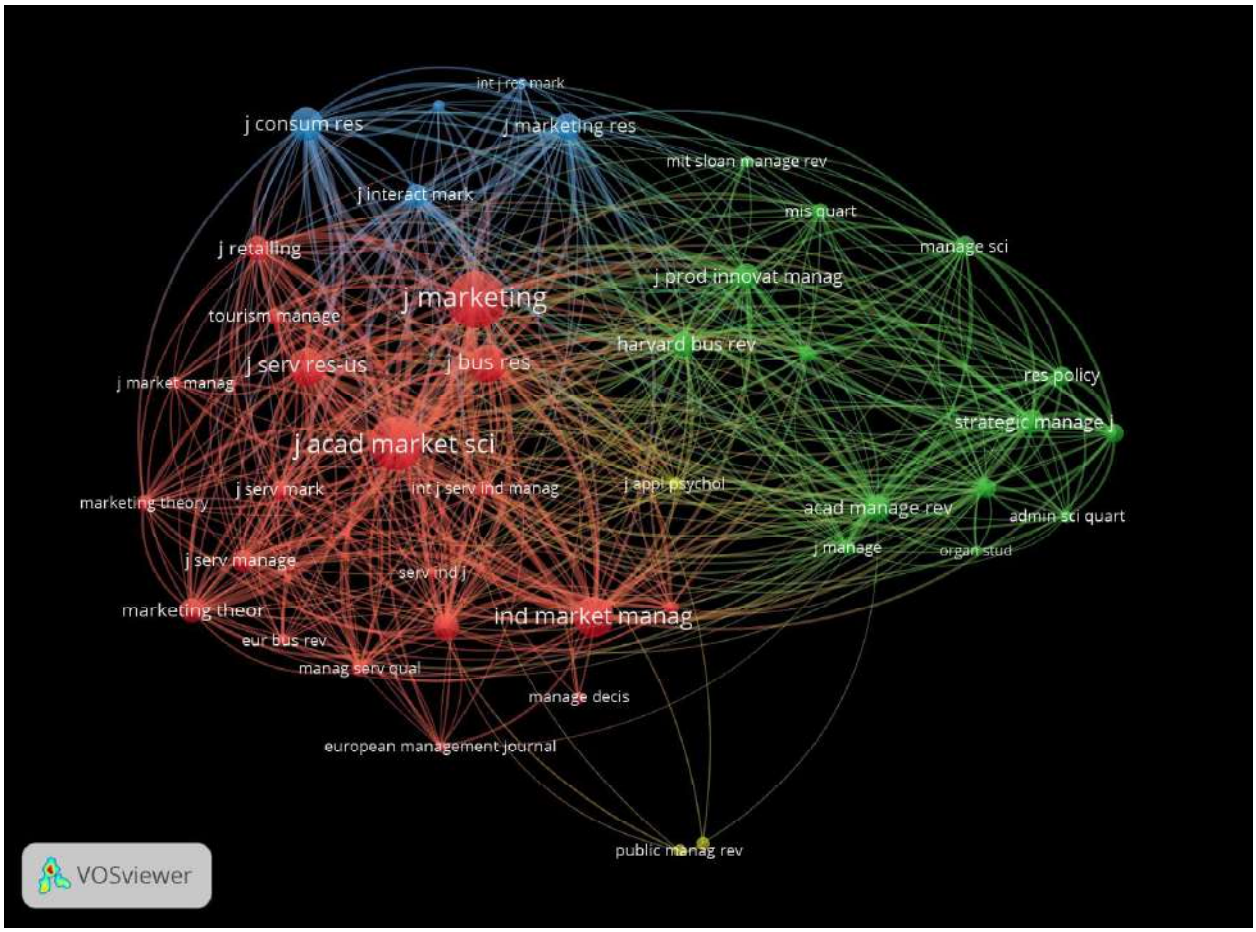


**Figure 2.5: Network of co-cited Journals**

The first cluster with a set of 20 items essentially pertains to the *Marketing* discipline. Some of the major journals in this cluster include *Journal of Marketing, European Journal of Marketing, Journal of Marketing Management, Industrial Marketing Management, Journal of the Academy of Marketing Science* among various others. This cluster signifies the prominence of the concept of value co-creation in the marketing discipline.

The second cluster with a set of 14 items basically pertains to the *General Management* discipline. Some of the notable journals in this cluster include *Academy of Management Journal, Harvard Business Review, Journal of Management, California Management Review* among various others. This cluster signifies the increasing exploration of the concept of value co-creation in the general management literature.

The third cluster with a set of 4 items pertains to the domain of *Quantitative Research in Marketing*. The four journals of this cluster that include *International Journal of Research in Marketing, Journal of Consumer Research, Journal of Interactive Marketing* and *Journal of Marketing Research* predominantly publish papers involving quantitative research related to the domain of marketing. Since the introduction of the concept of value co-creation in the academic discipline of business and management, research on this topic has usually adopted qualitative research methodologies for investigation. This cluster points to the growing importance and reliance on quantitative methodologies in future research on value co-creation.

Finally, the fourth cluster with a set of 4 items pertains to the field of *Public Policy* and *Psychology* combined. Though both these disciplines are distinctively separate in their approach, this cluster stresses the growing trend of research on co-creation in both of these disciplines.

**2.5.3.3. Co-occurrence of author keywords**

This analysis explores the most frequently used keywords found just below the abstract and is useful for identifying the key topics of a given paper. Figure 2.6 shows the map depicting the co-occurrence of author keywords. The results indicate that terms such as '*co-creation', 'value co-creation', 'service-dominant logic', 'co-production', 'social media', 'service innovation', 'service logic'* are some of the most prominent keywords in the extant literature on co-creation over the past 14 years. Some other promising keywords that have the potential to shape the future research on co-creation include '*customer engagement', 'customer*

*satisfaction', 'public services', 'co-destruction, 'service recovery' and 'service design'* among various others. These keywords provide with valuable insights into how the literature on value co-creation has heavily leaned upon these concepts (keywords) over the years.

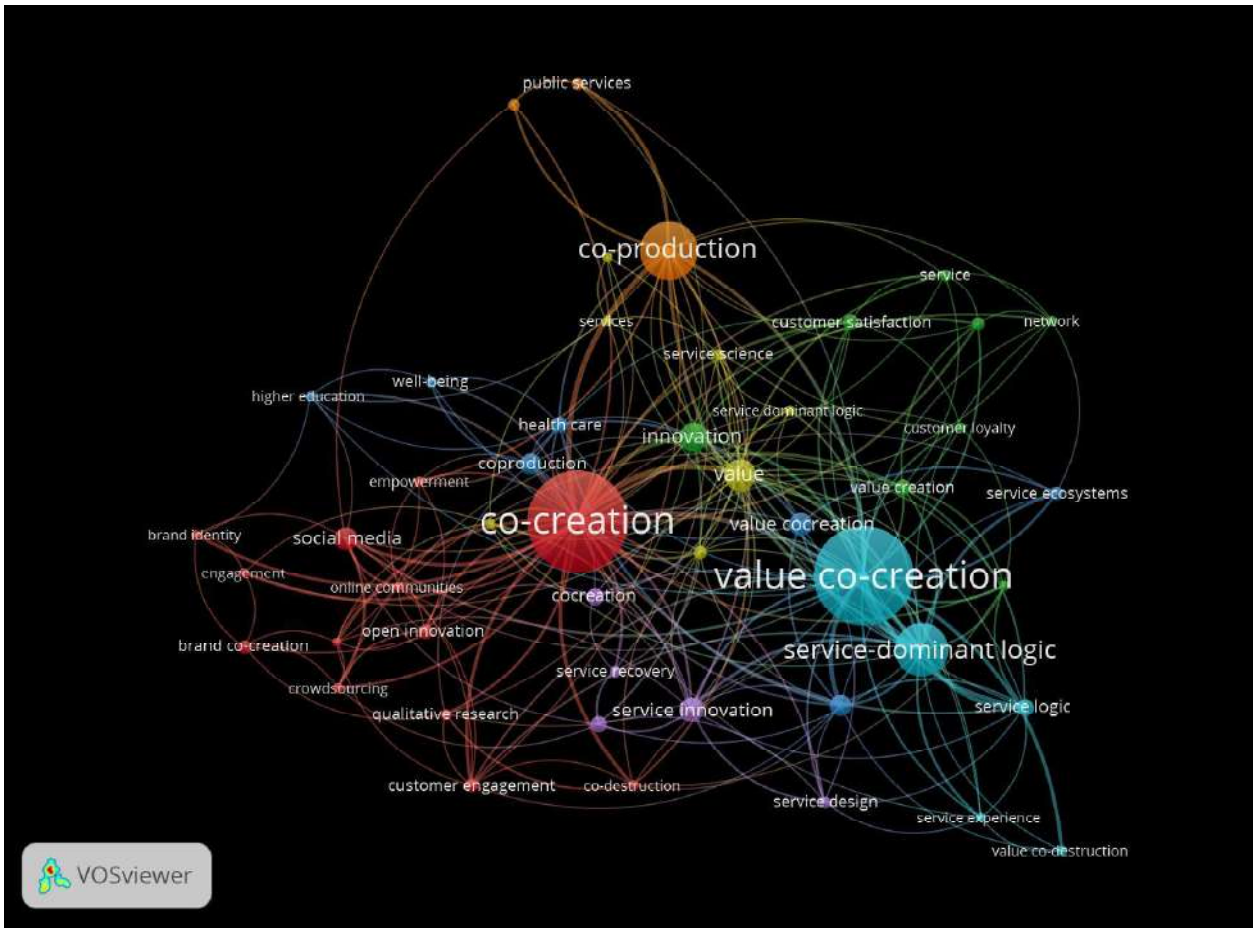


**Figure 2.6: Co-occurrence of author keywords**

### 2.5.3.4 Developing Trends in the Value Co-Creation Literature

By synthesising the value co-creation literature, we have identified some of the key developing trends in the value co-creation literature, which are briefly elaborated in this section.

***Industry-specific value co-creation studies***

Research on value co-creation has progressed from the formulation and conceptualisation of the concept to addressing more industry-specific issues that would facilitate organisations to use the concept as a resource-integration process. The industry-focus studies are more visible in the retail and tourism industries (Alexander et al. 2009; Gebaur et al. 2010; Grissemann and Stokburger, 2012; Kang, 2014). These industries mainly viewed value co-creation as a process to enhance customer engagement in their firms and in their operations. As customers participate in a co-creation process, they generate higher value for themselves, which subsequently leads to their higher levels of engagement with the firm (Jaakkola and Alexander, 2014; Oyner et al., 2016). Accordingly, with firms harvesting positive engagement levels from customers, value co-creation became an attractive mechanism for many other firms in these industries. Gradually, with more experience in and insights into value co-creation strategies, firms operating in social media, telecommunication, and the e-services space have also adopted value co-creation to provide favourable experiences to their customers and engage them in their operations (Kao et al. 2016; Rosenthal and Brito, 2017; Agrawal and Rahman, 2017). Although industry-specific value co-creation studies are on the rise, a cross-industry comparison of how value co-creation enhances customer behavioural outcomes, such as customer loyalty and commitment, has not yet been documented in the value co-creation literature. Thus, future researchers can attempt such a cross-industry comparison.

***Value co-creation in the B2C context***

The majority of value co-creation research has been carried out in the business-to-consumer (B2C) context, where building customer relationships (Maklan et al. 2008) and enhancing customer engagement (Roser et al. 2013) were the focal points of the value co-creation process. The application and implementation of both these concepts greatly differ between the traditional context and value co-creation context (Prahalad and Ramaswamy,

2004). In the traditional context, a market is considered an aggregation of customers, and customer relationship management and engagement are recognised as tools or strategies for attracting and managing customers (Prahalad and Ramaswamy, 2004). In contrast, in the value co-creation context, customers are considered informed, empowered, active, and connected individuals (Ramaswamy, 2008). They communicate among themselves and are no longer dependent solely on communication from firms (Gustafsson and Kristensson, 2012). This indicates in the value co-creation context, customers are much more involved, engaged in, and informed of the value co-creation process, and so cannot be targeted and managed like in traditional contexts. In the value co-creation context, customers should be treated as knowledgeable, and so firms should move from a product-centred approach to building pleasant customer experiences (Vargo and Lusch, 2008). This requires a convergence of production and consumption, which will enable closer interactions between the company and customers and provide pleasant experiences to customers (Payne et al. 2008; Lee et al. 2012). Thus, future researchers should explore ways and means of enabling the convergence of coproduction and consumption through the process of value co-creation in order to ensure superior experience for the customers.

***Value co-creation in the B2B context***

The studies carried out on value co-creation in the B2B context mainly focus on improving innovation and enhancing supply chain capabilities (Hoecht and Trott, 2006; Roser et al. 2013). The value co-creation approach enables a more trust-based and risk-sharing collaboration between two or more autonomous firms that allows them to generate innovative ideas through sharing their experience and knowledge (Swink, 2006; Kuusisto and Riepula, 2011). In addition to creating innovative ideas, value co-creation is applied for enhancing supply chain capabilities. Instead of outsourcing the elements of a supply chain, companies tend to adopt value co-creation to form partnerships among firms to enhance performance or

productivity at certain stages of the supply chain (Roser et al. 2013; Schwetschke and Durugbo, 2018). Accordingly, co-creation has emerged as an alternative to outsourcing for enhancing supply-chain capabilities.

However, creating an efficient co-creation environment in the B2B context involves several challenges, such as incurring the cost of developing technical infrastructure (Schwetschke and Durugbo, 2018). Thus, before forming a co-creation partnership, it is important for companies to thoroughly assess the costs and benefits of a proposed co-creation initiative. Only if the benefits exceed the costs significantly will the co-creation initiative prove to be successful for companies. However, a comprehensive study has not yet been documented in the co-creation literature that can help companies make such a cost-benefit assessment of their co-creation strategy. Future researchers can develop effective frameworks and models for such cost-benefit assessments. Also related to this, the co-creation literature has not provided any mechanism or framework for assessing the extent of synergy among the partnering companies. Before partnering in a co-creation initiative, it is important for companies to assess to what extent a synergy exists between the companies to successfully execute a proposed co-creation initiative. Hence, further research is required to explore the parameters and metrics through which B2B companies can assess synergy formation among themselves before forming a co-creation partnership.

***Value co-creation in the public services sector***

Proper ideation and efficient implementation of public services are quintessential to the social and economic development of a society. For a successful public service initiative, a relational approach needs to be undertaken engaging all the concerned stakeholders (Osborne et al., 2014). Yet, delivery of public services, for long, has been limited to a transactional affair with citizens considered traditionally as passive recipients of the rendered services (Lovelock et al., 1987). However, over the years there has been a growing realization about the

participation of citizens as a necessary condition for effective innovation in the public services sector (Van de Ven et al., 2008). This has led to an emphasis on relationship dynamics among the involved stakeholders that eventually have manifested the application of the concept of "value co-creation" to a pertinent use in the realm of public services.

Flynn (2007) describes the public services sector as parts of the economy that are controlled or contracted by the state and are regulated and subsidized in the interest of the public. In other words, public services can be explained as those services that are governed by the State for the welfare of its citizens through various direct or intermediary channels. In consideration of this description, several activities such as healthcare (Hardyman et al., 2015), education (Luis Bernal, 2005), garbage disposal (Benari, 1990), water supply and sanitation (Davis, 2004) among others fall under the purview of public services. Public services, thus, require a sustainable model that would not focus on "bottom line" but rather follow the higher-level societal goals (Guthrie et al., 2010; Osborne and Ball, 2010; Osborne et al., 2014). For the development of such a sustainable business model, it is therefore important to emancipate the positioning of public services from the purview of goods-dominant logic (G-D logic) and subsequently view it from the paradigm of service-dominant logic (S-D logic) (Gebauer et al., 2010; Hensher, 2003; Lovelock et al., 1987; Vargo and Lusch, 2004, 2008). The S-D logic, in essence, posits that the customer is "cocreator of value" (Vargo and Lusch, 2008), and thus in case of public services, value cannot be created unless citizen participation is active and engaged. Efficient delivery of public services hence stands to embrace the S-D logic derived paradigm of "value co-creation" for a more effective and sustainable growth of this sector.

Value co-creation is an interactive process (Grönroos and Voima, 2013; Xie et al., 2016) where all the involved stakeholders aim to create value for each other from a phenomenological perspective (Vargo and Lusch, 2008). For sustainable and efficient public services systems, there should be enduring relationships between the stakeholders (Bovaird,

2006; Osborne et al., 2015). The concerned stakeholders need to have trust in each other (Davis and Walker, 1997; Kale et al., 2000; Osborne, 2006), and more importantly from a public services context, there should be sufficient transparency and commitment in the whole process of interaction (Gundlach et al., 1995). Value co-creation in the business world has proven to be an effective strategy for brand building, improving service quality and leveraging improved profit margins. However, in the public services sector, the prominent aim of this strategy is to generate overall well-being for the society, rather than earning economic profits. Promoters of any public service scheme have to ensure that the target consumers are better-off due to the provided benefits of the service. Another important aspect of the process of value co-creation lies in the creation of a continuous feedback system that would drive the process of resource integration through a continuous loop (Chen et al., 2017; Gummesson and Mele, 2010). This ensures that the provided service is monitored and improved upon with gradual progress across various stages of implementation of a public service scheme. Thus, in light of the above discussion, we attempt to provide a formal definition for value co-creation in the context of public services sector. Essentially, value co-creation in the public services sector can be defined as: *An interactive process based upon the principle of relationship, trust, commitment and transparency where multiple stakeholders come together with a purpose of "mutual value creation" and with an intent to generate overall social well-being, instead of economic profits* (Saha and Goyal, 2020).

### 2.6. Public Services Sector of India: An Overview

The public services sector encompasses the services adjudicated by the State to all the members under its jurisdiction (Bovaird and Loffler, 2013). Proper functioning of this sector is extremely vital for overall welfare of the citizens of a society/country. Especially for developing nations such as India, where the population runs in billions and majority of the populace are deemed to be economically challenged, the efficient functioning of the public

services sector becomes even more paramount. Typical examples of services that fall within the purview of the public services sector around the world are justice, sanitation and hygiene, education, social security etc.

From an Indian perspective, the major thrust areas where the Government spending takes place in India are Defence, Education, Healthcare, Social Security (Pension, Provident Fund, Insurance etc.) and Infrastructure (Railways, Roadways, Ports, Airports, urban and rural infrastructure, etc.). Around 1.58% of the GDP has been earmarked for Defence alone in the Union Budget of India 2018-19. This amount accounts for 12.10% of the total Central Government expenditure for the year 2018-19. For education, the Central Government expenditure on education is around 2.6% of GDP with an estimated total Rs 79,685.95 crore. In healthcare, India spends around 1.4% of GDP at an estimated amount of Rs 2.25 lakh crore in 2017-18 (Union Budget 2017-18). For the major social security schemes, the Union Budget 2017-18 outlays stand at Rs 11, 425 crores. These schemes primarily involves pension, insurance and provident fund. Finally, as part of the public infrastructure, the Government expenditure is pegged at Rs 5.97 lakh crore for 2018-19, out of which expenditure for the transportation sector that includes rail, roads and shipping is at Rs 1.34 lakh crore. This shows the growing focus on the public service sector of India in the recent years and this is expected to even rise higher in the upcoming years.

However, the Government spending on water, hygiene & sanitation still remains substantially low in India. Though the Government has taken important steps towards improvement of the water, hygiene, and sanitation condition of the country, yet the implementation of these policy initiatives have been serving as a bottleneck for the country's public services sector. One of the primary reasons for this poor implementation of public service initiatives in India can be attributed to the lack of engaged involvement from the citizenry (Blair, 2018). Though the policies framed by the Government are deemed to be quite

robust on paper, yet without the active participation and involvement of the citizenry, these policy initiatives have been facing substantial roadblocks in terms of effective implementation. In that regard, the process of value co-creation can prove to be game-changing strategy for India in terms of improving the implementation of the public services policy initiatives in the country (Saha and Goyal, 2020). Through the process of value co-creation, implementation of public service initiatives in India can be enhanced to a notable extent, and thus more stakeholder value can be uncovered. This study is an attempt in that direction to provide specific insights about how value co-creation can be implemented in the public services sector of India in order to improve the implementation of various public service initiatives in the country.

### 2.7. Research Gaps

As illustrated above, based on our review of the value co-creation literature, four key developing trends of value co-creation in the extant literature have been identified. Of these four developing trends, research in the area of value co-creation in the public services sector is still at its nascent stage (Saha and Goyal, 2016; Osborne et al., 2016). It is worth mentioning that the process of value co-creation has already been widely explored for various industry contexts, and also for the B2B and B2C contexts (Saha et al., 2020; Ranjan and Read, 2016). Though there does remain quite a lot of important research questions pertaining to value co-creation that still needs to be investigated in these three mentioned contexts, yet given the dearth of insightful research on investigating value co-creation in the public services sector (particularly in the Indian context), we have, hence, chosen the developing trend of *value co-creation in the public services sector* as our focal area of investigation for this study.

Value co-creation (VCC) in the public services focuses on how public service organizations (PSOs) engage with the citizenry (and other stakeholders) in facilitating, supporting and enabling the creation of collective (group) value for each other (Engen et al.,

2020). In the public services sector, the service providers are concerned mostly about the provision of 'public value', rather than delivery of public goods (Dudau et al., 2019). Public value essentially refers to the solving of collective needs and aspirations of the citizenry (Alford and O'flynn, 2009). The creation of public value forms the central task of the PSOs (Dudau et al., 2019; O'flynn, 2007). However, this task cannot be accomplished unless the citizens fully participate and co-operate with the PSOs in the process of creating value. To this end, VCC serves as a vital strategy for the PSOs in ensuring successful implementation of various public service schemes and initiatives by garnering citizenry's continuous support and co-operation. The most notable aspect of the VCC process is that citizens provide their active participation not only by sharing their skills and expertise, but also by sharing their valuable resources with the PSOs (Hardyman et al., 2015). Given the scarcity of resources prevalent in the public services sector, resource integration from all the involved stakeholders through the process of VCC is a great advantage towards creation of superior public value (Yang, 2016).

However, implementing a successful VCC process in the public services sector is not simple and straight-forward. There are various factors that need to be put in place for ensuring a successful and effective VCC mechanism in the public services sector (Baptista et al., 2019). These factors, known as enablers, are to be present for facilitating successful implementation of various welfare initiatives through the process of VCC in the public services sector. Though Voorberg et al., (2015) and Baptista et al., (2019) have identified few of the enablers of VCC in the public services sector, none of these studies, though, have provided a comprehensive review of these enablers, and have also not analysed and modelled these enablers to provide clear insights regarding their order of priority and also their role in resource optimization during a VCC process in the public services sector. Thus, research on analysing and modelling the enablers of VCC in the extant public administration literature is still lacking. Absence of such evidence-based analysis of these enablers not only hampers the proper implementation of VCC

as an effective strategy, but also puts forth the risk of resource (time, money and efforts)-wastage in the public services sector. Therefore, this lack of research on analysing and modelling the enablers of VCC in the public services sector indicates a notable gap in the literature.

Also, the involvement of the citizenry in a value co-creation process is quite a complex phenomenon in terms of execution. It requires extensive planning on the part of the public service administration and requisite systems need to be put in place. Accordingly, there are specific factors (which hinder the success of a co-creation process) that need to be mitigated before institutionalizing an effective co-creation process in the public services sector. These factors, known as the barriers, need to be identified for enabling successful implementation of various public service schemes and initiatives through the process of value co-creation.

Though public management research has implied various barriers to the successful implementation of value co-creation in the public services sector (Torfing et al., 2019; Baptista et al., 2019; Voorberg et al., 2015), however, no study in the literature has yet analysed and modelled these barriers to provide insights about their priority rankings (in order of importance) and their role in resource optimization during a value co-creation mechanism in the public services sector. That is, research on analysing and modelling the barriers of value co-creation in the public services sector is still lacking. Absence of such evidence-based analysis not only hampers the proper implementation of VCC as an effective strategy, but also risks wastage of valuable resources in the public services sector. Therefore, this lack of research on analysing and modelling the barriers of VCC in the public services sector indicates a formidable gap in the literature.

**Table 2.14: Gaps identified from the extant literature**

| Author(s) | Objective of the study | Methodology/ Approach | Gaps Identified |
|---|---|---|---|
| Osborne (2018) | Genesis of public service logic from public service-dominant logic | Conceptual study | To synthesis a holistic framework for facilitating the understanding of value co-creation in the public services sector |
| Voorberg et al., (2017) | To examine the extent to which co-creation requires changes in the relationship between citizens and public organisations | A case study methodology was adopted | To explore the nexus of state tradition and co-creation capacity in details |
| Farr (2016) | To analyse different processes of co-production and value co-creation within outcome-based contracting (OBC) | Realist synthesis technique using secondary data | To assess governing and managing of public services |
| Torfing et al., (2016) | To explore how value co-creation offers a viable path for the public services sector | Conceptual study | Need for empirical assessment of the drivers and barriers of value co-creation in the public services sector |
| Voorberg et al., (2015) | To conduct a systematic review of co-creation and co-production with citizens in public innovation | Review of Literature | a) Address the role of citizens in the process of value co-creation in the public services sector<br><br>b) To examine value co-creation in sectors of public services other than the healthcare and education sector |
| Bharti et al., (2014) | To explore the drivers of customer participation for value co-creation among bottom of the pyramid (BOP) customers | Qualitative study using in-depth interviews | To develop a model for the enablers of value co-creation and prioritize them |
| Voorberg et al., (2014) | To examine the outcomes of the process of value co-creation | Comparative (qualitative) case study | Need for more empirical studies on value co-creation in the public services sector |
| Alves (2013) | To assess how co-creation within a Service-Dominant (S-D) logic may contribute to innovation in the public services sector | Conceptual study | Need for more empirical studies on value co-creation in the public services sector |

In addition, several studies in the past have attempted to conceptualize this concept of value co-creation in the public services context (Alves, 2013; Osborne et al., 2016; Torfing et al., 2016). These studies have explored value co-creation in public services through different conceptual as well as empirical measures.

**Table 2.15: Research Gaps, Research Questions and Objectives of the study**

| Research gaps | Research questions | Objectives |
|---|---|---|
| The extant literature does not sufficiently identify the key enablers and barriers of value co-creation in the public services sector of India | What are the key enablers and barriers of value co-creation in the public services sector of India? | To identify the enablers and barriers of co-creation in the public services sector in India. |
| There is limited research on modelling the enablers of value co-creation in the public services sector in terms of their hierarchical importance | How are these enablers positioned in terms of their hierarchical importance? | To develop and validate a hierarchical model for the enablers of co-creation in the public services sector. |
| There is dearth of research on modelling the barriers of value co-creation in the public services sector in terms of their hierarchical importance | How are these barriers positioned in terms of their hierarchical importance? | To develop and validate a hierarchical model for the barriers of co-creation in the public services sector. |
| There is a lack of research on modelling the enablers of value co-creation in the public services sector in terms of their cause-and-effect relationships | What are the cause-and-effect relationships among the respective groups of the enablers? | To assess the enablers into cause-and-effect groups for the implementation of co-creation in the public services sector. |
| There is limited research on modelling the barriers of value co-creation in the public services sector in terms of their cause-and-effect relationships | What are the cause-and-effect relationships among the respective groups of the barriers? | To assess the barriers into cause-and-effect groups for the implementation of co-creation in the public services sector. |
| The extant literature does not provide sufficient insights on how value co-creation as a strategy can be implemented to drive the success of policy initiatives in the public services sector | How can value co-creation as a strategy be implemented in the public services sector to drive the success of policy initiatives in this sector? | To develop a framework for value co-creation that would drive the success of policy initiatives in the public services sector. |

However, to the best of our knowledge, there has not been any study yet that provides with a comprehensive framework for value co-creation in the public services sector from a policy implementation perspective, more specifically so from an Indian context. This provides with a good rationale for examining how value co-creation can be implemented to drive substantial success in the public services sector. Thus, the purpose of this study is to develop a framework for value co-creation that would drive the success of policy initiatives in the public services sector.

Accordingly, based on the analysis of the selected articles on value co-creation in the public services sector for our review, we have tabulated the specific research articles that have helped us in identifying the research gaps and have helped us in framing the research questions and objectives of this study. Table 2.14 presents a summary of those articles along with their stated research gaps. Consequently, Table 2.15 shows the specific research objectives and objectives for this study that have been formulated based on the above stated research objectives derived from the extant literature.

### 2.8. Review of Methodologies

The extant literature suggests the application of various methodologies for assessing the mechanism of value co-creation in the public services sector. On the basis of our review of the value co-creation literature, we have identified few of the most commonly used methodologies that are being used by co-creation researchers in the context of public services sector (see Table 2.16).

Our review suggests that most of the studies on value co-creation in the context of public services sector are conceptual in nature. While empirical studies in the extant literature have also been on the rise over the past decade, most of the empirical studies have, however, adopted a case study-based methodology. Since the dynamics and nature of the public services

sector vary across geographies, case study methodology, therefore, is the most preferred approach in the extant literature on value co-creation within the public services context. Also, qualitative studies with in-depth interviews is also another preferred methodology that researchers have adopted over the years to gauge the effectiveness and impact of the value co-creation process in the public services sector. In-depth interviews help researchers to understand the underlying behavioural intentions and expectations of the citizens in the public services sector, and thus are an effective way to derive insights and results that can help policy makers to craft effective public policies and initiatives.

**Table 2.16: Review of Methodologies as reported in the literature**

| Items | Illustrative References |
|---|---|
| **Research Design** | |
| Case study | Needham (2008); Wood (2016); Mulder (2012); Voorberg et al., (2017); Diaz-Diaz and Perez-Gonzalez (2016); Barile et al., (2014); Mele (2011); Vallentine and Thygesen (2017) |
| Conceptual study | Alves (2013); Vooerberg et al., (2014); Voorberg et al., (2017); Osborne (2018); Osborne et al., (2016); Hardyman et al., (2015); Bryson et al., (2017); Cordella and Willcocks (2010) |
| **Data Collection Method** | |
| In-depth Interviews | Bharti et al., (2014); Simons and Birchall (2005) |
| Questionnaire-based method | Luu et al., (2018); McColl-Kennedy et al., (2016); Luu (2018); Tuan (2017); Finn et al., (2006) |
| Secondary Data | Farr (2016); Liu and Yuan (2015); Voorberg et al., (2015) |
| **Modelling Techniques** | |
| SEM | Luu et al., (2018); McColl-Kennedy et al., (2016); Luu (2018); Tuan (2017); Finn et al., (2006) |

Contrarily, quantitative studies are yet to be adopted widely by value co-creation researchers in the public services sector. Though some of the studies have adopted questionnaire-based methods and have also used modelling techniques such as Structural Equation Modelling (SEM) for quantitative assessment, yet the volume of quantitative studies on this topic are quite limited. Some quantitative studies using secondary data have also been conducted in this space; yet those are also very limited in number. Given the involvement of multiple stakeholders (e.g., citizens, public officials, government machinery etc.) in a value co-creation mechanism in the public services sector, there lies a great potential for carrying out quantitative studies on this topic. More specifically, quantitative modelling techniques would greatly contribute to the value co-creation literature in the public services context and would help is assessing the extent to which the results can be generalized for the public services sector.

## 2.9. Conclusion

In this chapter, we provide a comprehensive review of the concept of value co-creation and illustrate how the concept has gradually evolved from the notion of Service-Dominant (S-D) logic. The comprehensive review, based on the extant literature on value co-creation, provides us with useful information about the persistent research gaps in the value co-creation literature. More specifically, the review sets forth a justifiable ground for carrying out a detailed study on value co-creation in the context of the public services sector of India, and also reveals key research avenues which can be pursued in this study. Accordingly, based on the insights derived from this review, we have set our research objectives as modelling the enablers and barriers of value co-creation in the public services sector of India, and also developing a comprehensive framework that would provide a definitive direction towards implementation of the process of value co-creation for successful implementation of various schemes and initiatives in the public services sector of India. Subsequently, in the next chapter (i.e., Chapter 3), we provide the detailed process through which the various enablers and barriers of value

co-creation in the public services sector have been identified, and also provide a brief review for each of these identified enablers and barriers.

### 3.1. Chapter Overview

In this chapter, we discuss the detailed process through which the relevant enablers and barriers of value co-creation in the public services sector have been *identified*. Subsequently, a brief review of each of the enablers and barriers have been provided for a comprehensive understanding of each of the variables in the context of value co-creation in the public services sector. A pictorial overview of the chapter is provided in Figure 3.1.

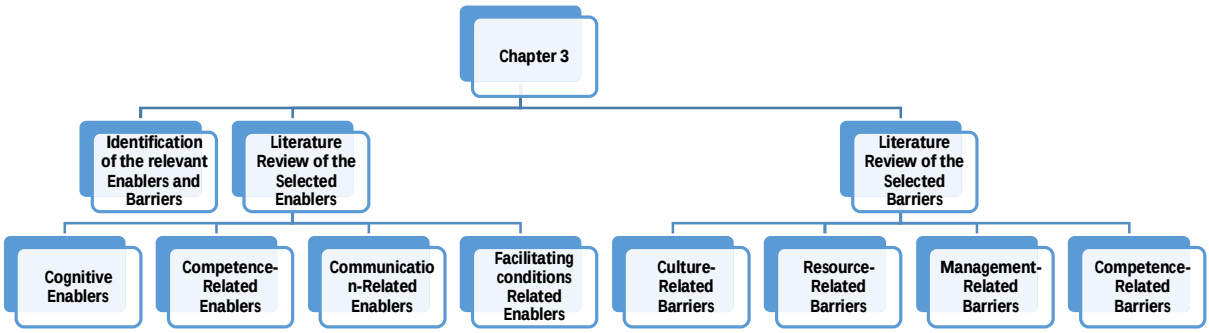


**Figure 3.1: Overview of the Chapter**

### 3.2. Identification of the Relevant Enablers and Barriers

To identify the relevant enablers and barriers of value co-creation in the public services sector, a comprehensive literature search was conducted using Web of Science, Google Scholar and Scopus databases. An iterative search process was carried out using a variety of keywords.

The obtained set of papers were then thoroughly reviewed, and accordingly, a list of probable enablers was compiled. Once a probable enabler and a barrier was obtained, more evidence was being searched from the literature for supporting the validity of the obtained enablers and barriers. Each of the obtained enablers and barriers were ensured to have the support of at least two research articles for its relevance. Following this process, a total of 15 enablers and 16 barriers of value co-creation in the public services sector have been identified.

In the subsequent sections, we discuss each of these enablers and barriers in details and present their relevance within the context of the Indian public services sector.

### 3.3. Literature Review of the Identified Enablers

#### 3.3.1. Cognitive Enablers

Cognitive enablers refer to the category of enablers that are associated with the cognition (related to mental process) of the involved actors of the VCC process in the public services sector. This category involves the following factors: *commitment, trust, ownership, engagement of involved actors, awareness, role clarity* and *compatibility of public organizations with citizen participation*.

***Commitment***

For a successful VCC process, commitment from both government agencies and citizens is of paramount importance (Needham, 2008). Commitment forms the basis of strong relationships that consequently enable the involved actors to mutually share responsibility among themselves for the efficient implementation of various public service schemes and initiatives (Vandenabeele and Ban, 2009). Further, commitment also ensures active participation from the involved actors even in challenging times (Zuniga et al., 2021), thus increasing the chances of efficient implementation of the various welfare schemes and

initiatives through the process of VCC. Hence, commitment acts as a key enabler for a successful VCC process in the public services sector.

***Trust***

Trust forms the foundational basis of any co-creating partnership among the involved actors (Fledderus et al., 2014). Active participation of the citizenry in the process of co-creation in the public services sector would not be possible if they do not trust the public administration and the government (Pluchinotta et al., 2021). Accordingly, trust among the citizenry would develop only when the public administration and the government manifests positive intention towards their (citizens') welfare and correspondingly empowers them with value-adding responsibilities. This would, in turn, form the basis for a strong relationship among the involved actors, and would thus inspire them (citizens) to contribute their valuable resources for the process of co-creation (Wood, 2016). Hence, trust acts as a key enabler for a successful co-creation process in the public services sector.

***Ownership***

The process of value co-creation entails that the involved actors mutually share responsibility among themselves, and hence contribute their resources to the process (Saha and Goyal, 2019). However, these conditions would not be properly fulfilled if the actors do not feel a sense of ownership towards the co-creation process (Voorberg et al., 2015). In the public services sector, this becomes even more crucial as without the citizenry feeling a sense of ownership towards the co-creation process, no welfare initiative or scheme can be successfully implemented. Contrarily, if the citizenry and the public administration feel a sense of ownership towards the process of co-creation, they would diligently fulfil all their shared responsibilities and would thus contribute to the effective implementation of the various welfare schemes and initiatives (Kumasey and Hossain, 2020). Hence, ownership acts as a key enabler for a successful co-creation process in the public services sector.

***Engagement of involved actors***

Engagement of the involved actors is essential for the success of any co-creation process within a service ecosystem (Storbacka et al., 2016; Nabatchi et al., 2017). For value co-creation to occur, the involved actors need to engage in service-for-service interactions, thus leading to efficient resource integration (Bovaird, 2007). Within the public services sector, the public service managers and the citizenry engage with each other in a co-creation process with the purpose of resource integration and information exchange (Hardyman et al., 2015). Consequently, without high levels of engagement among the actors, no co-creation of value would occur (Chathoth et al., 2016; Storbacka et al., 2016; Jaakkola and Alexander, 2014). Hence, engagement of the involved actors acts as a key enabler for a successful co-creation process in the public services sector.

***Awareness***

The citizens involved in a co-creation process need to be made aware of the various risks and benefits involved in the process (Bharti et al., 2014). It has been noted that due to lack of proper awareness of the citizens, the various public sector initiatives and schemes are not properly taken complete advantage of (Noordegraph, 2016). Thus, it is important for the public sector managers and the government to take initiatives for making the citizens aware of the nuances of the co-creation process and also of the specific schemes for which the co-creation process has been initiated (Wood, 2016). Correspondingly, it is also important for the public service managers and the government to be aware about the citizens' concerns regarding the welfare schemes and also about the very process of co-creation (Zuniga et al., 2021). This would enable proper communication to the citizens about the benefits that can be derived from the welfare schemes, and would also mitigate the concerns of the citizens about the co-creation process. Hence, awareness acts as a key enabler for a successful co-creation mechanism in the public services sector.

***Role clarity***

Role clarity refers to understanding of the role that must be performed by each of the actors in a service encounter (Osei-Frimpong and Owusu-Frimpong, 2017; Dellande et al., 2004). Role clarity enhances the citizens' willingness to participate in a co-creation initiative, and thus it is essential to educate the citizens about their specific roles in the entire co-creation exercise so as to avoid any role ambiguity and wastage of resources (Bharti et al., 2014). In the same vein, public service managers should also be clear about their roles in the co-creation process so as to avoid any clashes with the citizens regarding their assumed responsibilities and expectations (Bentzen et al., 2020). A lack of role clarity may lead to negative experiences for the involved actors, and may thus adversely affect the co-creation process (Osei-Frimpong and Owusu-Frimpong, 2017). Hence, role clarity acts as a key enabler for a successful co-creation mechanism in the public services sector.

***Compatibility of public organizations with citizen participation***

Compatibility of public organizations with citizen participation refers to the presence of proper infrastructure for facilitating effective communication between the citizens and the public service officials (Voorberg et al., 2015). As already noted, one of the essential features for the success of a co-creation mechanism is dialogue/communication between the involved actors (Prahalad and Ramaswamy, 2004). Thus, it is imperative for the public organizations to set up efficient communication infrastructure to enhance their compatibility with the citizenry. Without the presence of a compatible partnership between the public organizations and the citizenry, no co-creation initiative would be successful, and accordingly the implementation of various welfare schemes and initiatives would be adversely impacted. Hence, compatibility of public organizations with citizen participation acts as a key enabler for a successful co-creation mechanism in the public services sector.

### 3.3.2. Competence-related Enablers

Competence-related enablers refer to the category of enablers that are associated with the competence and abilities of the involved VCC actors in the public services sector. This category involves the following factors: *training*, *positive experience, presence of social capital* and *innovativeness*.

#### *Training*

For every co-creation process, the involved actors are required to share their skills and expertise and are also required to take up key responsibilities (Saha et al., 2020). However, not every actor involved in the co-creation process possesses the required competency to carry out the assigned responsibilities with utmost efficiency (Krug et al., 2010; Pisano and Verganti, 2008). More specifically, given the varying level of demographics and psychographics of the citizens involved in a co-creation process in the public services sector, not all of them would possess the requisite skill-sets to be a part of the process. Thus, it is important to train them for the co-creation process, which not only would improve their effectiveness during the process but would also positively influence their willingness to participate (Jukic et al., 2021; Bharti et al., 2014). Furthermore, citizens' willingness to receive training also reflects their commitment towards the process (Bharti et al., 2014; Goodwin, 1988). Also, training the public service officials for the process of co-creation is also important, as this would enhance their effectiveness in the job as well. Hence, training acts as a key enabler for a successful co-creation initiative in the public services sector.

#### *Positive Experiences*

One of the primary purposes of any co-creation process is to create positive experiences for the involved actors (Buonincontri et al., 2017). In the public services context, citizens look forward to enjoyable positive experiences from a co-creation process. In fact, one of the motives for their participation includes sharing and gaining of positive experiences during the

service interaction (Bharti et al., 2014). Correspondingly, the public service officials also look forward to positive experiences during a co-creation process that would essentially enrich their participation in the process. Accordingly, the better the nature of experience for the involved actors, the higher the value being created in the co-creation process (Alves, 2013). Thus, positive experience acts as a key enabler for a successful co-creation initiative in the public services sector.

***Presence of social capital***

Social capital refers to "*mutually beneficial exchanges based on social connections and informal networks allowing individuals to achieve their own particular goals*" (Mateju and Vitaskova, 2006; p. 493). It is one of the most important components needed for the success of a VCC process in the public services sector (Andrews and Brewer, 2013). Citizens and the public service officials need to make special efforts to build strong social capital for themselves. In lieu of a strong social capital, citizens involved in a co-creation initiative look after one another, and have the feeling that they are not alone in this process (Voorberg et al., 2015). Accordingly, social capital positively influences public service performance and outcomes by enabling a strong co-creation mechanism among the involved actors (Andrews and Brewer, 2013). Thus, presence of social capital acts as a key enabler for a successful co-creation initiative in the public services sector.

***Innovation***

Innovation in the public services sector can be defined as "*the creation of long-lasting outcomes that aim to address societal needs by fundamentally changing the relationships, positions and rules between the involved stakeholders, through an open process of participation, exchange and collaboration with relevant stakeholders*" (Voorberg et al., 2015; p. 1334). Accordingly, innovation is fundamental to the process of co-creation for improving the outcomes of the social welfare schemes, and thus requires competence of the involved

actors for devising new operational methods of efficient service delivery (Santos-Vijande et al., 2013). In the public services sector, the requirement for innovation arises from the need to improve the responsiveness of public services provided to the citizenry, and for tailoring the services in order to meet individual citizens' and local needs (Alves, 2013). Thus, innovation acts as a key enabler for a successful co-creation initiative in the public services sector.

### 3.3.3. Communication-related Enablers

Communication-related enablers refer to the category of enablers that are associated with communication among the involved actors of the value co-creation process in the public services sector. This category involves the following factors: *Information and knowledge exchange* and *interaction among the involved actors.*

#### *Information and knowledge exchange*

The process of value co-creation entails the involved actors to actively exchange information and knowledge among themselves for efficient functioning of the process. Accordingly, in the public services sector, the co-creating citizens and the public service officials need to exchange information and knowledge among themselves for efficient implementation of the various welfare schemes and initiatives (Osborne et al., 2016). With proper exchange and communication of information and knowledge, both the actors (citizens and public service officials) would know each other's needs and expectations, share expertise and skills, and would thus be able to cordially solve any emergent issues or concerns (Wood, 2016). Hence, information and knowledge exchange acts as a key enabler for a successful co-creation initiative in the public services sector.

#### *Interaction among the involved actors*

The process of value co-creation requires an interactive and dynamic relationship among the involved actors where value is being created at the 'nexus of interaction' (Osborne, 2018). Within the context of the public services, this interaction between the citizenry and the

public service officials is specifically aimed at joint problem-solving and co-construction of personalized experiences (Saha and Goyal, 2019). An efficient interaction among the involved actors also ensures sufficient transparency in the co-creation process, and thus aids in garnering stronger commitment from the actors throughout the process (Randall et al., 2011). Thus, interaction among the involved actors acts as a key enabler for a successful co-creation initiative in the public services sector.

### 3.3.4. Facilitating-conditions related Enablers

Facilitating-conditions related enablers refer to the category of enablers that are associated with the essential factors that are required to facilitate the process of co-creation in the public services sector. This category involves the following factors: *Incentives and Rewards* and *Open data.*

#### *Incentives and Rewards*

Incentives and rewards can significantly influence the willingness of actors in a co-creation process to actively participate in the process (Bharti et al., 2014). These incentives can be either in the form of direct cash benefit transfers or can also be in the form of discounts and non-financial rewards (Farr, 2016; Voorberg et al., 2015). Further, proper incentives and rewards can help mitigate the opportunity cost of the citizenry while participating in a co-creation process, as they would be taking their time away from other productive work in order to contribute to the co-creation process. Incentives and rewards may also help the citizenry in sustaining their commitment towards the co-creation process for longer periods of time; this sustaining commitment would, in turn, be beneficial for the effective implementation of the welfare schemes and programs. Thus, incentives and rewards act as a key enabler for a successful co-creation initiative in the public services sector.

***Open Data***

Open data refers to the idea that data should be available in a convenient form, should be freely accessible and reusable, and should be redistributable by everyone (Toots et al., 2017). That is, public sector information becomes 'open data' when being released in the public domain (Mulder, 2012). Open data boosts the concept of e-governance, and essentially makes governance more transparent for the citizenry. Accordingly, the citizens are able to access valuable information and knowledge as per their requirement through usage of open public data, thus enabling them to become active co-creators of value in the public services sector. Open data further facilitates building of efficient technological platforms for enabling interaction and communication between the public service officials and the citizenry during the process of co-creation (Mulder et al., 2012). This not only makes the co-creation process more robust and dynamic, but also ensures better problem-solving mechanism during the implementation of the public welfare schemes. Hence, open data acts as a key enabler for a successful co-creation initiative in the public services sector.

### 3.4. Literature Review of the Identified Barriers

#### 3.4.1. Culture-related Barriers

Culture-related barriers refer to the category of barriers that are associated with the cultural aspects of the involved actors in the process of value co-creation. This category involves the following factors: *risk aversion by citizens, risk-averse administrative culture, citizens' unwillingness to participate, institutionally imbedded professional culture of public employees, conflict among the concerned stakeholders* and *opposing role of opinion leaders.*

***Risk aversion by citizens***

For a successful co-creation initiative in the public services sector, it is necessary to have active involvement and support of the citizenry. However, given the resources (skills, time, money etc.) that the citizens are expected to invest in a co-creation process, they are not

always willing to involve in such a process without being certain about the outcome of the process. That is, citizens may not be willing to take risks with their resources unless they are certain about the possibility of positive outcome from the co-creation process. Hence, risk aversion by citizens acts as a barrier in the way of a successful co-creation process in the public services sector (Voorberg et al., 2015).

***Risk-averse administrative culture***

In the public services sector, citizens are usually not considered to be reliable 'resource-providing partners' by the public managers (Voorberg et al., 2015; Talsma and Molenbroek, 2012). Consequently, they (citizens) are not considered as equal partners, but rather as 'service-receivers' only (Maiello et al., 2013; Voorberg et al., 2015). This conservative approach of the public administration managers makes active participation of the citizens even more challenging. Hence, risk-averse administrative culture acts as a barrier for a successful co-creation initiative in the public services sector.

***Citizens' unwillingness to participate***

As already stated, active participation of citizens is a necessary condition for any successful co-creation initiative in the public services sector. There may be a variety of reasons for the unwillingness of citizens to participate in a co-creation mechanism. Apart from their attitude of risk aversion (as discussed earlier), citizens' lack of knowledge, skill and time may be some of the primary reasons for their unwillingness to participate (Dutu and Diaconu, 2017). Furthermore, their sense of loyalty and civic duty may also influence their unwillingness to participate in a co-creation initiative (Wise et al., 2012). Thus, citizens' unwillingness to participate acts as a barrier for a successful co-creation process in the public services sector.

***Institutionally imbedded professional culture of public employees***

Public sector employees tend to rely more on professional knowledge and much less on the perspectives of the citizenry (Torfing, 2016). Accordingly, they (public sector employees)

are not very open to dialogue and transparency in decision making, which consequently leads to trust deficit with the citizenry (Vallentine and Thygesen, 2017). Without proper dialogue and transparency, there will effectively be no value co-creation (Prahalad and Ramaswamy, 2004). Thus, institutionally imbedded professional culture of public employees acts as another barrier in the way of a successful co-creation process in the public services sector.

***Conflict among the concerned stakeholders***

The government and the citizenry are the primary stakeholders in the public services sector (Paynter et al., 2011). Though all the involved stakeholders do aim for successful implementation of welfare schemes and maximization of value creation, yet their short-term (and sometimes long-term) interests might be at conflict with one another (Bryson, 2017; Mele, 2011). For instance, the government may institutionalize a scheme for broadening of roads for better transportation and connectivity. While this scheme may evidently be beneficial for the local population, yet some groups may have to re-locate for allotting the required land for this concerned scheme. This may create conflict among the affected citizenry and the government, thus affecting the overall success of the scheme. Thus, conflict among the concerned stakeholders acts as a barrier in the way of successful co-creation initiatives in the public services sector.

***Opposing role of opinion leaders***

Opinion leaders exert considerable influence on the decisions of group members in a society (Chaney, 2001; Li et al., 2013). Hence it is important for the government to have the opinion leaders on board in favour of the co-creation process before initiating any public service scheme for a given population. It has been noted at various instances that opposition from opinion leaders have led to strong opposition from the group members as well, thus rendering total failure of the co-creation initiative. On the contrary, support from the opinion leaders have made many key co-creation initiatives successful as well (Bharti et al., 2014).

Thus, opposing role of opinion leaders may act as a key barrier in the way of successful co-creation initiatives in the public services sector.

### 3.4.2. Resource-related Barriers

Resource-related barriers refer to the category of barriers that are associated with the resource cost and constraints of the involved actors during the process of value co-creation in the public services sector. This category involves the following factors: *cost of participation, lack of ICT infrastructure* and *lack of operant resources.*

#### *Cost of participation*

For a successful co-creation initiative, active participation of the concerned stakeholders is an essential condition (Saha and Goyal, 2019; Gronroos, 2008). Since the participants in a co-creation process need to share their resources with one another, there is an inherent risk associated with their participation. While the process of co-creation is intended towards value maximization, yet its success is not always assured and predictable. The perceived cost of participation may far outweigh the perceived returns gained from the process (Simmons and Birchall, 2005). Consequently, this unpredictability of outcome may dissuade the stakeholders (primarily the citizens) in actively participating in the co-creation process. Hence, cost of participation acts as a key barrier in the way of successful co-creation initiatives in the public services sector.

#### *Lack of ICT infrastructure*

For successful implementation of co-creation initiatives in the public services sector, it is important to take full advantage of information and communication technology (ICT) infrastructure (Torfing et al., 2019). While governments have attempted to use ICT for improving and enhancing effective communication with the citizens, yet adoption and prevalence of ICT infrastructure have not been widely successful in the public services context (Liu and Yuan, 2015). The presence of digital self-services as part of the ICT infrastructure

should constitute a pivotal step in involving the citizens in a co-creation process (Torfing et al., 2019). However, lack of such essential ICT infrastructure acts as a barrier for successful co-creation initiatives in the public services sector.

***Lack of operant resources***

Operant resources are those resources that act on other resources (Alves, 2013). These resources typically refer to skills and knowledge of individuals and constitute the dynamic capabilities of the stakeholders in a co-creation mechanism (Madhavaram and Hunt, 2008). For a co-creation mechanism to succeed, the involved participants need to actively share their operant resources (Hardyman et al., 2015). However, in the public services context, not all citizens may possess the requisite operant resources to qualify as co-creating partners. This aspect, in turn, affects the overall success of the implementation of public service schemes through the process of co-creation. Hence, lack of operant resources acts as a barrier for successful co-creation initiatives in the public services sector.

### 3.4.3. Management-related Barriers

Management-related barriers refer to the category of barriers that are associated with the government machineries and the public services managers involved in the process of value co-creation. This category involves the following items: *excessive bureaucratic control, lack of accountability, political instability* and *corruption.*

***Excessive Bureaucratic Control***

Bureaucracy forms the foundation of public sector organizations by imparting equality and impartiality for the citizens (Cordella and Willcocks, 2010; Peters, 2001). The paradigm of Classical Public Bureaucracy emphasises on the democratic sovereignty of public service managers over the citizenry by regulating their behaviour and by putting them on the receiving end of public service schemes (Torfing et al., 2019). In contrast, the Public Service Logic (PSL) portrays the citizens as active partners in public service delivery mechanisms and thus treats

them as active value co-creators (Osborne, 2018). This requires a paradigm shift in outlook of the public sector administration in regard to the functioning of their bureaucracy. The bureaucracy now has to be more inclusive and has to be comfortable in collaborative functioning with the citizenry. Accordingly, excessive bureaucratic control would hamper the dynamics of co-creation between the government and the citizenry, thus leading to failure of the overall co-creation process. Hence, excessive bureaucratic control acts as a key barrier in the way of successful co-creation initiatives in the public services sector.

***Lack of Accountability***

Accountability refers to "*certain obligations that arise within a relationship of responsibility, where one person or body is responsible to another for the performance of particular services*" (Mulgan, 2000; p. 87). In the public services context, the citizens should be treated as 'principals' to whom the government and the public service managers should be held accountable (Virtanen and Stenvall, 2014). The primary rationale behind ensuring accountability in the public services sector is to find out whether public service managers and implementing actors in various public service projects have properly exercised their powers and have duly discharged their duties (Virtanen and Stenvall, 2014). Accordingly, lack of accountability may generate distrust among the citizenry, which may further percolate to their unwillingness to actively participate in a co-creation process. Hence, lack of accountability acts as a key barrier in the way of successful co-creation initiatives in the public services sector.

***Political Instability***

The political atmosphere plays a major role in formulation and delivery of public service policies, initiatives and schemes (McLendon et al., 2007). Public service managers and implementation actors function under the directives of the elected representatives in the government, and hence a situation of political instability not only hampers their functioning, but also creates a state of doubt and unpredictability among the citizenry (Bolivar, 2015).

Consequently, this affects the overall co-creation process, thus leading to probable failure of the on-going welfare schemes and policies. Hence, political instability acts as a key barrier in the way of successful co-creation mechanisms in the public services sector.

***Corruption***

The wide-spread prevalence of corruption in the public services sector portrays the presence of pervasive bottlenecks in the delivery of various welfare services to the citizenry (Pandey, 2010). Corruption prevents the percolation of intended benefits of public service policies and schemes to the beneficiaries (end-user citizens), thus leading to trust deficit among the citizenry against the government and public administration machineries (Bertot et al., 2016). This, in turn, affects the overall success of co-creation mechanisms in lieu of passive participation from the citizens. Thus, corruption acts as a key barrier in the way of successful co-creation mechanisms in the public services sector.

### 3.4.4. Competence-related Barriers

Competence-related barriers refer to the category of barriers that are associated with the level of competence (expertise and abilities) of the involved actors during the process of value co-creation in the public services sector. This category involves the following factors: *lack of leadership, lack of citizens' expertise* and *lack of effective job crafting.*

***Lack of Leadership***

Leadership plays a key role in the success of every co-creation initiative in the public services sector (Bryson et al., 2017). Both the public service administration and the citizenry need to exhibit effective leadership to manifest a successful co-creation mechanism. Leadership is necessary to enhance participation in co-creation, to overcome obstacles in the way of collaboration and also to stimulate innovative thinking (Crosby et al., 2017). However, a lack of leadership from the involved stakeholders would not just hamper the process of co-

creation but would also lead to inefficient implementation of the intended schemes. Thus, lack of leadership acts as an important barrier in the way of successful co-creation mechanisms in the public services sector.

***Lack of citizens' expertise***

In the process of value co-creation in the public services sector, citizens contribute their expertise in order to achieve higher return-on-risk and to gain maximization of value (Linders, 2012; Horne and Shirley, 2009). Accordingly, expertise of the citizens allows public service managers to share greater responsibility with them (citizens), and consequently, enables the implementation of various public service schemes and initiatives through an efficient co-creation mechanism (Needham, 2008). However, not all citizens would possess the requisite expertise to be a part of the co-creation process. In cases where majority of the citizens lack sufficient expertise, success of the co-creation process is greatly hampered. Hence, lack of citizens' expertise acts as an important barrier in the way of successful co-creation process in the public services sector.

***Lack of effective job crafting***

When citizens and public services managers share mutual responsibility for contributing effectively to the co-creation process, it is important for both the actors to find meaning and fulfilment in their jobs. Job crafting is one such process where public employees and citizens can individually or collectively 'modify' or 'craft' their job designs to enhance 'meaning' for themselves (Luu, 2017; Wrzesniewski and Dutton, 2001). Accordingly, job crafting can be defined as "the changes that employees produce in the task or relational boundaries of their job in ways that enable them to reframe the job aim and generate more meanings for both employees themselves and stakeholders including clients" (Luu, 2018, p. 1534). In contrast, a lack of effective job crafting would increase the involved actors' boredom and also decrease their work engagement (Harju et al., 2016; Demerouti, 2015). This would, in

turn, adversely hinder the process of co-creation (Luu, 2018), thus affecting the efficient implementation of various schemes and initiatives. Hence, lack of job crafting acts as an important barrier in the way of successful co-creation mechanism in the public services sector.

### 3.5. Conclusion

This chapter provides the detailed process through which the various enablers and barriers of value co-creation have been identified. A brief review of each of these enablers and barriers have also been provided in this chapter. However, since these identified enablers and barriers of value co-creation have been identified from the extant literature only, hence these factors pertain to the public services sector in general. That is, these identified enablers and barriers are not specific to the Indian context. Since our research is focused on modelling the enablers and barriers of value co-creation specific to the context of India only, hence we need to validate these factors within the Indian context first, before we move on to modelling them. The validation of these enablers and barriers are being shown in the subsequent chapters (Chapter 5 & 6). In the next chapter (i.e., Chapter 4), we provide the research methodology for modelling of these enablers and barriers, and also discuss the methodology adopted for developing the comprehensive framework for successful implementation of value co-creation in the public services sector of India.

## 4.1. Chapter Overview

This chapter presents the methodology adopted to address the stated research objectives of this study. The chapter is divided into three sections. First, we describe the research design for this study, followed by a discussion of the sampling details for the data collected in this study. Subsequently, we provide an overview of the research techniques adopted to address the stated objectives of this study.

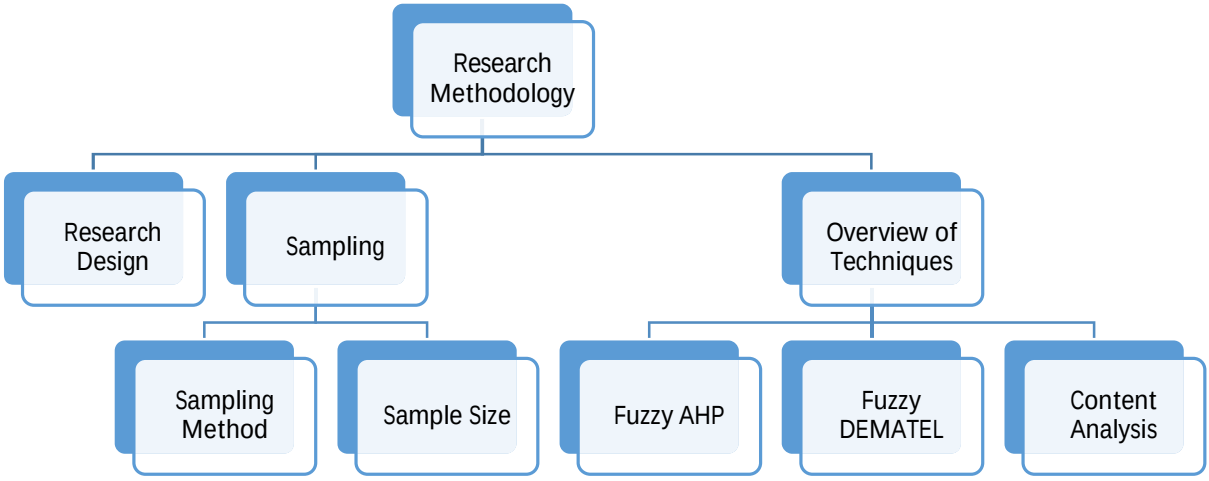


**Figure 4.1: Overview of Chapter**

### 4.2. Research Design

A research design refers to the logical sequence (or approach) of undertaking a research that connects a study's empirical data to that of the stated objectives of the study (Yin, 1994). That is, a study's research design describes the approach adopted for addressing the pre-decided research objectives of a study. Dash and Malhotra (2010) categorizes research design into three types: *Exploratory*, *Descriptive* and *Causal*.

In an exploratory research design, a researcher explores a new area of study to formulate precise research questions that can be examined or addressed in the future (Neuman, 2005). An exploratory research design addresses the "what" question. Accordingly, to address our first stated objective, we have adopted an exploratory research design to identify the enablers and barriers of value co-creation in the public services sector of India. For addressing the second and third research objectives of this study, we have adopted a descriptive research design. Since descriptive research designs are suitable for studies that explain the relationship among variables (Dunlock, 1993), and answers the question "what is", we have used this research design to develop and validate the hierarchical models for both the enablers and barriers of value co-creation in the public services sector of India. Subsequently, for addressing the fourth and fifth objectives of this study, we have adopted a causal research design. A causal research design underscores the cause-and-effect relationship among variables, and thus we have adopted this research design to determine the causal relationships (cause and effect groups) for both enablers as well as barriers identified in this study. Finally, the sixth objective of this study has been addressed by adopting an exploratory research design, where qualitative data was collected and analysed to develop a comprehensive framework for enhancing the implementation of various schemes and initiatives in the public services sector through the process of value co-creation. Each of our stated objectives, in light of the above discussed

research design approaches, have been addressed using a case study analysis, namely, the *Clean India Mission*. We, now, discuss in detail the sampling-related information for this study.

### 4.3. Sampling

#### 4.3.1. Sampling method

This study has employed purposive sampling method for collecting the data. It is a non-probability sampling technique, also known as judgmental or selective sampling, where the sample elements are chosen based on the researchers' judgment and knowledge (Zhang and Zhang, 2012). In this study, we chose the government officials in the public service sector of India as our sampling element. Since the respondents need to be experts in the public services sector of India, purposive or judgmental sampling was deemed to be appropriate for obtaining the respondents for this study. Accordingly, we reached out to the public service officials in various parts of India to collect the data for this study. To select the cities from which data would be collected, we referred to the Swachh Survekshan 2018 report where the various cities of India were ranked based on their cleanliness. The top 5 cities, i.e., Indore, Bhopal, Chandigarh, New Delhi and Vijayawada were chosen for collecting the responses for this study. In addition, responses were also collected from the north-eastern states of Tripura, Assam, Sikkim and Meghalaya, given their high focus on cleanliness and hygiene even before the commencement of the Clean India Mission (Bhattacharya et al., 2018).

#### 4.3.2. Sample size

The data collection for this study was conducted in three separate phases. In the first phase, the list of enablers and barriers obtained from the extant literature was validated based on the survey responses of 100 public service officials on a 5-point Likert scale questionnaire (see Appendix 1 & 2). In the second phase, 16 responses were collected for priority ranking and construction of the causal diagrams of the enablers and barriers. The responses were

collected based on a survey-based questionnaire (see Appendix 3 & 4). Finally, in the third phase, 16 responses based on in-depth interviews were collected for developing the comprehensive framework of value co-creation in the public services sector of India. The primary criterion for selecting candidates for the in-depth interviews was their involvement in leading and managing a public services initiative within the past one year. In-depth interviews were conducted for an approximate duration of thirty minutes with each expert. Interview data were coded, and six themes were distinguished based on which the primary comprehensive framework has been developed through iterative revisions. The method suggested by Raaphorst (2018) has been followed to conduct the interviews.

### 4.4. Overview of techniques

#### 4.4.1. Fuzzy AHP

Analytical Hierarchy Process (AHP), developed by Saaty (1980), is a decision-making tool that develops a hierarchical structure of system variables (Saaty, 1980; Rana et al., 2018). This hierarchical structure manifests priority rankings of the variables, and thus provides useful information for decision-making under constraints. However, the AHP technique does not account for biases and subjectivity in judgments of the respondents (Rana et al., 2018). Thus, to deal with the biases and subjectivity in human judgment, Fuzzy AHP technique is being recommended by various studies (Kumar et al., 2019; Patil and Kant, 2014; Kumar et al., 2019). Though there are various other methods such as Fuzzy TOPSIS, Fuzzy ANP and ELECTRE, yet Fuzzy AHP is being considered to be superior to the other methods owing to its wide applicability, lesser complexity and ease of use (Rana et al., 2018; Luthra et al., 2016). We have, thus, adopted the Fuzzy AHP technique for prioritizing the enablers and barriers of value co-creation in the public services sector.

According to Chan et al., (2008), the fuzzy AHP approach involves the following steps:

- First, the aim of the research is formulated and defined
- Next, based on the expert's responses, the Pair-wise comparison matrix is developed using the scale provided in Table 4.1. The scale has been adapted from Saaty (1980).
- A Fuzzy Pair-wise comparison matrix, using Triangular fuzzy numbers, is then formed.
- The significance weights of the variables are then constructed
- The matrix is then De-fuzzified.
- Finally, a hierarchical structure is constructed by normalizing the weights

To validate the results of the Fuzzy AHP technique, Sensitivity analysis is being used to determine the corresponding change in rankings with respect to change in relative weights of the variables (Kumar et al., 2019).

**Table 4.1: Scales in pair wise comparisons**

| Importance Intensity | Preference Judgments |
|---|---|
| 1 | Equally important |
| 3 | Moderately important |
| 5 | Strongly important |
| 7 | Extremely important |
| 9 | Extremely more important |
| 2, 4, 6, 8 | Intermediate values between adjacent scale values |

Source: Saaty (1980)

### 4.4.2. Fuzzy DEMATEL

Decision Making Trial and Evaluation Laboratory (DEMATEL), proposed by the Geneva Research Centre 1973, determines complex causal relationships among problem groups and variables (Gandhi et al., 2015). However, the DEMATEL technique alone cannot account for human biases and subjectivity in judgments (Chang et al., 2011). Thus, Fuzzy DEMATEL technique is recommended by various researchers to deal with such biases and subjectivity in judgments. Accordingly, the Fuzzy DEMATEL technique has been adopted in

this study determining the causal relationships among the enablers and barriers of value co-creation in the public services sector.

According to Chang et al., 2011, the following steps are involved in a Fuzzy DEMATEL approach:

- First, a Direct-Relation matrix is formed using the scale provided in Table 4.2. The scale has been adapted from Luthra et al., 2016.
- Next, the fuzzy linguistic variables are designed
- The triangular fuzzy numbers are transformed into initial direct-relation matrix
- Next, the generalized direct-relation matrix is set up
- The total-relation matrix is formed
- The sum of rows and columns is obtained
- Finally, the causal diagram is set up

**Table 4.2: Fuzzy Linguistic scale**

| Linguistic Variable | Preference score | Corresponding Triangular Fuzzy Numbers |
|---|---|---|
| No effect (NO) | 0 | (0, 0, 0.25) |
| Very Low effect (VL) | 1 | (0, 0.25, 0.50) |
| Low effect (L) | 2 | (0.25, 0.50, 0.75) |
| High effect (H) | 3 | (0.50, 0.75, 1.0) |
| Very high effect (VH) | 4 | (0.75, 1.0, 1.0) |

Source: Luthra et al., (2016)

### 4.4.3. Content Analysis

Content analysis is a research technique that is used to reveal and identify specific patterns in a recorded communication (Hsieh and Shannon, 2005). To perform a content analysis, data is collected systematically from textual or verbal communication. The underlying mechanism behind content analysis pertains to categorization of recorded communication into "codes" that can consequently be used to identify over-arching patterns and themes.

Broadly, content analysis is conducted following these five steps. These steps, however, are not absolute in terms of the chronology followed, but are rather iterative in nature.

- Selection of the type of content to be analysed
- Defining the unit of analysis
- Developing a set of rules for coding
- Coding according to the pre-determined rules
- Analysis of the results

These five steps are now discussed in brief below.

- *Selection of the type of content to be analysed:* In this step, the type of content if being chosen based on the research objective(s) to be addressed. The platforms from which the content for analysis would be sourced, the inclusion and exclusion criteria of the chosen content and the time range of the chosen content are all decided in this step.
- *Defining the unit of analysis:* In this step, the unit of analysis of the chosen content is being determined and defined. Few illustrative examples of unit of analysis can be frequency of individual words, characteristics of the people involved in the content, positioning of images etc.
- *Developing a set of rules for coding:* Coding is one of the most important aspects of content analysis. It is important to develop a set of rules before starting with the coding process. For instance, researchers may decide to negate controversial words during the coding process or may decide to focus only on emotional connotative references as a set of pre-determined rules for the coding process. Accordingly, the codes developed during content analysis highly influences the conclusions derived from the analysis.
- *Coding according to the pre-determined rules:* Once the set of pre-determined rules are decided, the process of coding is conducted with the purpose of identifying patterns and

themes from the content analysis. The codes developed drive the final conclusion from the entire process of content analysis.

- *Analysis of the results:* Once the codes are developed, the final step is to examine the codes and find patterns and themes in relation to the research objective(s) of the study. In this step, the analysis can either be qualitative or quantitative. Based on this step, the final conclusions of the study are drawn, and the research objective(s) are being duly addressed.

### 4.5. Conclusion

This chapter discussed the detailed research methodology adopted for this study. As described, a mixed-method approach was adopted for this study. A brief overview of each of the methods adopted to fulfil the stated research objectives have been provided in this chapter, along with the sampling details of the respondents. In the subsequent three chapters (i.e., Chapter 5, 6 and 7), we illustrate the analysis and results for all our stated objectives. To begin with, we illustrate the detailed analysis and consequent results of our analysis pertaining to the modelling of the enablers of value co-creation in the public services sector of India in the next chapter.

# *CHAPTER 5: MODELLING OF THE ENABLERS OF VALUE CO-CREATION IN THE PUBLIC SERVICES SECTOR OF INDIA*

## 5.1. Chapter Overview

In this chapter, we provide a comprehensive description of the analysis and results derived from modelling of the enablers of value co-creation in the public services sector of India. First, in section 5.2, we present the analysis related to the validation of the identified enablers (see Chapter 3) of value co-creation in the public services sector of India. Subsequently, in section 5.3, we provide the analysis related to the modelling of these enablers. A pictorial overview of this chapter is provided in Figure 5.1.

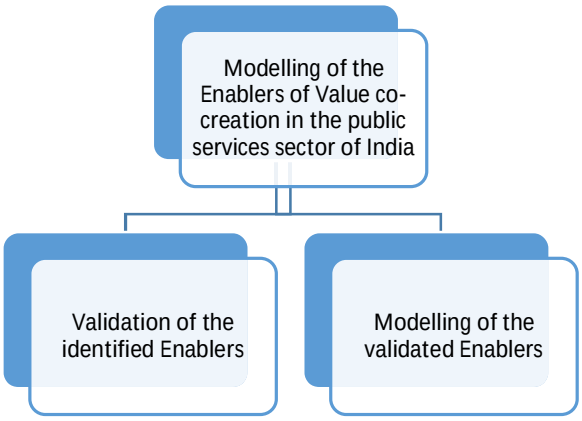


**Figure 5.1: Overview of the Chapter**

## 5.2. Validation of the Identified Enablers

To validate the obtained list of 15 enablers (as already discussed in Chapter 3) in the Indian context, a total of 100 experts from the public services sector of India were interviewed using a survey-based questionnaire. The demographic information of the experts is provided in Table 5.1.

**Table 5.1: Demographic profile of the respondents**

| Characteristics | Category | Respondents |
|---|---|---|
| Age Group | 21-30 | 26 |
| | 31-40 | 67 |
| | 41-50 | 5 |
| | 51-60 | 2 |
| | | |
| Gender | Male | 88 |
| | Female | 12 |
| | | |
| Education | Graduation | 94 |
| | Post-Graduation | 6 |
| | | |
| Experience | Less than 5 years | 24 |
| | 6 to 10 years | 59 |
| | 11 to 15 years | 13 |
| | Greater than 15 years | 4 |

The experts rated the listed enablers on a 5-point Likert scale, where 1 implies *not at all significant*; 2 implies *partially significant*; 3 implies *neutral*; 4 implies *highly significant* and 5 implies *very highly significant*. Subsequently, the mean scores for each of the enablers were calculated (see Table 5.2). The enablers with mean scores of 2 or less have been deleted, in accordance to the method suggested by Rana et al., 2018. As evident from Table 5.2, none of the enablers had a mean score of 2 or less, and hence all of the enablers were retained for the study. Further, none of the experts suggested any new enabler, and had complete agreement on the 15 identified enablers. Thus, all the 15 enablers have been validated for the Indian public services context.

**Table 5.2: Mean scores of the Enablers of VCC in the public services sector**

| S. No | Enablers of VCC in the public services sector | Mean |
|---|---|---|
| 1 | Commitment | 3.7 |
| 2 | Trust | 3.9 |
| 3 | Ownership | 4.1 |
| 4 | Engagement of involved actors | 3.9 |
| 5 | Awareness | 4.3 |
| 6 | Role clarity | 4 |
| 7 | Compatibility of public organizations with citizen participation | 3.7 |
| 8 | Training | 4 |
| 9 | Positive Experiences | 3.5 |
| 10 | Presence of social capital | 3.6 |
| 11 | Innovativeness | 4.2 |
| 12 | Information and knowledge exchange | 4 |
| 13 | Interaction among the involved actors | 4.3 |
| 14 | Monetary incentives | 4.3 |
| 15 | Open Data | 3.6 |

The final list of 15 enablers were then categorized into 4 groups based on their similar characteristics. For validation of these categorizations, three academic researchers whose primary research interest is in the public services sector of India, were being consulted. Each of the researchers agreed to our categorization, and thus validated the groupings for the Indian public services context. The final list of enablers along with their relevant literature support has been presented in Table 5.3.

**Table 5.3: List of Enablers and their categories along with literature support**

| Dimensions of Enablers | S. No. | Key Enablers of VCC in the public services sector | References |
|---|---|---|---|
| Cognitive Enablers | 1 | Commitment | Osborne and Strokosch (2013); Needham (2008); Bryson et al. (2017) |
| | 2 | Trust | Wood (2016); Fledderus (2014); Luu (2018) |
| | 3 | Ownership | Voorberg et al. (2015); Voorberg et al. (2017) |
| | 4 | Engagement of involved actors | Bovaird (2007); Hardyman et al. (2015); Magno and Cassia (2015) |
| | 5 | Awareness | Bharti et al.(2014); Wood (2016) |
| | 6 | Role clarity | Osei-Frimpong and Owusu-Frimpong (2017); Bharti et al. (2014); Osborne and Strokosch (2013) |
| | 7 | Compatibility of public organizations with citizen participation | Voorberg et al. (2015); Andrews and Brewer (2013); Gordon et al. (2013) |
| | | | |
| Competence-Related Enablers | 8 | Training | Bharti et al. (2014); Wood (2016) |
| | 9 | Positive Experiences | Alves (2013); Osborne et al. (2016); Bharti et al. (2014) |
| | 10 | Presence of social capital | Voorberg et al. (2015); Andrews and Brewer (2013) |
| | 11 | Innovativeness | Alves (2013); Voorberg et al. (2015) |
| | | | |
| Communication -Related Enablers | 12 | Information and knowledge exchange | Osborne et al. (2016); Wood (2016) |
| | 13 | Interaction among the involved actors | Osborne (2018); Saha and Goyal (2019); Virtanen and Stenvall (2014) |
| | | | |
| Facilitating-conditions Related Enablers | 14 | Monetary incentives | Pestoff (2006); Farr (2016); Bharti et al. (2014); Voorverg et al. (2015) |
| | 15 | Open Data | Toots et al. (2017); Mulder et al. (2012); Mulder (2012) |

### 5.3. Modelling of the Validated Enablers

For employing the proposed research framework based on integrated Fuzzy AHP-Fuzzy DEMATEL approach, a total of 30 experts involved in the *Clean India Mission* were contacted initially via direct visits and emails. They were requested to participate in a in a survey-based questionnaire evaluation of the selected enablers. The experts were selected based on the following factors: their direct role in the *Clean India Mission*, researchers' convenience and personal contacts. 16 of the contacted experts agreed to participate in the study. The demographic information of these experts are provided in Table 5.4. This number is considered to be satisfactory for our present case-based study (Rana et al., 2018).

**Table 5.4: Demographic profile of the respondents**

| Characteristics | Category | Respondents |
|---|---|---|
| Age Group | 21-30 | 4 |
| | 31-40 | 8 |
| | 41-50 | 3 |
| | 51-60 | 1 |
| | | |
| Gender | Male | 14 |
| | Female | 2 |
| | | |
| Education | Graduation | 13 |
| | Post-Graduation | 3 |
| | | |
| Experience | Less than 5 years | 3 |
| | 6 to 10 years | 7 |
| | 11 to 15 years | 4 |
| | Greater than 15 years | 2 |

Accordingly, the experts filled two separate questionnaires (see Appendix 3 & 4): one for prioritization of the identified enablers using Fuzzy AHP; the other for categorization of the identified enablers into cause-and-effect groups using Fuzzy DEMATEL. The proposed research framework is now applied for modelling the identified enablers in 4 subsequent phases:

***Phase 1: Validation of the enablers of value co-creation in the context of Clean India Mission***

The selected enablers of VCC identified in this study were being validated for the overall public services sector of India. It is thus necessary to validate these enablers in the context of the *Clean India Mission* as well. We, therefore, consulted the 16 experts about the validity of these selected enablers in the context of *Clean India Mission*. All of the experts agreed with the validity of the enablers, and also with the categorization of the enablers. Thus, all our identified enablers are being validated for the context of our chosen case study.

***Phase 2: Prioritizing the identified enablers using Fuzzy AHP***

The identified enablers along with their categorizations are presented in a hierarchical structure, consisting of three distinct levels: Level-1 represents the prioritization of the enablers of value co-creation in the public services sector; Level-2 represents the four categories of the enablers; Level-3 represents the 15 enablers of value co-creation (see Figure 5.2).

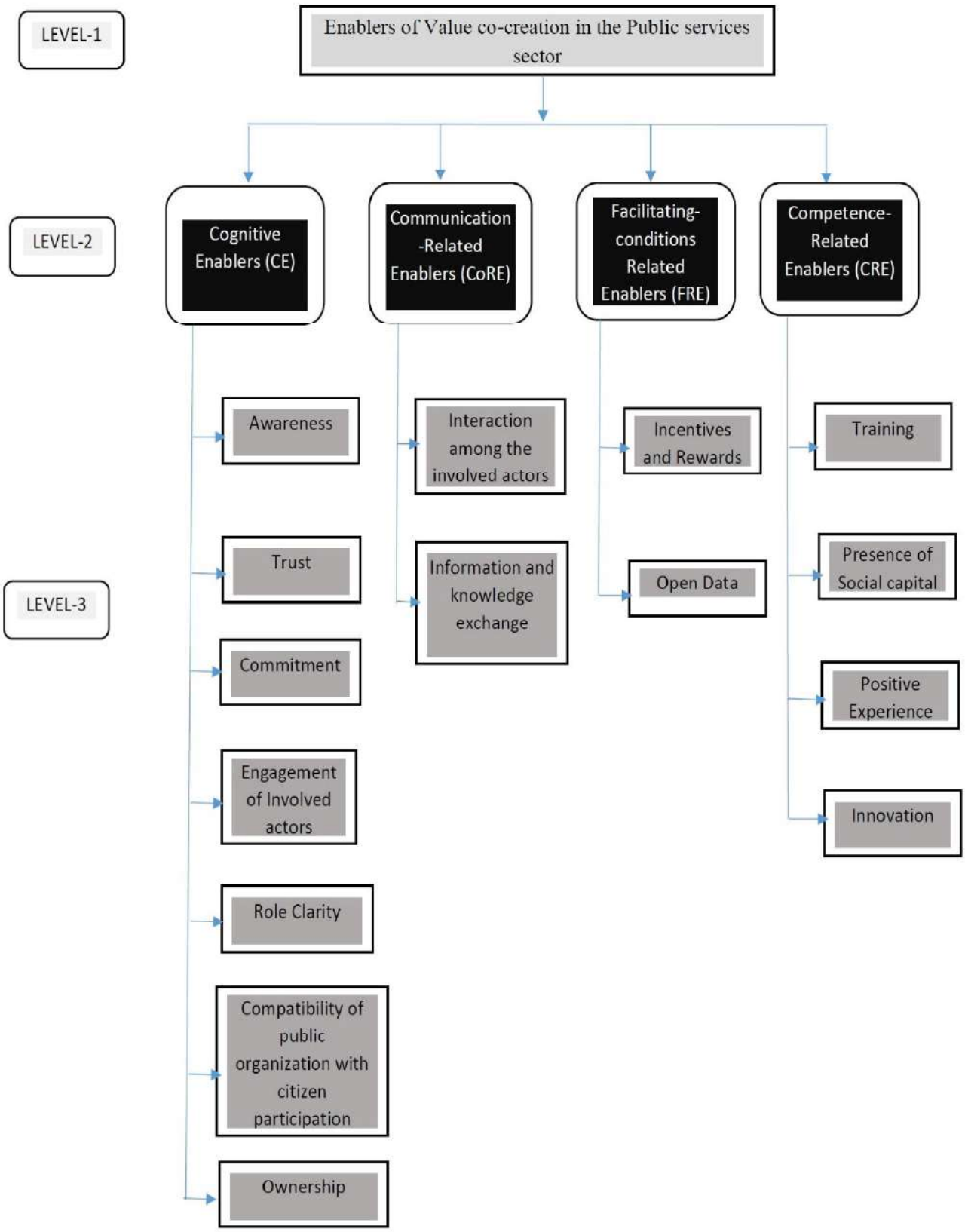


**Figure 5.2: Hierarchical Diagram of the Enablers of VCC in public services sector**

Now, the detailed steps of prioritizing the four categories of enablers using Fuzzy AHP are being illustrated below:

In the first step, based on experts' inputs using the Fuzzy linguistic scale (see Table 4.1), the pair-wise comparison matrix is being constructed (see Table 5.5).

**Table 5.5: Pair-wise comparison matrix**

| | **Cognitive Enablers** | **Competence-related Enablers** | **Communication-related Enablers** | **Facilitating-conditions related Enablers** |
|---|---|---|---|---|
| **Cognitive Enablers** | 1 | 5 | 5 | 3 |
| **Competence-related Enablers** | 1/5 | 1 | 1/3 | 1/7 |
| **Communication-related Enablers** | 1/5 | 3 | 1 | 5 |
| **Facilitating-conditions related Enablers** | 1/3 | 7 | 1/5 | 1 |

This pair-wise comparison matrix is fuzzified using triangular fuzzy numbers (see Table 5.6).

**Table 5.6: Fuzzified Pair-wise comparison matrix**

| | **Cognitive Enablers** | **Competence-related Enablers** | **Communication-related Enablers** | **Facilitating-conditions related Enablers** |
|---|---|---|---|---|
| **Cognitive Enablers** | (1,1,1) | (4, 5, 6) | (4, 5, 6) | (2, 3, 4) |
| **Competence-related Enablers** | (1/6, 1/5, 1/4) | (1,1,1) | (1/4, 1/3, 1/2) | (1/8, 1/7, 1/6) |
| **Communication-related Enablers** | (1/6, 1/5, 1/4) | (2, 3, 4) | (1,1,1) | (4, 5, 6) |
| **Facilitating-conditions related Enablers** | (1/4, 1/3, 1/2) | (6, 7, 8) | (1/6, 1/5, 1/4) | (1,1,1) |

Now, the fuzzy Geometric mean value is calculated as follows (see Table 5.7):

Cognitive Enablers = $[(1 \times 4 \times 4 \times 2)^{1/4}, (1 \times 5 \times 5 \times 3)^{1/4}, (1 \times 6 \times 6 \times 4)^{1/4}]$

$= [2.38, 2.94, 3.46]$

Competence-related Enablers = $[(1/6 \times 1 \times 1/4 \times 1/8)^{1/4}, (1/5 \times 1 \times 1/3 \times 1/7)^{1/4}, (1/4 \times 1 \times 1/2 \times 1/6)^{1/4}]$

$= [0.27, 0.31, 0.38]$

Communication-related Enablers = $[(1/6 \times 2 \times 1 \times 4)^{1/4}, (1/5 \times 3 \times 1 \times 5)^{1/4}, (1/4 \times 4 \times 1 \times 6)^{1/4}]$

$= [1.07, 1.32, 1.56]$

Facilitating-conditions related Enablers = $[(1/4 \times 6 \times 1/6 \times 1)^{1/4}, (1/3 \times 7 \times 1/5 \times 1)^{1/4}, (1/2 \times 8 \times 1/4 \times 1)^{1/4}]$

$= [0.71, 0.83, 1]$

**Table 5.7: Fuzzy Geometric mean value table**

| | **Cognitive Enablers** | **Competence-related Enablers** | **Communication-related Enablers** | **Facilitating-conditions related Enablers** | **Fuzzy Geometric Mean value** |
|---|---|---|---|---|---|
| **Cognitive Enablers** | (1,1,1) | (4, 5, 6) | (4, 5, 6) | (2, 3, 4) | (2.38, 2.94, 3.46) |
| **Competence-related Enablers** | (1/6, 1/5, 1/4) | (1,1,1) | (1/4, 1/3, 1/2) | (1/8, 1/7, 1/6) | (0.27, 0.31, 0.38) |
| **Communication-related Enablers** | (1/6, 1/5, 1/4) | (2, 3, 4) | (1,1,1) | (4, 5, 6) | (1.07, 1.32, 1.56) |
| **Facilitating-conditions related Enablers** | (1/4, 1/3, 1/2) | (6, 7, 8) | (1/6, 1/5, 1/4) | (1,1,1) | (0.71, 0.83, 1) |

Next, the fuzzy weights of the enablers are calculated as follows (see Table 5.8).

Cognitive Enablers = (2.38, 2.94, 3.46) x (1/6.4, 1/5.4, 1/4.43)

= (0.37, 0.54, 0.78)

Competence-related Enablers = (0.27, 0.31, 0.38) x (1/6.4, 1/5.4, 1/4.43)

= (0.04, 0.06, 0.08)

Communication-related Enablers = (1.07, 1.32, 1.56) x (1/6.4, 1/5.4, 1/4.43)

= (0.17, 0.24, 0.35)

Facilitating-conditions related Enablers = (0.71, 0.83, 1) x (1/6.4, 1/5.4, 1/4.43)

= (0.11, 0.15, 0.22)

**Table 5.8: Fuzzy Weights**

| | **Fuzzy Weights** |
|---|---|
| **Cognitive Enablers** | (0.37, 0.54, 0.78) |
| **Competence-related Enablers** | (0.04, 0.06, 0.08) |
| **Communication-related Enablers** | (0.17, 0.24, 0.35) |
| **Facilitating-conditions related Enablers** | (0.11, 0.15, 0.22) |

Now, we de-fuzzify the above matrix into crisp numbers (see Table 5.9).

Cognitive Enablers = (0.37 + 0.54 + 0.78)/3

= 0.56

Competence-related Enablers = (0.04 + 0.06 + 0.08)/3

= 0.06

Communication-related Enablers = (0.17 + 0.24 + 0.35)/3

= 0.25

Facilitating-conditions related Enablers = (0.11 + 0.15 + 0.22)/3

= 0.16

**Table 5.9: Defuzzification**

| | Fuzzy Weights | De-fuzzified Weights |
|---|---|---|
| **Cognitive Enablers** | (0.37, 0.54, 0.78) | 0.56 |
| **Competence-related Enablers** | (0.04, 0.06, 0.08) | 0.06 |
| **Communication-related Enablers** | (0.17, 0.24, 0.35) | 0.25 |
| **Facilitating-conditions related Enablers** | (0.11, 0.15, 0.22) | 0.16 |

Finally, the weights are normalized and the final matrix of prioritization of the enablers is obtained (see Table 5.10).

Total Weights = (0.56 + 0.06 + 0.25 + 0.16)

= 1.03

Normalized Weights for the enablers:

Cognitive Enablers = 0.56/1.03

= 0.54

Competence-related Enablers = 0.06/1.03

= 0.06

Communication-related Enablers = 0.25/1.03

= 0.24

Facilitating-conditions related Enablers = 0.16/1.03

= 0.16

**Table 5.10: Normalized weights**

| | Normalized Weights |
|---|---|
| **Cognitive Enablers** | 0.54 |
| **Competence-related Enablers** | 0.06 |
| **Communication-related Enablers** | 0.24 |
| **Facilitating-conditions related Enablers** | 0.16 |

From the above matrix (i.e., Table 5.10), it is evident that Cognitive Enablers (0.54) is the most important category of enablers, followed by Communication-related Enablers (0.24), Facilitating-conditions related Enablers (0.16) and Competence-related Enablers (0.06) (see Table 5.11).

**Table 5.11: Final ranking of the Enablers**

| | Weights | Ranking |
|---|---|---|
| **Cognitive Enablers** | 0.54 | 1 |
| **Communication-related Enablers** | 0.24 | 2 |
| **Facilitating-conditions related Enablers** | 0.16 | 3 |
| **Competence-related Enablers** | 0.06 | 4 |

The same steps have been followed to calculate the weights of the sub-enablers under each of these categorizations. The computed weights of the sub-enablers along with their priority rankings are provided in Table 5.12.

**Table 5.12: Ranking of all specific enablers**

| Enabler | Main Enabler Weight | Sub-Enabler | Sub-Enabler Weight | Relative Rank |
|---|---|---|---|---|
| Cognitive Enablers | 0.54 | Awareness | 0.36 | 1 |
| | | Trust | 0.25 | 2 |
| | | Commitment | 0.16 | 3 |
| | | Engagement of involved actors | 0.11 | 4 |
| | | Role clarity | 0.05 | 5 |
| | | Compatibility of public organizations with citizen participation | 0.04 | 6 |
| | | Ownership | 0.03 | 7 |
| Communication-related Enablers | 0.24 | Interaction among the involved actors | 0.83 | 1 |
| | | Information and knowledge exchange | 0.17 | 2 |
| Facilitating-conditions related Enablers | 0.16 | Incentives and Rewards | 0.83 | 1 |
| | | Open Data | 0.17 | 2 |
| Competence-Related Enablers | 0.06 | Training | 0.62 | 1 |
| | | Presence of Social capital | 0.22 | 2 |
| | | Positive Experience | 0.11 | 3 |
| | | Innovation | 0.05 | 4 |

***Phase 3: Validation of the results of Fuzzy AHP using Sensitivity Analysis***

To validate the obtained priority rankings of the enablers, we use the technique of Sensitivity Analysis that monitors the stability of the rankings obtained from Fuzzy AHP (Kumar et al., 2019). As evident from our analysis, Cognitive enablers was the highest ranked category among the four categories of enablers. To validate the stability of this ranking, we vary the weight of Cognitive enablers from 0.1 to 0.9. Accordingly, the corresponding changes in weights of the other category of enablers were observed (see Table 5.13).

**Table 5.13: Sensitivity Analysis of the main Enablers**

| **MAIN ENABLERS** | | **VALUES OF PREFERENCE** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Normal (0.54)** | **0.1** | **0.2** | **0.3** | **0.4** | **0.5** | **0.6** | **0.7** | **0.8** | **0.9** |
| **Cognitive Enablers** | 0.54 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 |
| **Competence-related Enablers** | 0.06 | 0.11 | 0.10 | 0.09 | 0.07 | 0.06 | 0.05 | 0.03 | 0.02 | 0.01 |
| **Communication-related Enablers** | 0.24 | 0.46 | 0.41 | 0.36 | 0.31 | 0.26 | 0.20 | 0.15 | 0.10 | 0.05 |
| **Facilitating-conditions related Enablers** | 0.16 | 0.31 | 0.27 | 0.24 | 0.20 | 0.17 | 0.13 | 0.10 | 0.06 | 0.03 |
| **Total** | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |

As evident from Table 5.13, Communication-related Enablers category ranks the highest from 0.1 to 0.3; however, from 0.4 to 0.9, Cognitive Enablers category gets the highest priority ranking. Since, the category of Cognitive Enablers ranks the highest for majority of the weight variations, it can thus be confirmed that Cognitive Enablers is the most important category of enablers for implementing the process of value co-creation in the public service sector.

***Phase 4: Categorization of the identified enablers into cause-and-effect groups using Fuzzy DEMATEL***

The identified enablers have been categorized into cause-and-effect groups using the Fuzzy DEMATEL technique using experts' responses on the scale shown in Table 4.2. The following steps have been followed for applying the Fuzzy DEMATEL technique.

Firstly, the Direct-Relation matrix has been set up based on experts' inputs (see Table 5.14).

**Table 5.14: Direct Relation matrix**

| | **Cognitive Enablers** | **Competence-related Enablers** | **Communication-related Enablers** | **Facilitating-conditions related Enablers** |
|---|---|---|---|---|
| **Cognitive Enablers** | 0 | 4 | 4 | 2 |
| **Competence-related Enablers** | 3 | 0 | 2 | 2 |
| **Communication-related Enablers** | 3 | 3 | 0 | 2 |
| **Facilitating-conditions related Enablers** | 1 | 1 | 1 | 0 |

This Direct-Relation matrix has been fuzzified using fuzzy linguistic variables (see Table 5.15).

**Table 5.15: Fuzzfied Direct Relation matrix**

| | **Cognitive Enablers** | **Competence-related Enablers** | **Communication-related Enablers** | **Facilitating-conditions related Enablers** |
|---|---|---|---|---|
| **Cognitive Enablers** | (0, 0, 0.25) | (0.75, 1.0, 1.0) | (0.75, 1.0, 1.0) | (0.25, 0.50, 0.75) |
| **Competence-related Enablers** | (0.50, 0.75, 1.0) | (0, 0, 0.25) | (0.25, 0.50, 0.75) | (0.25, 0.50, 0.75) |
| **Communication-related Enablers** | (0.50, 0.75, 1.0) | (0.50, 0.75, 1.0) | (0, 0, 0.25) | (0.25, 0.50, 0.75) |
| **Facilitating-conditions related Enablers** | (0, 0.25, 0.50) | (0, 0.25, 0.50) | (0, 0.25, 0.50) | (0, 0, 0.25) |

Subsequently, the above triangular fuzzy numbers have been de-fuzzified into initial Direct-Relation matrix (see Table 5.16) using the weighted average method as follows:

$$I_T = 1/6\ (e + 4f + g)$$

where, **e**, **f** and **g** represent the triangular fuzzy numbers.

**Table 5.16: De-fuzzified Initial Direct Relation matrix**

| | **Cognitive Enablers** | **Competence-related Enablers** | **Communication-related Enablers** | **Facilitating-conditions related Enablers** |
|---|---|---|---|---|
| **Cognitive Enablers** | 0.42 | 0.96 | 0.96 | 0.5 |
| **Competence-related Enablers** | 0.75 | 0.42 | 0.5 | 0.5 |
| **Communication-related Enablers** | 0.75 | 0.75 | 0.42 | 0.5 |
| **Facilitating-conditions related Enablers** | 0.25 | 0.25 | 0.25 | 0.42 |

Now, the Direct-Relation matrix is normalized (see Table 5.17, 5.18 and 5.19) using the following equations:

$$D = m \times A$$

where,

$$m = \min\left[\frac{1}{\max \sum_{j=1}^{n} |a_{ij}|}, \frac{1}{\max \sum_{i=1}^{n} |a_{ij}|}\right]$$

and, A = Fuzzified average direct relation matrix (derived in the preceding steps)

**Table 5.17: Normalizing Direct-relation matrix (step 1)**

| | Cognitive Enablers | Competence -related Enablers | Communication-related Enablers | Facilitating-conditions related Enablers | ∑rows |
|---|---|---|---|---|---|
| **Cognitive Enablers** | 0.42 | 0.96 | 0.96 | 0.5 | 2.84 |
| **Competence-related Enablers** | 0.75 | 0.42 | 0.5 | 0.5 | 2.17 |
| **Communication-related Enablers** | 0.75 | 0.75 | 0.42 | 0.5 | 2.42 |
| **Facilitating-conditions related Enablers** | 0.25 | 0.25 | 0.25 | 0.42 | 1.17 |

**Table 5.18: Normalizing Direct-relation matrix (step 2)**

| | Cognitive Enablers | Competence-related Enablers | Communication -related Enablers | Facilitating-conditions related Enablers |
|---|---|---|---|---|
| **Cognitive Enablers** | 0.42/2.84 | 0.96/2.84 | 0.96/2.84 | 0.5/2.84 |
| **Competence-related Enablers** | 0.75/2.84 | 0.42/2.84 | 0.5/2.84 | 0.5/2.84 |
| **Communication-related Enablers** | 0.75/2.84 | 0.75/2.84 | 0.42/2.84 | 0.5/2.84 |
| **Facilitating-conditions related Enablers** | 0.25/2.84 | 0.25/2.84 | 0.25/2.84 | 0.42/2.84 |

**Table 5.19: Normalizing Direct-relation matrix (step 3)**

| | Cognitive Enablers | Competence-related Enablers | Communication-related Enablers | Facilitating-conditions related Enablers |
|---|---|---|---|---|
| **Cognitive Enablers** | 0.147887 | 0.338028169 | 0.338028169 | 0.176056338 |
| **Competence-related Enablers** | 0.264084 | 0.147887324 | 0.176056338 | 0.176056338 |
| **Communication-related Enablers** | 0.264084 | 0.264084507 | 0.147887324 | 0.176056338 |
| **Facilitating-conditions related Enablers** | 0.088028 | 0.088028169 | 0.088028169 | 0.147887324 |

Next, the Total-Relation matrix is obtained (see Table 5.20) using the following equation:

$$T = (I - D)^{-1}$$

where, I: Identity matrix; T: Total relation matrix

**Table 5.20: Total Relation matrix**

| | Cognitive Enablers | Competence-related Enablers | Communication-related Enablers | Facilitating-conditions related Enablers |
|---|---|---|---|---|
| **Cognitive Enablers** | 1.0106891 | 1.247990372 | 1.149568419 | 0.910795038 |
| **Competence-related Enablers** | 0.9109397 | 0.867184986 | 0.824031596 | 0.744247179 |
| **Communication-related Enablers** | 0.9889311 | 1.054443974 | 0.867184986 | 0.807966972 |
| **Facilitating-conditions related Enablers** | 0.4039834 | 0.430745799 | 0.39677531 | 0.427996817 |

Now, the summation of rows (D) and the summation of columns (R) are being determined (see Table 5.21) using the following equations:

$$R= \left\{ \sum_{j=1}^{n} t_{ij} \right\}_{n\times 1}$$

$$C = \left\{ \sum_{i=1}^{n} t_{ij} \right\}_{1 \times n}$$

where, R represents the net effects provided by one critical factor (i) to the other critical factor (j), and C stands for the net effect received by critical factor (j) from the other critical factor (i) (Mangla et al., 2018).

**Table 5.21: Summation of rows (D) and summation of columns (R)**

| | Cognitive Enablers | Competence -related Enablers | Communication-related Enablers | Facilitating -conditions related Enablers | D |
|---|---|---|---|---|---|
| **Cognitive Enablers** | 1.010689 | 1.247990372 | 1.14956841 | 0.91079503 | **4.3190** |
| **Competence-related Enablers** | 0.9109397 | 0.867184986 | 0.82403159 | 0.74424717 | **3.3464** |
| **Communication-related Enablers** | 0.9889311 | 1.054443974 | 0.86718498 | 0.80796697 | **3.7185** |
| **Facilitating-conditions related Enablers** | 0.4039834 | 0.430745799 | 0.39677531 | 0.42799681 | **1.6595** |
| **R** | **3.314543** | **3.600365132** | **3.23756031** | **2.89100600** | |

To classify the enablers into cause (if (D – R) is positive) and effect group (if (D – R) is negative), the dataset (D + R; D – R) are prepared (see Table 5.22).

**Table 5.22: Determining cause (D-R) groups and effect (D+R) groups**

| | D | R | D-R | D+R |
|---|---|---|---|---|
| **Cognitive Enablers** | 4.31904302 | 3.3145436 | **1.00449939** | **7.633586654** |
| **Competence-related Enablers** | 3.34640352 | 3.6003651 | **0.25396160** | **6.946768657** |
| **Communication-related Enablers** | 3.71852711 | 3.2375603 | **0.48096680** | **6.956087425** |
| **Facilitating-conditions related Enablers** | 1.65950141 | 2.8910060 | **1.23150459** | **4.550507418** |

Finally, the cause and effect graph is developed (see Figure 5.3).

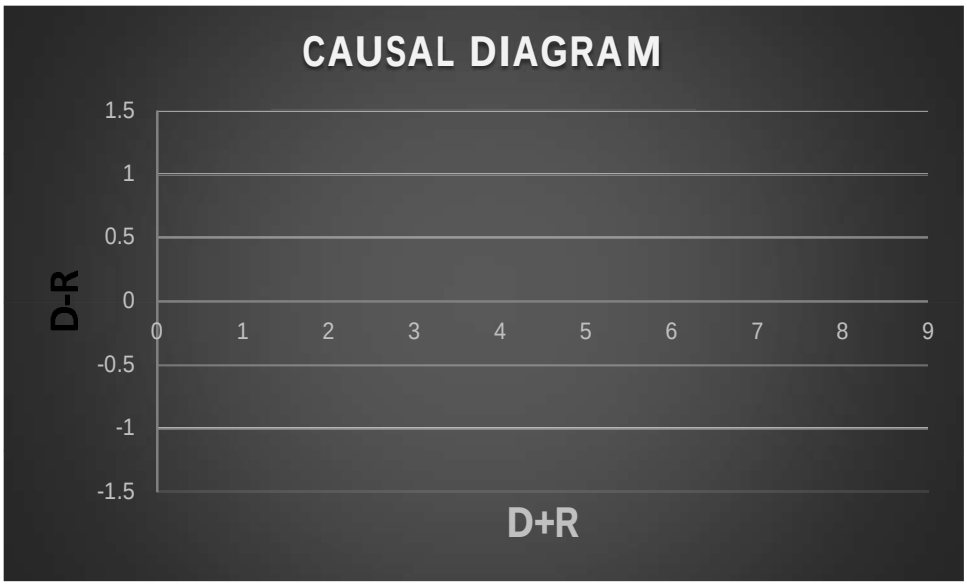


**Figure 5.3: Causal Diagram (Cause-and-Effect graph)**

Since the value of (D - R) is positive for Cognitive Enablers and Communication-related Enablers, both of these categories of enablers fall in the cause group. Contrarily, the value of (D - R) is negative for Competence-related Enablers and Facilitating-conditions related enablers; hence, they fall into the effect group. These results indicate that Cognitive Enablers and Communication-related Enablers influence the other two category of enablers. The same steps have been followed for constructing the cause-and-effect diagrams for the sub-enablers under these categorizations. The causal diagrams for the sub-enablers are provided below (see Figures: 5.4, 5.5, 5.6 and 5.7).

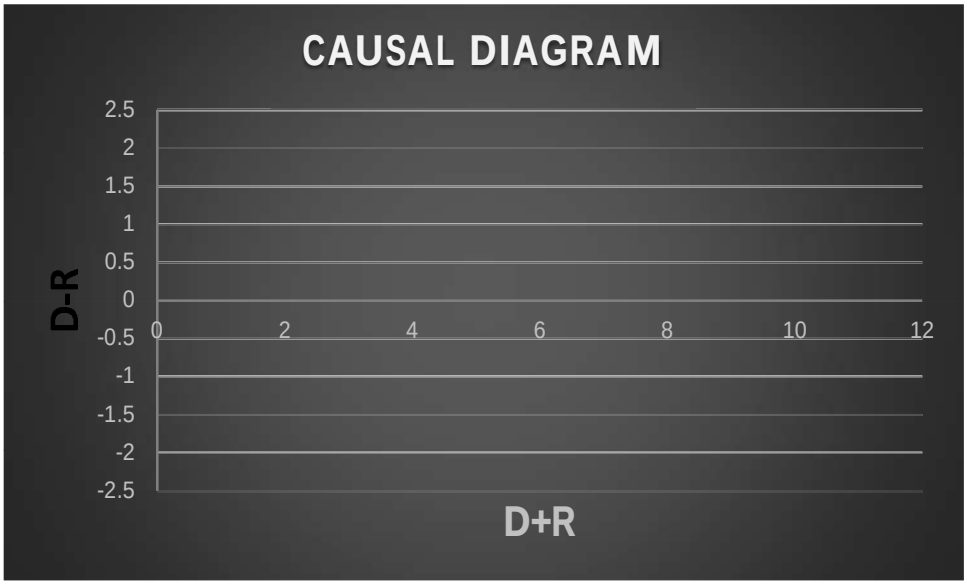


**Figure 5.4: Causal Diagram for Cognitive Enablers**

**Cause Group**: *Commitment*, *Trust* and *Awareness*

**Effect Group:** *Ownership*, *Engagement of involved actors*, *Role clarity* and *Compatibility of public organizations with citizen participation*

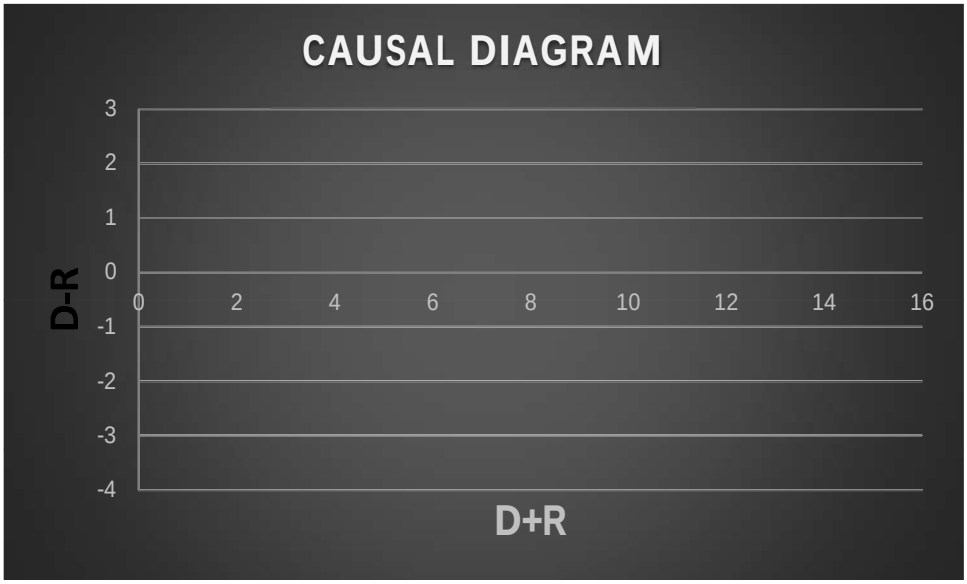


**Figure 5.5: Causal Diagram for Competence-Related Enablers**

**Cause Group**: *Training*, *Experience* and *Presence of Social capital*

**Effect Group:** *Innovativeness*

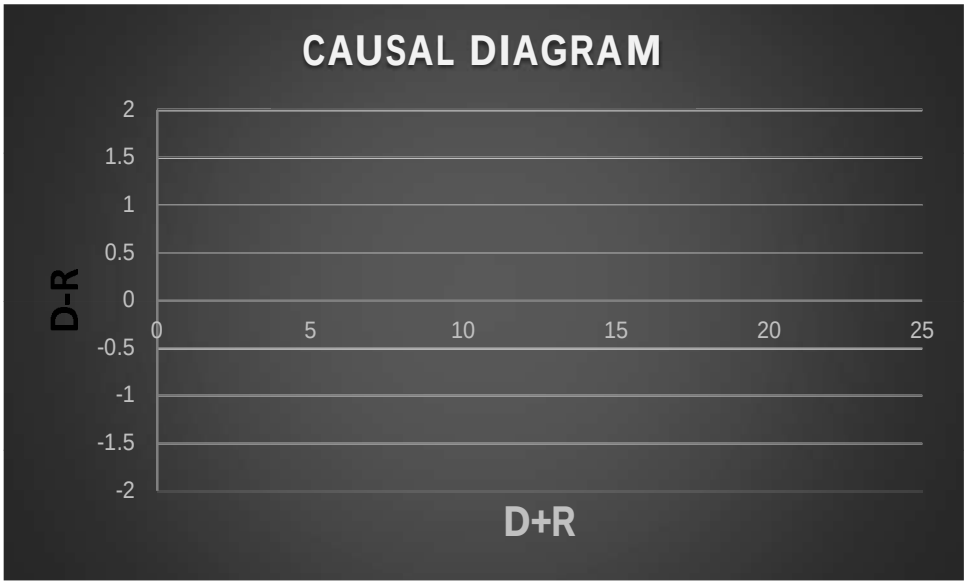


**Figure 5.6: Causal Diagram for Communication-Related Enablers**

**Cause Group:** *Communication among the involved actors*

**Effect Group:** *Information and knowledge exchange*

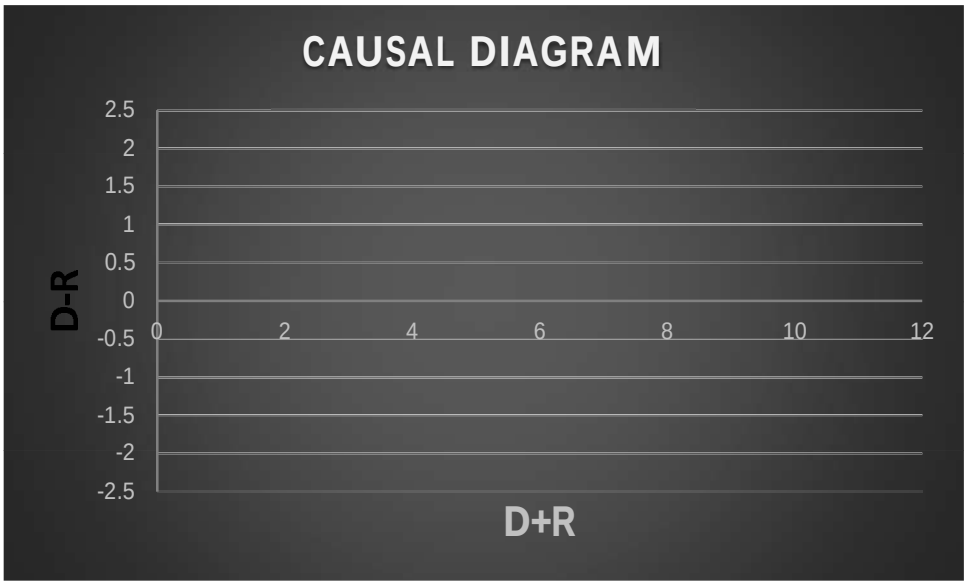


**Figure 5.7: Causal Diagram for Facilitating-conditions Related Enablers**

**Cause Group:** *Monetary incentives*

**Effect Group:** Open Data

## 5.4. Conclusion

This chapter provided with the analysis and results of the quantitative modelling carried out for the enablers of value co-creation for the public services sector of India. The modelling was carried out by integrating two Multi-criteria Decision Making (MCDM) techniques, namely, Fuzzy AHP and Fuzzy DEMATEL. The analysis ranked the enablers in order of their priority rankings, and also developed their causal diagrams (cause and effect groups). In the next chapter, we shall illustrate the analysis and results of quantitative modelling of the barriers of value co-creation for the public services sector of India.

# *CHAPTER 6: MODELLING OF THE BARRIERS OF VALUE CO-CREATION IN THE PUBLIC SERVICES SECTOR OF INDIA*

## 6.1. Chapter Overview

In this chapter, we provide a comprehensive description of the analysis and results derived from modelling of the barriers of value co-creation in the public services sector of India. First, in section 6.2, we present the analysis related to the validation of the identified barriers (see Chapter 3) of value co-creation in the public services sector of India. Subsequently, in section 6.3, we provide the analysis related to the modelling of these barriers. A pictorial overview of this chapter is provided in Figure 6.1.

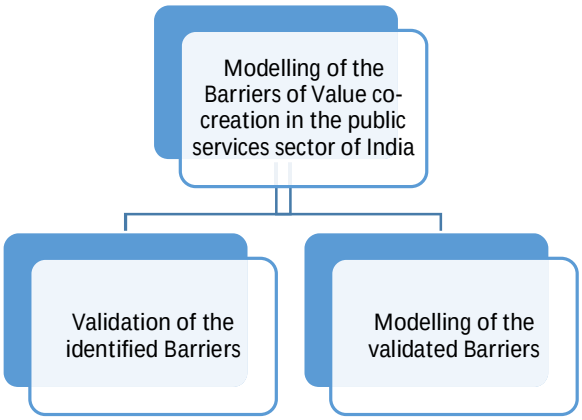


**Figure 6.1: Overview of the Chapter**

## 6.2. Validation of the Identified Barriers

To validate each of the identified barriers (as already discussed in Chapter 3) in the Indian context, a total of 100 experts from the public services sector of India (education, healthcare, urban development, railways etc.) were consulted. The demographic information of the experts is provided in Table 6.1.

**Table 6.1: Demographic profile of the respondents**

| Characteristics | Category | Respondents |
|---|---|---|
| Age Group | 21-30 | 26 |
| | 31-40 | 67 |
| | 41-50 | 5 |
| | 51-60 | 2 |
| | | |
| Gender | Male | 88 |
| | Female | 12 |
| | | |
| Education | Graduation | 94 |
| | Post-Graduation | 6 |

The experts were asked to rate the listed barriers on a 5-point Likert scale (1= not at all significant; 2= partially significant; 3= neutral; 4= highly significant and 5= very highly significant) through a survey-based questionnaire. The mean scores for each of the barriers have been calculated and are presented in Table 6.2.

**Table 6.2: Mean scores of the Barriers of VCC in the public services sector**

| S. No. | Barriers of VCC in the public services sector | Mean |
|---|---|---|
| 1 | Risk aversion by citizens | 3.9 |
| 2 | Risk-averse administrative culture | 3.8 |
| 3 | Citizens' unwillingness to participate | 4.2 |
| 4 | Institutionally imbedded professional culture of public employees | 3.9 |
| 5 | Conflict among the concerned stakeholders | 4.1 |
| 6 | Opposing role of Opinion leader | 3.9 |
| 7 | Cost of Participation | 4 |
| 8 | Lack of Information and Communication Technology (ICT) infrastructure | 3.7 |
| 9 | Lack of operant resources | 3.6 |
| 10 | Excessive Bureaucratic Control | 3.8 |
| 11 | Lack of Accountability | 4.3 |
| 12 | Political instability | 3.9 |
| 13 | Corruption | 4.2 |
| 14 | Lack of Leadership | 4.5 |
| 15 | Lack of citizens' expertise | 3.4 |
| 16 | Lack of effective job crafting | 3.2 |

Any barrier with mean score of 2 or less was decided to be deleted (Rana et al., 2019). However, as evident from Table 1, none of the barriers had a mean score of 2 or less. Thus, all the 16 barriers were retained.

**Table 6.3: List of Barriers and their categories along with literature support**

| Barriers | S. No | Key Barriers of VCC in the public services sector | References |
|---|---|---|---|
| Culture-Related Barriers | 1 | Risk aversion by citizens | Voorberg et al. (2015); Alves (2013); Voorberg et al. (2017) |
| | 2 | Risk-averse administrative culture | Voorberg et al. (2015); Maiello et al. (2013); Talsma and Molenbroek (2012); Baptista et al. (2019) |
| | 3 | Citizens' unwillingness to participate | Dutu and Diaconu (2017); Voorberg et al. (2015); Baptista et al. (2019) |
| | 4 | Institutionally imbedded professional culture of public employees | Torfing et al. (2016); Vallentine and Thygesen (2017) |
| | 5 | Conflict among the concerned stakeholders | Bryson (2017); Mele (2011) |
| | 6 | Opposing role of Opinion leader | Bharti et al. (2014) |
| | | | |
| Resource-Related Barriers | 7 | Cost of Participation | Voorberg et al. (2015); Simmons and Birchall (2005); Brown et al. (2006) |
| | 8 | Lack of Information and Communication Technology (ICT) infrastructure | Liu and Yuan (2015); Torfing et al. (2016); Finn et al. (2006) |
| | 9 | Lack of operant resources | Alves (2013); Hardyman et al. (2015) |
| | | | |
| Management-Related Barriers | 10 | Excessive Bureaucratic Control | Torfing et al. (2016); Cordella and Willcocks (2010); Needham (2008); Hupe and Hill (2007) |
| | 11 | Lack of Accountability | Virtanen and Stenvall (2014); Bryson et al. (2017); Hardyman et al. (2015) |
| | 12 | Political instability | Ciasullo et al. (2016); Zhang et al. (2015) |
| | 13 | Corruption | Bertot et al. (2016); Criado and Gil-Garcia (2019) |
| | | | |
| Competence-Related Barriers | 14 | Lack of Leadership | Tuan (2018); Crosby et al. (2017); Bryson et al. (2017) |
| | 15 | Lack of citizens' expertise | Linders (2012); Needham (2008) |
| | 16 | Lack of effective job crafting | Luu (2018); Luu (2017) |

We had also asked the experts to suggest any new barrier that they might find suitable in the Indian context. None of the experts suggested any new barrier and had complete agreement on the 16 identified barriers. Accordingly, all the 16 barriers were validated for the Indian context. Subsequently, we categorized these 16 barriers into 4 groups based on the similarity among their characteristics. For validating these groups, we consulted three academicians whose research area is related to the public services sector of India. Each of them agreed to our categorization of the barriers, thus validating our groupings for the Indian public services sector context. The final validated list of the barriers along with their relevant literature support is presented in Table 6.3.

### 6.3. Modelling of the Validated Barriers

In this section, we employ the developed research framework based on an integrated Fuzzy AHP-Fuzzy DEMATEL approach for our data evaluation in the context of the *Clean India Mission.* A total of 30 public service experts involved in the *Clean India Mission* were contacted initially via emails and direct visits, requesting them to participate in a survey-based questionnaire evaluation of the selected barriers. The selection of the experts were based upon the following factors: direct involvement in the *Clean India Mission,* researchers' convenience and personal contacts (Rana et al., 2018). The experts were explained the purpose of the research, and the type of questionnaire that they would have to fill. Consequently, 16 experts agreed to participate in the survey; and, hence, allotted us a specified time for visit. This number of experts is considered to be a satisfactory size for our present case-based type of research (Luthra et al., 2016; Rana et al., 2018). Two separate questionnaires were filled by the experts: one for prioritizing the identified barriers using Fuzzy AHP; and the other for categorizing the identified barriers into cause-and-effect groups using Fuzzy DEMATEL. The two questionnaires are given in Appendix 3 & 4. We now apply the proposed research framework

of the study for modelling the identified barriers (based on our stated research objectives) in 4 subsequent phases.

***Phase 1: Validation of the identified barriers of value co-creation in the context of Clean India Mission***

Since the barriers of value co-creation identified in this study were validated for the overall public services sector of India, it is, thus, necessary to validate these barriers within the context of the chosen case-study as well (Kumar et al., 2017). Hence, we asked each of the 16 experts about the validity of the identified barriers in the context of *Clean India Mission,* and also showed them the developed groupings (as described in the literature review section) of the barriers. All of the experts agreed with the validity of the identified barriers in the context of *Clean India Mission,* and also agreed with the categorization of these barriers. Accordingly, all the 16 identified barriers of value co-creation in the public services sector of India were validated for the context of *Clean India Mission.*

***Phase 2: Prioritizing the identified barriers using Fuzzy AHP***

The identified barriers along with their categorization are represented by a hierarchical structure that has been validated by the experts (Figure 5.7). The developed hierarchical structure contains three distinct levels: Prioritizing the barriers of value co-creation in the public services sector (at Level-1); four categories of barriers (at Level-2); sixteen barriers of value co-creation (at Level-3). We, now, illustrate the detailed steps of prioritization for the four categories of barriers using Fuzzy AHP.

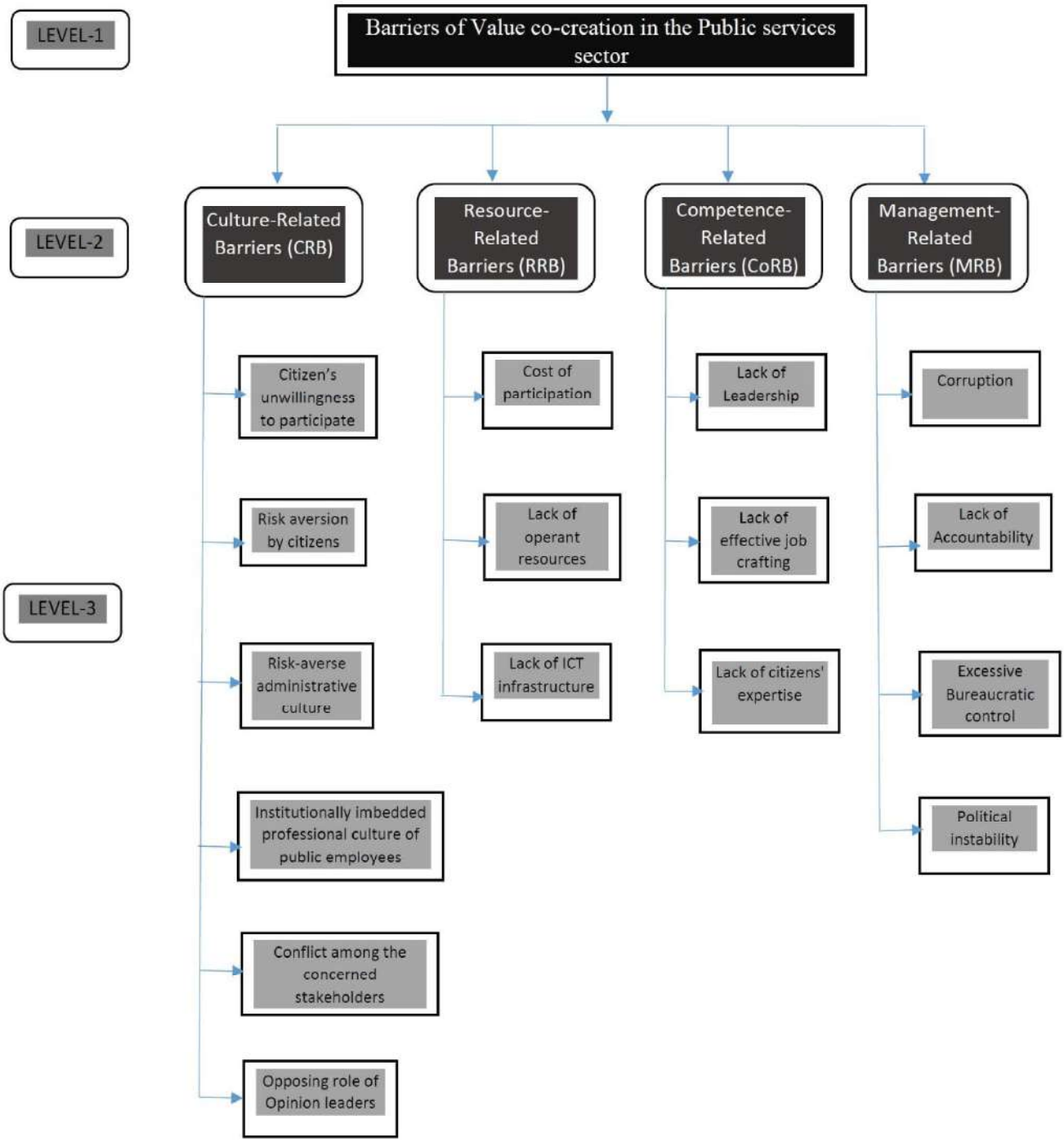


**Figure 6.2: Hierarchical Diagram of the Barriers of VCC in public services sector**

First, the pair-wise comparison matrix is formed (see Table 6.4) using the expert's inputs using the fuzzy linguistic scale. The below matrix is constructed by computing the central tendency of the responses of all the 16 experts.

**Table 6.4: Pair-wise comparison matrix**

| | **Culture-Related Barriers** | **Resource-related Barriers** | **Management-related Barriers** | **Competence-related Barriers** |
|---|---|---|---|---|
| **Culture-Related Barriers** | 1 | 5 | 7 | 5 |
| **Resource-related Barriers** | 1/5 | 1 | 3 | 5 |
| **Management-related Barriers** | 1/7 | 1/3 | 1 | 1/3 |
| **Competence-related Barriers** | 1/5 | 1/5 | 3 | 1 |

Next, the above pair-wise comparison matrix is fuzzified using triangular fuzzy numbers. The below matrix illustrates the fuzzified pair-wise comparison matrix (see Table 6.5).

**Table 6.5: Fuzzified Pair-wise comparison matrix**

| | **Culture-Related Barriers** | **Resource-related Barriers** | **Management-related Barriers** | **Competence-related Barriers** |
|---|---|---|---|---|
| **Culture-Related Barriers** | (1, 1, 1) | (4, 5, 6) | (6, 7, 8) | (4, 5, 6) |
| **Resource-related Barriers** | (1/6, 1/5, 1/4) | (1, 1, 1) | (2, 3, 4) | (4, 5, 6) |
| **Management-related Barriers** | (1/8, 1/7, 1/6) | (1/4, 1/3, 1/2) | (1, 1, 1) | (1/4, 1/3, 1/2) |
| **Competence-related Barriers** | (1/6, 1/5, 1/4) | (1/6, 1/5, 1/4) | (2, 3, 4) | (1, 1, 1) |

Next, the fuzzy Geometric mean value table is developed (see Table 6.6) for the above fuzzified matrix.

The fuzzy Geometric mean value is computed as follows:

Culture-Related Barriers = $[(1 \times 4 \times 6 \times 4)^{1/4}, (1 \times 5 \times 7 \times 5)^{1/4}, (1 \times 6 \times 8 \times 6)^{1/4}]$

$= [3.13, 3.64, 4.12]$

Resource-Related Barriers = $[(1/6 \times 1 \times 2 \times 4)^{1/4}, (1/5 \times 1 \times 3 \times 5)^{1/4}, (1/4 \times 1 \times 4 \times 6)^{1/4})]$

$= [1.07, 1.32, 1.57]$

Management-Related Barriers = $[(1/8 \times 1/4 \times 1 \times 1/4)^{1/4}, (1/7 \times 1/3 \times 1 \times 1/3)^{1/4},$

$(1/6 \times 1/2 \times 1 \times 1/2)^{1/4}]$

$= [0.30, 0.35, 0.45]$

Competence-Related Barriers = $[(1/6 \times 1/6 \times 2 \times 1)^{1/4}, (1/5 \times 1/5 \times 3 \times 1)^{1/4},$

$(1/4 \times ¼ \times 4 \times 1)^{1/4}$

$= [0.48, 0.58, 0.71]$

**Table 6.6: Fuzzy Geometric mean value table**

| | **Culture-Related Barriers** | **Resource-related Barriers** | **Management-related Barriers** | **Competence-related Barriers** | **Fuzzy Geometric Mean value** |
|---|---|---|---|---|---|
| **Culture-Related Barriers** | (1, 1, 1) | (4, 5, 6) | (6, 7, 8) | (4, 5, 6) | (3.13, 3.64, 4.12) |
| **Resource-related Barriers** | (1/6, 1/5, 1/4) | (1, 1, 1) | (2, 3, 4) | (4, 5, 6) | (1.07, 1.32, 1.57) |
| **Management-related Barriers** | (1/8, 1/7, 1/6) | (1/4, 1/3, 1/2) | (1, 1, 1) | (1/4, 1/3, 1/2) | (0.30, 0.35, 0.45) |
| **Competence-related Barriers** | (1/6, 1/5, 1/4) | (1/6, 1/5, 1/4) | (2, 3, 4) | (1, 1, 1) | (0.48, 0.58, 0.71) |

Next, we calculate the fuzzy weights for the barriers as follows (see Table 6.7):

Culture-Related Barriers = (3.13, 3.64, 4.12) x (1/6.85, 1/5.89, 1/4.98)

= (0.46, 0.62, 0.83)

Resource-Related Barriers = (1.07, 1.32, 1.57) x (1/6.85, 1/5.89, 1/4.98)

= (0.16, 0.22, 0.32)

Management-Related Barriers = (0.30, 0.35, 0.45) x (1/6.85, 1/5.89, 1/4.98)

= (0.04, 0.06, 0.09)

Competence-Related Barriers = (0.48, 0.58, 0.71) x (1/6.85, 1/5.89, 1/4.98)

= (0.07, 0.09, 0.14)

**Table 6.7: Fuzzy Weights**

| | **Fuzzy Weights** |
|---|---|
| **Culture-Related Barriers** | (0.46, 0.62, 0.83) |
| **Resource-related Barriers** | (0.16, 0.22, 0.32) |
| **Management-related Barriers** | (0.04, 0.06, 0.09) |
| **Competence-related Barriers** | (0.07, 0.09, 0.14) |

Next, we De-fuzzify the above matrix into crisp numbers as follows (see Table 6.8):

Culture-Related Barriers = (0.46+0.62+0.83)/3

= 0.64

Resource-Related Barriers = (0.16+0.22+0.32)/3

= 0.23

Management-Related Barriers = (0.04+0.06+0.09)/3

= 0.06

Competence-Related Barriers = (0.07+0.09+0.14)/3

= 0.1

**Table 6.8: Defuzzification**

| | Fuzzy Weights | De-fuzzified Weights |
|---|---|---|
| **Culture-Related Barriers** | (0.46, 0.62, 0.83) | 0.64 |
| **Resource-related Barriers** | (0.16, 0.22, 0.32) | 0.23 |
| **Management-related Barriers** | (0.04, 0.06, 0.09) | 0.06 |
| **Competence-related Barriers** | (0.07, 0.09, 0.14) | 0.1 |

Finally, we normalize the weights and obtain the final matrix (see Table 6.9) showing the prioritization of the barriers.

Total Weights = 0.64 + 0.23 + 0.06 + 0.1

= 1.03

Normalized Weights for the barriers:

Culture-Related Barriers = 0.64/1.03

= 0.62

Resource-Related Barriers = 0.23/1.03

= 0.22

Management-Related Barriers = 0.06/1.03

= 0.06

Competence-Related Barriers = 0.1/1.03

= 0.09

**Table 6.9: Normalized weights**

| | Normalized Weights |
|---|---|
| **Culture-Related Barriers** | 0.62 |
| **Resource-related Barriers** | 0.22 |
| **Management-related Barriers** | 0.06 |
| **Competence-related Barriers** | 0.09 |

Thus, it is found that Culture-Related Barriers (0.62) is recognized as the most important category of barriers, followed by Resource-Related Barriers (0.22), Competence-Related Barriers (0.09) and Management- Related Barriers (0.06) (see Table 6.10).

**Table 6.10: Final Ranking of the Barriers**

| | Weights | Ranking |
|---|---|---|
| **Culture-Related Barriers** | 0.62 | 1 |
| **Resource-related Barriers** | 0.22 | 2 |
| **Management-related Barriers** | 0.06 | 4 |
| **Competence-related Barriers** | 0.09 | 3 |

The same steps are followed to compute the weights of each of the sub-barriers under these categorizations. The calculated weight of the sub-barriers along with their priority rankings are given in Table 6.11.

**Table 6.11: Ranking of all specific barriers**

| Barrier | Main Barrier Weight | Sub-Barrier | Sub-Barrier Weight | Relative Rank |
|---|---|---|---|---|
| Culture-Related Barriers | 0.61613 | Citizen's unwillingness to participate | 0.41587 | 1 |
| | | Risk aversion by citizens | 0.26667 | 2 |
| | | Risk-averse administrative culture | 0.13968 | 3 |
| | | Institutionally imbedded professional culture of public employees | 0.09524 | 4 |
| | | Conflict among the concerned stakeholders | 0.04762 | 5 |
| | | Opposing role of Opinion leaders | 0.03492 | 6 |
| | | | | |
| Resource-Related Barriers | 0.22581 | Cost of participation | 0.72727 | 1 |
| | | Lack of operant resources | 0.19156 | 2 |
| | | Lack of ICT infrastructure | 0.08117 | 3 |
| | | | | |
| Competence-Related Barriers | 0.09677 | Lack of Leadership | 0.733766 | 1 |
| | | Lack of effective job crafting | 0.172078 | 2 |
| | | Lack of citizens' expertise | 0.094156 | 3 |
| | | | | |
| Management-Related Barriers | 0.06129 | Corruption | 0.631922 | 1 |
| | | Lack of Accountability | 0.211726 | 2 |
| | | Excessive Bureaucratic control | 0.114007 | 3 |
| | | Political instability | 0.042345 | 4 |

***Phase 3: Validation of the results of Fuzzy AHP using Sensitivity Analysis***

Sensitivity analysis monitors the stability of the priority rankings obtained from the analysis by Fuzzy AHP technique (Kumar et al., 2017). Sensitivity analysis can determine the subsequent changes in rankings with changes in relative weights of the barriers (Rana et al., 2019). Accordingly, we use the sensitivity analysis to verify the obtained priority rankings of the barriers by altering their relative weights.

Culture-Related barriers (CRB) were the highest ranked (in terms of priority ranking) among the four categories of barriers. To verify the stability of this ranking, we vary the weight of CRB from 0.1 to 0.9; changes in the weights of the other barrier categories were observed correspondingly (see Table 6.12).

**Table 6.12: Sensitivity Analysis of the main Barriers**

| MAIN BARRIERS | | VALUES OF PREFERENCE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Normal (0.62)** | **0.1** | **0.2** | **0.3** | **0.4** | **0.5** | **0.6** | **0.7** | **0.8** | **0.9** |
| **Culture-Related Barriers (CRB)** | 0.61 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 |
| **Resource-Related Barriers (RRB)** | 0.22 | 0.52 | 0.47 | 0.4 | 0.35 | 0.29 | 0.23 | 0.17 | 0.11 | 0.05 |
| **Management-Related Barriers (MRB)** | 0.06 | 0.14 | 0.12 | 0.1 | 0.09 | 0.07 | 0.06 | 0.04 | 0.03 | 0.01 |
| **Competence-Related Barriers (CoRB)** | 0.09 | 0.22 | 0.20 | 0.2 | 0.15 | 0.12 | 0.10 | 0.07 | 0.05 | 0.02 |
| **Total** | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |

The results indicate that from 0.1 to 0.3, Resource-Related Barriers (RRB) category ranks the highest; however, from 0.4 to 0.9, Culture-Related barriers (CRB) category tops the rank. Since, CRB category ranks the highest for majority of the variations in weights, it can thus be confirmed that CRB is the most important category of barriers in the way of successful implementation of value co-creation in the public services sector.

***Phase 4: Categorization of the identified barriers into cause and effect groups using Fuzzy DEMATEL***

For categorization of the identified barriers into cause and effect groups using fuzzy DEMATEL technique, responses from experts have been taken using the scale in Table 4.2. Consequently, the Fuzzy DEMATEL technique has been applied as per the following steps.

First, the Direct-Relation matrix has been set up based on the experts' inputs (see Table 6.13).

**Table 6.13: Direct Relation Matrix**

| | **Culture-Related Barriers** | **Resource-related Barriers** | **Management-related Barriers** | **Competence-related Barriers** |
|---|---|---|---|---|
| **Culture-Related Barriers** | 0 | 3 | 4 | 4 |
| **Resource-related Barriers** | 1 | 0 | 3 | 3 |
| **Management-related Barriers** | 2 | 2 | 0 | 1 |
| **Competence-related Barriers** | 2 | 2 | 2 | 0 |

Next, the above Direct-Relation matrix has been fuzzified using fuzzy linguistic variables (see Table 6.14).

**Table 6.14: Fuzzified Direct Relation Matrix**

| | **Culture-Related Barriers** | **Resource-related Barriers** | **Management-related Barriers** | **Competence-related Barriers** |
|---|---|---|---|---|
| **Culture-Related Barriers** | (0, 0, 0.25) | (0.50, 0.75, 1.0) | (0.75, 1.0, 1.0) | (0.75, 1.0, 1.0) |
| **Resource-related Barriers** | (0, 0.25, 0.50) | (0, 0, 0.25) | (0.50, 0.75, 1.0) | (0.50, 0.75, 1.0) |
| **Management-related Barriers** | (0.25, 0.50, 0.75) | (0.25, 0.50, 0.75) | (0, 0, 0.25) | (0, 0.25, 0.50) |
| **Competence-related Barriers** | (0.25, 0.50, 0.75) | (0.25, 0.50, 0.75) | (0.25, 0.50, 0.75) | (0, 0, 0.25) |

Next, the above triangular fuzzy numbers are being de-fuzzified into initial direct-relation matrix (see Table 6.15) using weighted average method with the following equation:

$$I_T = 1/6\ (e + 4f + g)$$

where, e, f and g represent the triangular fuzzy numbers.

**Table 6.15: De-fuzzified Initial Direct Relation Matrix**

| | **Culture-Related Barriers** | **Resource-related Barriers** | **Management-related Barriers** | **Competence-related Barriers** |
|---|---|---|---|---|
| **Culture-Related Barriers** | 0.42 | 0.75 | 0.96 | 0.96 |
| **Resource-related Barriers** | 0.25 | 0.42 | 0.75 | 0.75 |
| **Management-related Barriers** | 0.5 | 0.5 | 0.42 | 0.25 |
| **Competence-related Barriers** | 0.5 | 0.5 | 0.5 | 0.42 |

Next, the Direct-Relation matrix (D) is being normalized using the following equation (see Table 6.16, 6.17 and 6.18):

$$D = m \times A$$

where,

$$m = \min\left[\frac{1}{\max \sum_{j=1}^{n} |a_{ij}|}, \frac{1}{\max \sum_{i=1}^{n} |a_{ij}|}\right]$$

and, A = Fuzzified average direct relation matrix (derived in the preceding steps)

**Table 6.16: Normalizing Direct-relation matrix (step 1)**

| | Culture-Related Barriers | Resource-related Barriers | Management-related Barriers | Competence-related Barriers | ∑rows |
|---|---|---|---|---|---|
| **Culture-Related Barriers** | 0.42 | 0.75 | 0.96 | 0.96 | 3.09 |
| **Resource-related Barriers** | 0.25 | 0.42 | 0.75 | 0.75 | 2.17 |
| **Management-related Barriers** | 0.5 | 0.5 | 0.42 | 0.25 | 1.67 |
| **Competence-related Barriers** | 0.5 | 0.5 | 0.5 | 0.42 | 1.92 |

**Table 6.17: Normalizing Direct-relation matrix (step 2)**

| | Culture-Related Barriers | Resource-related Barriers | Management-related Barriers | Competence-related Barriers |
|---|---|---|---|---|
| **Culture-Related Barriers** | 0.42/3.09 | 0.75/3.09 | 0.96/3.09 | 0.96/3.09 |
| **Resource-related Barriers** | 0.25/3.09 | 0.42/3.09 | 0.75/3.09 | 0.75/3.09 |
| **Management-related Barriers** | 0.5/3.09 | 0.5/3.09 | 0.42/3.09 | 0.25/3.09 |
| **Competence-related Barriers** | 0.5/3.09 | 0.5/3.09 | 0.5/3.09 | 0.42/3.09 |

**Table 6.18: Normalizing Direct-relation matrix (step 3)**

| | Culture-Related Barriers | Resource-related Barriers | Management-related Barriers | Competence-related Barriers |
|---|---|---|---|---|
| **Culture-Related Barriers** | 0.13592233 | 0.242718447 | 0.310679612 | 0.310679612 |
| **Resource-related Barriers** | 0.080906149 | 0.13592233 | 0.242718447 | 0.242718447 |
| **Management-related Barriers** | 0.161812298 | 0.161812298 | 0.13592233 | 0.080906149 |
| **Competence-related Barriers** | 0.161812298 | 0.161812298 | 0.161812298 | 0.13592233 |

Next, the Total-Relation matrix is obtained (see Table 6.19) using the following equation:

$$T = (I - D)^{-1}$$

where, I: Identity matrix; T: Total relation matrix

**Table 6.19: Total Relation Matrix**

| | Culture-Related Barriers | Resource-related Barriers | Management-related Barriers | Competence-related Barriers |
|---|---|---|---|---|
| **Culture-Related Barriers** | 0.571936303 | 0.782884301 | 0.948760547 | 0.87393716 |
| **Resource-related Barriers** | 0.386334953 | 0.510707376 | 0.680678097 | 0.626996859 |
| **Management-related Barriers** | 0.408212002 | 0.478111317 | 0.517623099 | 0.423173328 |
| **Competence-related Barriers** | 0.443161659 | 0.519045505 | 0.589337406 | 0.517623099 |

Next, the summation of rows (D) and the summation of columns (R) are determined using the following equations:

$$R = \left\{ \sum_{j=1}^{n} t_{ij} \right\}_{n \times 1}$$

$$C = \left\{ \sum_{i=1}^{n} t_{ij} \right\}_{1 \times n}$$

where, R represents the net effects provided by one critical factor (i) to the other critical factor (j), and C stands for the net effect received by critical factor (j) from the other critical factor (i) (Mangla et al., 2018) (see Table 6.20).

**Table 6.20: Summation of rows (D) and summation of columns (R)**

| | Culture-Related Barriers | Resource-related Barriers | Management-related Barriers | Competence-related Barriers | D |
|---|---|---|---|---|---|
| **Culture-Related Barriers** | 0.571 | 0.782 | 0.948 | 0.873 | **3.177** |
| **Resource-related Barriers** | 0.386 | 0.510 | 0.680 | 0.626 | **2.204** |
| **Management-related Barriers** | 0.408 | 0.478 | 0.517 | 0.423 | **1.827** |
| **Competence-related Barriers** | 0.443 | 0.519 | 0.589 | 0.517 | **2.069** |
| **R** | **1.809** | **2.290** | **2.736** | **2.441** | |

The dataset (D + R; D – R) are prepared to classify the barriers categories into cause (if (D – R) is positive) and effect group (if (D – R) is negative) (see Table 6.21).

**Table 6.21: Determining cause (D-R) groups and effect (D+R) groups**

| | D | R | D-R | D+R |
|---|---|---|---|---|
| **Culture-Related Barriers** | 3.17751831 | 1.8096449 | **1.367873394** | **4.98716322** |
| **Resource-related Barriers** | 2.20471728 | 2.2907484 | **-0.086031215** | **4.49546578** |
| **Management-related Barriers** | 1.82711974 | 2.7363991 | **-0.909279402** | **4.56351889** |
| **Competence-related Barriers** | 2.06916767 | 2.4417304 | **-0.372562775** | **4.51089811** |

Finally, a cause-and-effect graph is developed (see Figure 6.3).

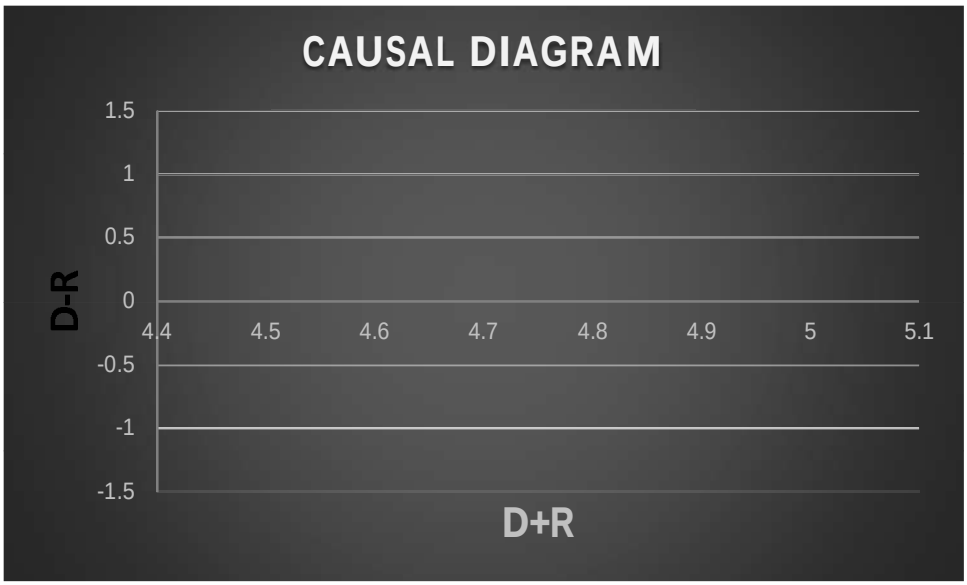


**Figure 6.3: Causal Diagram (Cause-and-Effect graph)**

Since, the value of (D – R) is positive for Culture-Related Barriers, so it falls in the cause group. Correspondingly, the values of (D R) is negative for Resource-Related Barriers, Management- Related Barriers and Competence-Related Barriers; hence, these three barriers fall into the effect group. This result indicates that Culture-Related Barriers influence the other three barrier categories. The same steps are followed to construct the cause-and-effect diagram for the sub-barriers under these categorizations. The causal diagrams for the sub-barriers are provided below (see Figure 6.4, 6.5, 6.6 and 6.7).

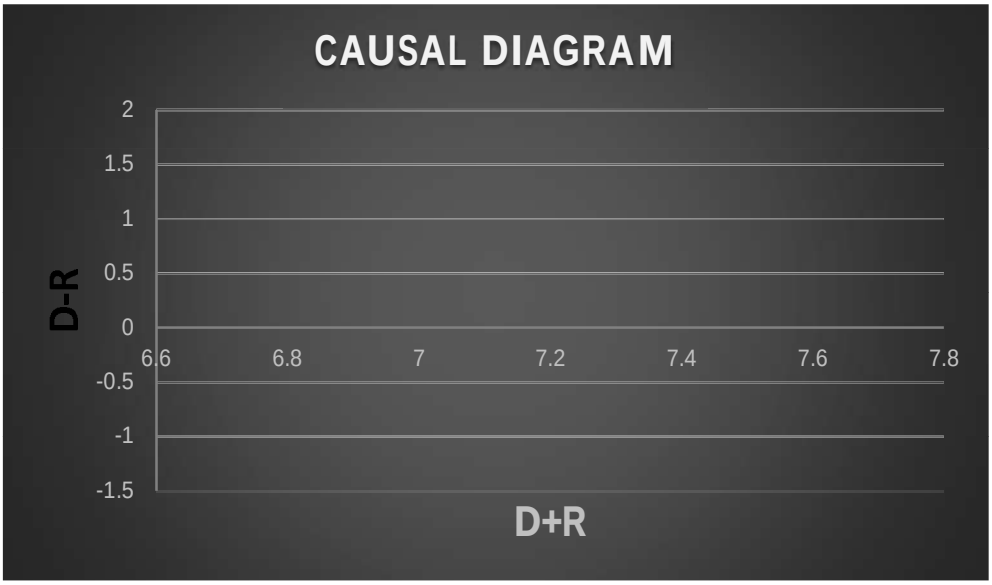


**Figure 6.4: Causal Diagram for Culture-Related Barriers**

**Cause Group**: *unwillingness to participate* and *Institutionally imbedded professional culture of public employees*

**Effect Group**: *Risk-averse administrative culture, Conflict among the concerned stakeholders* and *Role of opinion leader*

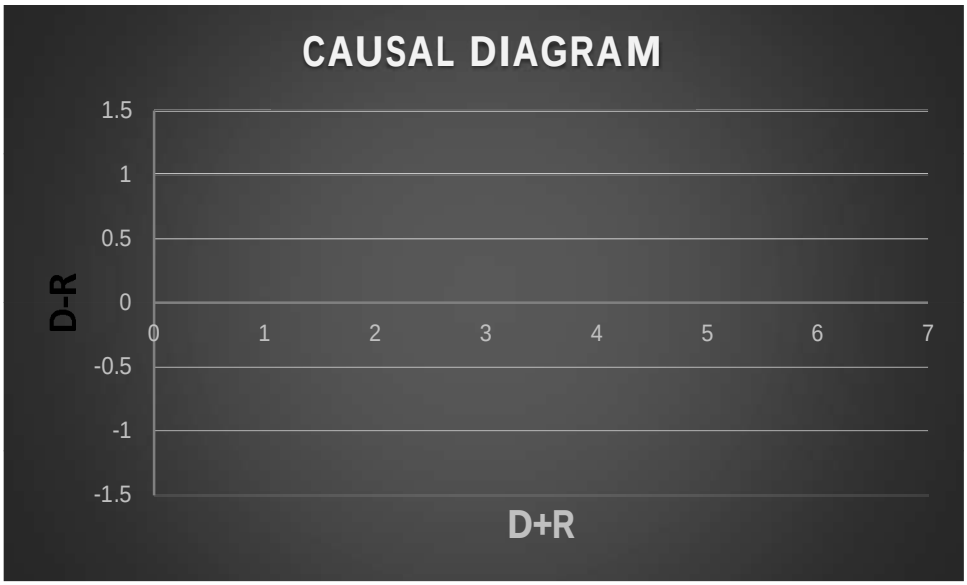


**Figure 6.5: Causal Diagram for Resource-Related Barriers**

**Cause Group:** *Cost of participation* and *lack of operant resources*

**Effect Group:** *Lack of ICT infrastructure*

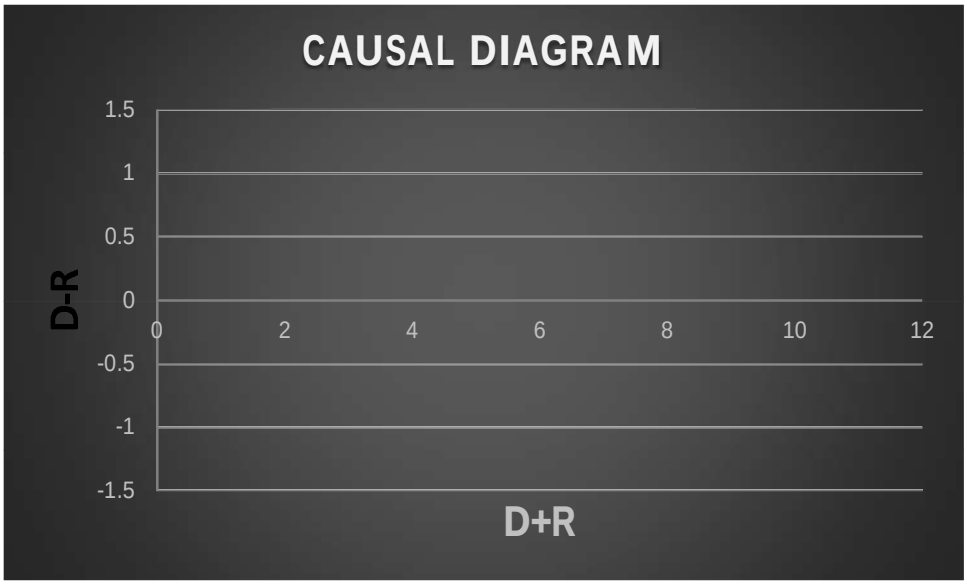


**Figure 6.6: Causal Diagram for Management-Related Barriers**

**Cause Group**: *Lack of Accountability*, *Political instability* and *Corruption*

**Effect Group:** *Excessive bureaucratic control*

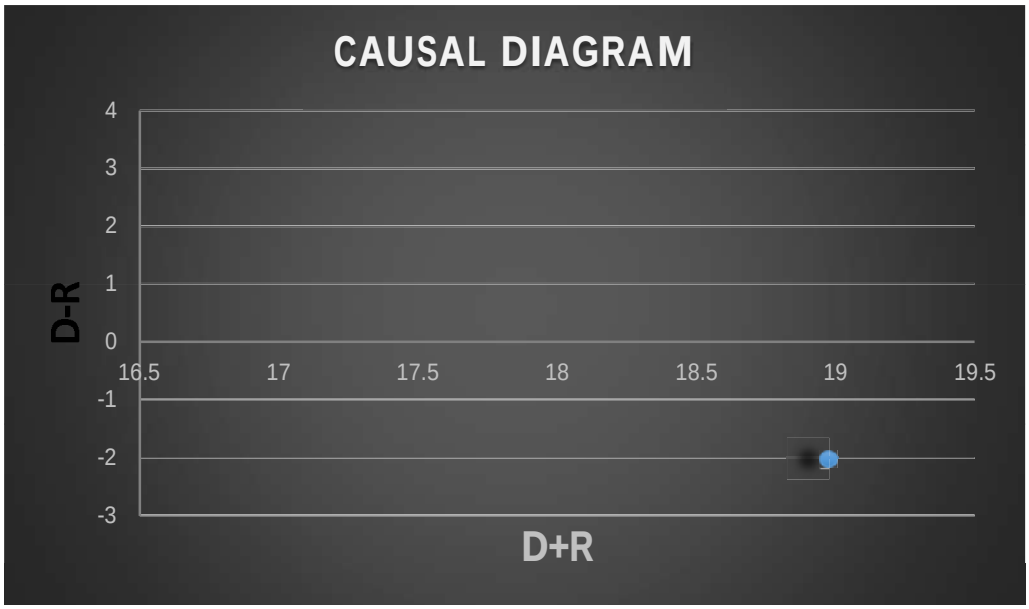


**Figure 6.7: Causal Diagram for Competence-Related Barriers**

**Cause Group:** *Lack of Leadership*

**Effect Group:** and *Lack of effective job crafting*

## 6.4. Conclusion

This chapter provided with the analysis and results of the quantitative modelling carried out for the barriers of value co-creation for the public services sector of India. The modelling was carried out by integrating two Multi-criteria Decision Making (MCDM) techniques, namely, Fuzzy AHP and Fuzzy DEMATEL. The analysis ranked the barriers in order of their priority rankings, and also developed their causal diagrams (cause and effect groups). In the next chapter, we shall illustrate the development of the comprehensive framework for successful implementation of value co-creation in the public services sector of India.

# *CHAPTER 7: COMPREHENSIVE FRAMEWORK FOR VALUE CO-CREATION IN THE PUBLIC SERVICES SECTOR OF INDIA*

## 7.1. Chapter Overview

This chapter provides the detailed approach adopted for developing a comprehensive framework for successful implementation of the process of value co-creation in the public services sector of India. The chapter is divided into four sections. First, in section 7.2, the overview of steps adopted for development of the framework is being provided. Next, in section 7.3, the various components of the framework are being described. Subsequently, in section 7.4, the details of the case study chosen for this study is being elaborated, and finally in section 7.5, the validation of the framework through its application on the case study is being carried out. A pictorial overview of the chapter is provided in Figure 7.1.

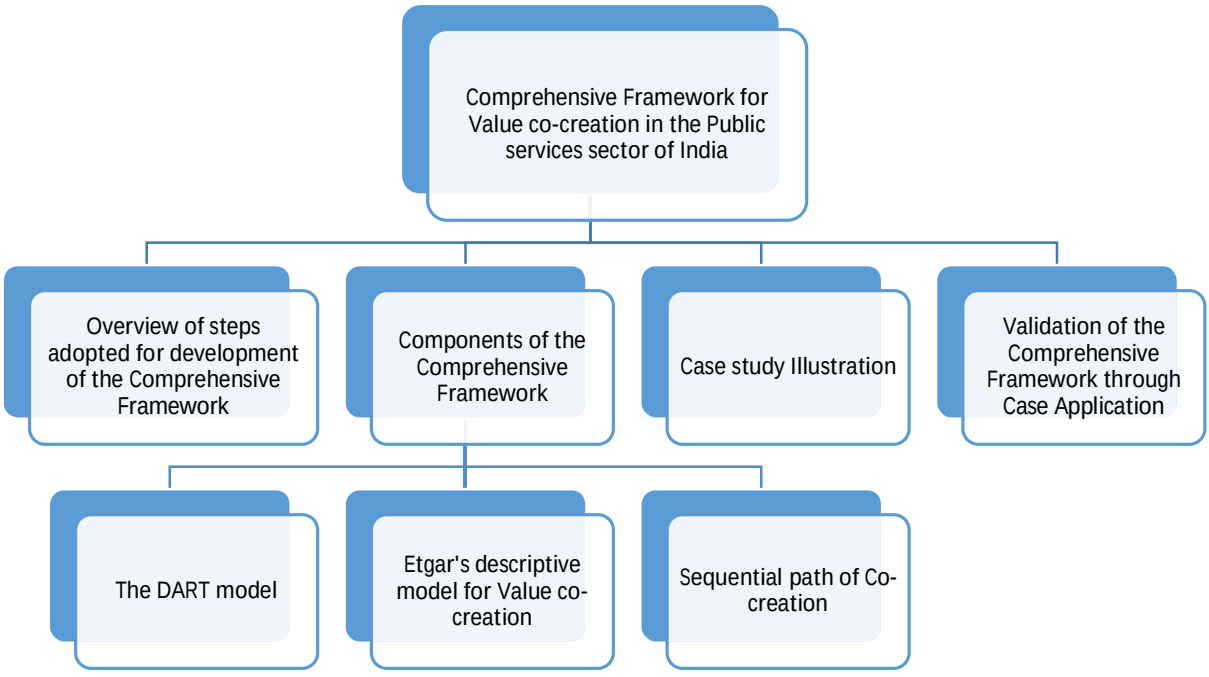


**Figure 7.1: Overview of the Chapter**

### 7.2. Overview of steps adopted for development of the Comprehensive Framework

Value co-creation entails customers from being passive recipients of services to being active and engaged players of the service offering (Prahalad and Ramaswamy, 2004; Tregua et al., 2015). Over the past decade, various researchers have attempted to conceptualize value co-creation from different perspectives (Prahalad and Ramaswamy, 2004; Payne et al., 2008; Etgar, 2008; Gebauer et al., 2010; Cepiku and Giordano, 2014). Most of these conceptualizations have predominantly considered the business world as their primary point of reference. Very limited studies have tried to incorporate these conceptual models in to the arena of public services. Given the nature of the delivery of various public service schemes, it would be quite interesting to examine the insights that can be drawn from the co-creation initiatives of the business world for the betterment of the public services sector. Hence, based on the extant literature, two of the conceptual models developed by Prahalad and Ramaswamy (2004) and Etgar (2008) have been utilized to explore the effect of value co-creation in driving the success for public services schemes. A unified model has been developed that attempts to provide a pathway for a successful implementation of co-creation strategy in the public services context. The unified model combines both the DART model and Etgar's model along with a sequential pathway for the execution of co-creation as a strategy. This sequential pathway has been obtained based on in-depth interviews of the experts. Once the unified model was obtained, a case study approach was adopted to test the applicability of the obtained model in the specified context.

To that end, the following three steps have been adopted to develop the desired comprehensive framework of this study. In the first step, based on an extensive literature study, a preliminary framework for the process of co-creation in the public services context has been established (Gebauer et al., 2010; Kao et al., 2016). In the second step, a suitable case study has been chosen in order to validate our framework within the context of the public services

sector of India. Accordingly, we chose a case that pertains to an ongoing public service initiative of the Government of India, and that has gained traction as a social movement in the past half-a-decade. Finally, the third step of this study illustrates the applicability of the proposed framework in practice through the case study method (Jaakkola and Alexander, 2014).

We now discuss the various components of the comprehensive framework that has been developed based on an extensive literature study.

### 7.3. Components of the Comprehensive Framework

#### 7.3.1. The DART model

In the traditional concept of market, value was perceived to be more company-centric and interactions between companies and their customers were not considered as a source of value creation (Normann and Ramirez, 1994; Wikstrom, 1996). However, in the co-created environment of the new marketing paradigm, consumers are more empowered and connected, and thus play a vital role in value extraction. Interaction between the company and the customers are more specifically aimed towards joint problem solving and co-constructing personalized experiences (Prahalad, 2004). In that light, Prahalad and Ramaswamy (2004) propose four building blocks of interaction for co-creation of value: *Dialogue, Access, Risk-Benefits and Transparency*. These building blocks are aimed at personalizing the co-creation experience and improving the experience outcomes of the involved stakeholders. Each of these building blocks is explained in more details.

*Dialogue* implies a strong flow of communication between the company and its customers. Through effective dialogue, knowledge is shared among the customers and the firm, essentially serving as the basis for value co-creation (Gronroos, 2004). A system where dialogue between the two parties is enabled, it ensures that both of them are involved in joint

problem-solving and mutual responsibility sharing. Additionally, dialogue supports innovation strategies for firms in their quest to build customer satisfaction and loyalty (Taghizadeh et al., 2016). It is, thus, important to have clearly defined rules for dialogues and set out clear principles of engagement for both the parties (Prahald and Ramaswamy, 2004). From a public services context, dialogue enables the beneficiaries of a service to voice their opinion about their own interest and well-being. It ensures a strong feedback loop during the execution phase of any given scheme. For dialogue to be effective, it is important for consumers to have *access* and *transparency* to information about the service offering. When customers have *access* to the service processes, it provides them with an opportunity to design, develop and review quality processes across the value network (Ramaswamy, 2005). On the other hand, *transparency* leads to greater trust among the consumers about a company's offerings. Especially in the public services context, *transparency* and *access* are even more important when there is notable trust deficit in this space. A strong presence of *dialogue, access* and *transparency* essentially leads the consumer to a better assessment of the *risk-benefits* of a course of action and decision (Prahald and Ramaswamy, 2004). A better measure of *risk-benefits* and reduction of uncertainty enables consumers not only to support formulation of innovation strategies (Taghizadeh et al., 2016), but also enables the firm to build a strategic alignment with its stakeholders so that it can exchange information about the customer's needs and requirements (Kibbeling et al., 2013). From the public services context, as in the case of any venture, these four elements of the DART model serve as the pre-requisites of an impactful and successful co-creation initiative.

### 7.3.2. Etgar's Descriptive model for co-creation

Etgar (2008) proposed a descriptive model of consumer engagement in the process of co-creation. This model implies the essentials for a strong impact of any co-creation initiative.

The model presents co-creation as a dynamic process and includes five distinct stages. These five stages are listed as below:

- Development of antecedent conditions
- Development of motivations
- Calculation of the benefits
- Activation
- Generation of outputs and evaluation of the results of the process

***Development of antecedent conditions***

Etgar (2008) suggests that for consumers to engage in the process of co-creation, certain prior conditions should be maintained. Firstly, their macro-economic conditions should be such that their basic need for survival is fulfilled; only after a level of economic maturity would consumers be willing to engage in co-creation activities. Secondly, there should be proper modes of communication channels for co-creation to flourish. The technological eco-system should be conducive enough for consumers to be willing to participate in co-creation activities. Thirdly, consumers should possess enough resources, both operand and operant, for participating in activities of co-creation. Finally, consumers would participate in activities of co-creation only when emotional pre-conditions such as trust, cultural compatibility and long-run commitment are evident from the initiating party of the co-creation venture (Geyskens et al., 1998; Lusch et al., 1992; Gundlach et al., 1995).

***Development of motivations***

Consumers engage in co-creation when they have sufficient motivation in the form of economic, psychological, and social drives. For an economic motivational drive, consumers would want to participate in activities where there is visible cost reduction involved (Etgar, 2006). Similarly, for a psychological motivational drive, consumers prefer reduced risk

associated with any offering (Dowling and Staelin, 1994). With social motivational drive, consumers prefer products whose consumption would not harm their self-esteem.

***Calculation of the benefits***

In this stage, consumers perform cost-benefit analysis regarding their involvement in the co-creation initiative. They detail their benefits with respect to the costs incurred and then evaluate their participation in the activities of co-creation. Costs are both economic and non-economic in nature. Economic costs may include the costs for using the operand material resources of the consumers, while non-economic costs may include loss of freedom of choice, risks of opportunism and potential social stigmas.

***Activation***

The fourth stage that the consumers reach after engaging in co-creation activities is the process of *Activation*. In this stage, consumers choose the specific levels of activities in which they would like to participate. Consumers may choose to participate in one or multiple phases of a co-creation activity depending upon their choice and evaluation. These levels of participating activities can vary across a wide range, such as, manufacturing, distribution, consumption and logistics among various others.

***Generation of outputs and evaluation of the results of the process***

In this final phase, consumers evaluate the outputs generated in the process of co-creation and decide on future course of action. For the purpose of evaluation, consumers may employ sophisticated methods such as decision-making calculus methods, various metrics of judgment etc. Based on the comprehensive evaluation in this phase, consumers finally decide whether to continue with the activities of co-creation or not.

This descriptive model devised by Etgar (2008) serves as the essential elements for the success of any co-creation initiative. From a public services context, this model illustrates consumer's process of evaluation and judgment regarding a given initiative and also the factors

that determine their willingness to participate in the initiative. This model, though derived from the business world, can indeed be capitalized in the public services sector as well, as would be evident in the later sections of this study.

### 7.3.3. Sequential path of Co-creation

Based on an extensive study of the literature, a sequential path for the process of co-creation in the context of public services sector has been formulated. This sequential path signifies the procedural progression of a successful co-creation initiative.

- Identify key stakeholders
- Build platforms for interaction and engagement
- Channelize the idea through communication networks
- Facilitate the implementation process
- Assess impact and efficiency
- Create Feedback loop

***Identify key stakeholders***

The first step of every co-creation initiative is identifying the key stakeholders who are to be involved in the process and whose interests are going to be served. From a public services context, it is usually the citizens of a given place whose welfare and well-being are the primary interests of a co-creation initiative. Proper identification of the key stakeholders ensures that the efforts of co-creation are channelized towards the right target audience and efficient platforms are built that would be utilized to reach out to them effectively (Brown and Potoski, 2006).

***Build platforms for interaction and engagement***

Once the key stakeholders are identified, the next step in the process is building of interactive platforms where the provider and the beneficiary of the service offering can engage

and share their ideas and concerns (Kolsaker and Lee-Kelley, 2008). These platforms should be technologically enabled and should be user-friendly in approach and style (Lee and Kwak, 2012). Various social media platforms and also conventional media platforms can be used to initiate such interactions.

***Channelize the idea through communication networks***

The next step in the process is communicating the message to the target population and bringing them on board with the entire conception of the project. It is important to garner support and approval of the targeted population for any co-creation activity to be successful. Since there is a varied difference of opinions evident among the masses in the public sector, the role of communication networks become even more crucial in such a scenario (Tat-Kei Ho, 2002).

***Facilitate the implementation process***

This stage entails the implementation of the final project. All the stakeholders are now aware of the idea and the desired outcomes of the project. The key concern here is to ensure that the entire targeted population comes under the scanner of the implementation mechanism. Many new challenges would emerge in this stage, which are to be mitigated through collective effort of all the concerned stakeholders (Aarons et al., 2011).

***Assess impact and efficiency***

Once the project is implemented, the overall impact and efficiency of the project has to be measured. Various metrics involving macro-economic indicators and implementation data can be developed to fulfill this objective (Lapsley, 1999). One key concern, however, in this stage is the availability of reliable data to make accurate estimates.

***Create Feedback loop***

The final stage in the sequential path of co-creation is creating a mechanism for feedback. A feedback loop is essential for understanding the concerns of the beneficiaries of

the service and further improving the project (Hartley, 2005). A feedback loop also ensures that there is clear accountability on all the stakeholders and, thus, collective action towards overall progress is enabled.

Thus, from the three different conceptual models described in this section, a value co-creation framework in the context of public services sector of India is developed (see Figure 7.2) that would manifest how the process of value co-creation can be implemented successfully in the public services sector of India.

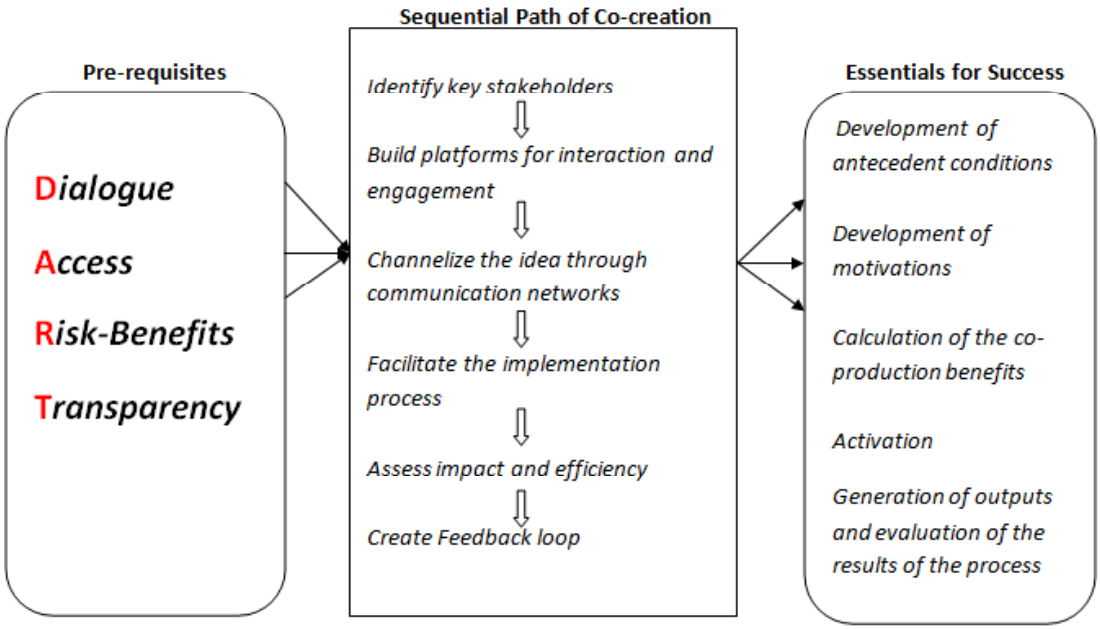


**Figure 7.2: Comprehensive Framework for Co-creation in Public Services**

### 7.4. Case Study Illustration

To address the stated objectives of this study, we use a case-study based approach in accordance with the studies of Mangla et al., (2018) and Luthra et al., (2016). In a recent study by Saha and Goyal (2019), the *Clean India Mission,* launched by the Government of India on 2nd October 2014, has been argued to be a 'classic example' of value co-creation in the public

services sector. Given the startling problem of hygiene, sanitation and open defecation that India has been facing for many decades, this mission has been a game-changer in improving the state of cleanliness, open defecation and hygiene in the country. Accordingly, we use *Clean India Mission* as the focal case for validating our comprehensive framework in the context of the public services sector of India. The purpose of the *Clean India Mission* is to enhance cleanliness and hygiene across India, and also to develop community-managed liquid waste management systems across the country. As per the latest Government of India data (as on July, 2020), a total of 10,28,67,271 household toilets have been constructed across the country under this initiative (sourced from sbm.gov.in). In addition, a total of 6,03,175 villages, 2,62,734 gram panchayats and 706 districts have been declared "open defecation free (ODF)" in lieu of this initiative (Government of India data as sourced from sbm.gov.in). Moreover, cleanliness and sanitation drives are conducted by all the municipalities in the country on a regular basis under this initiative. To achieve such a mammoth task, thousands of volunteers have been recruited to work closely with the public administration. As a clear instance of co-creation, 22,013 volunteers (also known as 'Swachhagrahis') have been officially identified as active participants of this public service initiative. Moreover, to create awareness around this program, various celebrities from the field of sports and films have been made 'ambassadors' of cleanliness. To gauge the service level progress of this initiative, the Quality Council of India has conducted the 'Swachh Survekshan' surveys in three subsequent years: 2016, 2017 and 2018. In the latest survey of 2018, around 4203 cities were covered across 2.2 lakh survey locations. The results show a notable progress in the targeted areas of cleanliness and sanitation across the country. The cleanest cities across India were being bestowed with National Level Awards for their performance. The survey also identified fast-moving cities across the country in regard to cleanliness drive, sanitation and hygiene. The mass participation of the common

citizens coupled with administrative level intervention has essentially led to this massive progress in cleanliness, sanitation and hygiene conditions across the country.

The 'Clean India Mission' is an instance of considerable success in the public services sector where co-creation between the Government and the public has brought about a paradigm shift in an area of immense necessity for the well-being of a country. Though a lot needs to be achieved before this mission meets its set-out objectives, yet there is a clear indication that this program would continue to progress rapidly in future owing to its essence being based on the tenets of value co-creation. This aspect of involving volunteers from the citizenry illustrates the implementation of value co-creation as an effective strategy for enabling the success of the mission's stated objectives (Saha and Goyal, 2019).

We now illustrate the validation of our developed comprehensive framework by applying it in the context of the *'Clean India Mission'*.

### 7.5. Validation of the Comprehensive Framework through Case Application

This study attempts to develop a comprehensive framework for successful implementation of the process of value co-creation in the public services sector of India. As already discussed, the case adopted for this purpose is the '*Clean India Mission*' launched by the Government of India on 2nd October 2014. The 'Clean India Mission' is an instance of considerable success in the public services sector where co-creation between the Government and the public has brought about a paradigm shift in an area of immense necessity for the well-being of a country. We shall now evaluate how the developed framework in this study is applicable in the case of the *'Clean India Mission'*.

To assess the applicability of our framework in the case of '*Clean India Mission*', in-depth interviews were conducted with 16 experts of the public services sector of India (see Table 7.1). This was done to further enhance the framework based on their experience-based

suggestions. The in-depth interviews were conducted for an approximate duration of thirty minutes with each expert. Interview data were coded, and six themes were distinguished based on which our primary framework has been validated. The six themes have been displayed in the coding table (see Table 7.2). The table represents the themes developed post analysis based on the number of narrations of the experts.

**Table 7.1: Demographic profile of the respondents**

| Characteristics | Category | Respondents |
|---|---|---|
| Age Group | 21-30 | 2 |
| | 31-40 | 11 |
| | 41-50 | 2 |
| | 51-60 | 1 |
| | | |
| Gender | Male | 13 |
| | Female | 3 |
| | | |
| Education | Graduation | 14 |
| | Post-Graduation | 2 |
| | | |
| Experience | Less than 5 years | 1 |
| | 6 to 10 years | 9 |
| | 11 to 15 years | 5 |
| | Greater than 15 years | 1 |

**Table 7.2: Coding Table representing the developed themes**

| Themes | Number of Expert Narrations validating the theme |
|---|---|
| *Stakeholders* | 7 |
| *Interaction and Engagement* | 8 |
| *Communication Networks* | 12 |
| *Implementation* | 14 |
| *Efficiency* | 9 |
| *Feedback* | 5 |

The first part of the framework is the *DART model* that represents the pre-requisites for the process of co-creation in public services. In case of the 'Clean India Mission', the Government had clearly set out the necessary infrastructure for the citizens to have clear integration with the theme and objective of this initiative. In the primary stage of implementation of this program, it was communicated by the Government that citizens can be part of this initiative by carrying out the following exercise: they are to identify a dirty place, clean the place, take snaps of their cleaning exercise; post these pictures in social media platforms such as facebook, twitter etc and then invite nine friends to carry out the same exercise. This would motivate other citizens to take action and inspire them to become active co-creators of value in this mission. Many people from different parts of the country carried out this exercise and thus an active form of *dialogue* emerged across the country regarding this program. Various online platforms moderated by the Government were also created to ensure that citizens have proper *access* to the concerned authorities and can reach out to them with any grievance or suggestions regarding the program. Further, with any co-creation initiative, there lie some inherent risks that the customers would want to be minimized before they

participate in the process of co-creation (Prahalad and Ramaswamy, 2004). For the 'Clean India Mission', there are multiple risk factors that the citizens might be concerned about. Firstly, the citizens are required to pay an additional tax, known as the 'Swachh Bharat Cess' of 0.5% on all taxable services. This tax is collected for financing and promoting the 'Clean India Mission' for fulfilling its desired objectives. This additional tax burden could have deterred the citizens from active participation in the 'Clean India Mission'. However, the Government's attempt to clearly explicate the purpose of such a move has made this potential risk more acceptable to the citizenry. Secondly, the waste renewable mechanism puts forth another challenge for this initiative. Lack of adequate solid waste management mechanisms across the country serves as a deterrent for many stakeholders. To counter this issue, the Government has taken various steps to enable implementation of solid waste management rules. Some of these steps include market development assistance of Rs. 1500 per tonne of city compost, amendment in the tariff policy of the energy plants and utilization of technological methods such as composting or biomethanation. These steps ensure that the citizens clearly comprehend the *risk-benefits* before participating in the co-creation initiative. Additionally, various official websites, discussion forums, syndicate reports on the program are readily available in the public domain. This ensures that there is adequate *transparency* in the entire initiative and citizens feel a sense of security as they participate in this ambitious mission. The 'Clean India Mission' has ensured that all the components of the DART model are present in the program and thus serve as pre-requisites for its effective implementation. Once these pre-requisites are met, the next step is to carry out the execution phase of the program and follow the second part of our developed framework.

The second part of the framework represents the *sequential path of the process of co-creation* in the context of public services sector. For the first step, the Government had identified key stakeholders in the form of all citizens of the nation of India belonging to

different social and economic class for active participation in this mission. Given the importance of sanitation and hygiene for every citizen of a society, the key stakeholders for this program encompass all the citizens residing in the country. As one of the public services experts put it:

> *One thing that I liked very much about our Prime Minister is that after so many years someone made cleanliness a priority; for that he called on all of us to join hands. It is our responsibility to make this mission a success. Each and every Indian is part of this and we should make it a success*.

Next, dedicated platforms in the form of websites, mobile applications were developed for the purpose of interaction and engagement between the authorities and the citizens. These platforms helped garner a lot of constructive ideas and deliberations in support of this mission. As one expert noted:

> *They (Government) engage with us through facebook. We post pictures after cleaning dirt.( …) It is nice to see that people all across the country are taking part in this mission. We see them on facebook. This inspires us to do more*.

The subsequent step that the Government carried out was presenting this mission as a national movement and then channelizing it through different communication networks. The Prime Minister of the nation himself carried out cleanliness drive and nominated well-known personalities to engage in this mission in an attempt to spread the message across the country. As put by an expert:

*When we see our PM (Prime Minister) talking about cleanliness on TV and radio, we get motivated to do more. There is much more to do. We have just started.*

In the next step of the sequence of the co-creation process is implementation task where on-groundwork has to be facilitated. For this, a large number of youths have been trained across the nation to serve as volunteers for cleanliness drives and for spreading awareness. Educational institutions have been asked to consider offering a two-credit elective internship of 15-day or 100-hour work involving the 'Clean India Mission'. Further, municipal corporations across the states of India have intensified its efforts in providing cleaner environment for its citizens. The involvement of various well-known personalities has also bolstered the execution phase of this program. Two of the experts put it in the following way:

*This is our work. We have resources. All we need is the willingness to act. The Government is doing its part. What about us?*

*It is time to act. (……) cannot just depend on municipality. We will keep our place clean.*

To measure the effectiveness of all the groundwork, the Government has launched the 'Swachh Survekshan' survey under the aegis of the Quality Council of India. This survey reviews and checks the progress and impact of the 'Clean India Mission' across hundreds of cities and then ranks these cities based on their performance. The survey has been conducted for three consecutive years (2016, 2017 and 2018) and various cities have been awarded based on their rankings. This assessment of impact and efficiency has provided the program with quite a lot of momentum in transforming behavioral focus of the State Governments towards the cause of cleanliness and sanitation. Apart from this, the Government has also developed a

monitoring dashboard to track the continuous progress of the mission. This dashboard captures the household data of over 180 million households across the country. One expert notes:

> *The Survekshan report tells us about the progress. A lot needs to be done. But, at least, we are doing.*

The final step in the sequential path of the process of co-creation is the creation of a strong feedback loop. In this step, all the stakeholders solicit for feedback in an effort to enhance their role in the public service initiative. In the 'Clean India Mission', various communication channels including the assistance of several media outlets and usage of Government regulated mobile applications have served as an effective feedback mechanism for further progress and improvement. An effective feedback mechanism ensures that the concerns of the stakeholders are being listened to and acted upon, which further motivates them to continue their active participation and engagement in the mission. As put by one expert:

> *The Government officials come to us for feedback. But it is not regular. Only when ministers come, they (officials) come. It is a nice thing (the process of feedback). But we need more of it.*

Finally, the third part of our comprehensive framework represents the *'Etgar's descriptive model for co-creation'.* This model signifies the essential elements of success of the process of co-creation in the context of public services. In the first step of this model, certain antecedent conditions are to be satisfied before the consumers participate in the process of co-creation. For the 'Clean India Mission', the citizens have been ensured all the resources, both technological and procedural, that would be required for their engagement in the mission. Since the Government has taken upon itself to construct toilets for the needy population, the

citizens' basic need for sanitation was fulfilled, and thus they were in a better position to participate in the effective implementation of this mission. For the second step of this model, the citizenry was provided with enough pointers of motivation for participating in the 'Clean India Mission'. According to a report published in the year 2014, less than 50% of Indian households had access to sanitation facilities; only 30% of the generated sewage undergoes treatment before being let into waterbodies; and around 400,000 Indian children die of diseases such as cholera and dysentery, a consequence ascribed to poor sanitation facilities (Pragati, 2014). Given these dire circumstances, the 'Clean India Mission' was an essential solution for the country. Thus, the citizens recognized the importance of this mission and actively participated towards its success. For the third step of the model, the changes in sanitation conditions and health conditions of the masses have been perceived to be the potential benefits of the co-creation initiative. This realization too has led to their active engagement in this initiative. In the fourth step of this model, citizens have chosen their own set of activities for participation in this mission. For instance, many of the citizens have involved themselves in cleaning their neighbourhood first, while others have taken up onto them to clean the river Ganga. Some have involved themselves in sewage treatment, while many have taken up awareness campaigns. This aspect of the co-creation process where participants work according to their strengths and willingness further facilitates profound results for the initiative. Finally, in the last step of the model, the participating citizens will gauge at the results that their efforts have brought about. In this respect, the transparent flow of information enabled by various communication channels, quality reviews like the 'Swachh Survekshan' and the presence of a strong feedback loop ensures that the citizens are well averse about progress of the mission. A positive and satisfactory progress motivates all the stakeholders to continue with their efforts of co-creation; the 'Clean India Mission' has been no different and has progressed on similar lines.

Thus, based on the above stated qualitative approach, we have validated our developed comprehensive framework which provides the essential mechanism for successful implementation of the process of value co-creation in the public services sector of India.

### 7.6. Conclusion

This chapter illustrates the detailed approach adopted for developing the comprehensive framework for successful implementation of the process of value co-creation in the public services sector of India. The case of *"Clean India Mission"* was used to validate the proposed comprehensive framework. A qualitative approach based on 16 in-depth interviews of public services experts showed that our developed comprehensive framework is validated for the context of the public services sector of India. In the next chapter, we discuss all the results of this complete study and the implications of these results. In addition, the limitations of the study and the future research directions of this study are also being illustrated in the final chapter of this thesis.

# *CHAPTER 8: DISCUSSION, IMPLICATIONS, LIMITATIONS AND FUTURE RESEARCH DIRECTIONS*

## 8.1. Chapter Overview

In this chapter, we discuss the findings of our analysis in details, and follow it up with both academic as well as practical implications of these findings. It is worth noting that no academic study is beyond its own set of limitations. However, such limitations also serve as the breeding ground for future research studies. Accordingly, we detail the key limitations of our study, and subsequently offer directions for future studies that value co-creation scholars can undertake going forward.

## 8.2. Discussion of the Findings

This study models the enablers and barriers of value co-creation within the context of the public services sector of India. Subsequently, the study develops a comprehensive framework that shows a definitive path towards successful implementation of value co-creation as a strategy in the public services sector. We, now, discuss below the findings of our study in details.

To begin with, this study models the enablers of value co-creation within the context of the public services sector of India. A total of 15 enablers were identified based on an extensive literature review and experts' inputs. The identified enablers were subsequently modelled using an integrated analytical approach that combines two popular Multi-criteria Decision Making (MCDM) techniques- Fuzzy AHP and Fuzzy DEMATEL. To this end, the 15 enablers were grouped into four categorizations as per the similarity in their characteristics: *cognitive enablers, communication-related enablers, facilitating-conditions related enablers* and *competence-related enablers*. We now discuss the obtained results as follows.

For facilitating the process of value co-creation in the public services sector, cognitive abilities of the involved actors are of paramount importance. Accordingly, *cognitive enablers* contribute the most in enabling successful co-creation mechanisms in the public services sector. Within this category, *awareness* obtains the highest priority as per our analysis. Bharti et al. (2014) notes that for citizens to contribute to the process of co-creation, they first have to be aware of the various aspects (costs, benefits, etc.) of the process. Thus, public service officials should properly communicate to the citizens about the co-creation process and ensure their thorough awareness about the same. *Trust* is ranked second within the category of *cognitive enablers.* Fledderus et al. (2014) suggest that trust is the foundation of any co-creating partnership. Hence, it is of paramount importance that the citizens and the public service officials trust each other during the process of co-creation. Trust can be enhanced by ensuring transparency in decision-making and effective communication at regular intervals throughout the duration of the co-creation process. *Commitment* is ranked third in order of priority within the category of *cognitive enablers.* Both the public service administration and the citizenry need to be extremely committed for ensuring a successful co-creation process (Needham, 2008). For enhancing high levels of commitment, the involved actors should have a proper understanding of the benefits that can be garnered from the co-creation process. Next, *engagement of involved actors* is ranked fourth in order of priority within the category of *cognitive enablers.* Bovaird (2007) suggests that the involved actors should be highly engaged in the co-creation process for ensuring efficient resource integration. Thus, the public service officials, as the leading co-creating partner, should ensure that the citizens remain engaged throughout the process of co-creation. Next, *role clarity* is ranked fifth within the category of *cognitive enablers.* In the process of value co-creation, both the citizens and the public service officials should be clear about their roles and responsibilities. This would reduce the chances of conflicts and role ambiguities, and also ensure reduction in wastage of resources (Bharti et

al., 2014). Next, *compatibility of public organizations with citizen participation* is ranked sixth within the category of *cognitive enablers*. Voorberg et al. (2015) suggests that for a successful co-creation initiative in the public services sector, the public organizations and the citizens should develop compatibility between themselves by facilitating effective communication through the setting up of proper infrastructural facilities. Finally, *ownership* is ranked sixth within the category of *cognitive enablers.* The involved actors in a co-creation process need to feel a sense of ownership for the process to be successful. This can be achieved by empowering the actors to take decisions and carry out constructive actions that would be in the best interest of the co-creation process.

C*ommunication-related enablers* acquires the second place in the order of priority among the enabler categorizations as per our analysis. The process of value co-creation requires effective communication among the actors, thus making this category important for a successful co-creation initiative in the public services sector. Within this category, *interaction among the involved actors* obtains the highest priority ranking. Osborne (2018) suggests that value in the process of co-creation is created at the nexus of interaction. This indicates that efficient interaction among the involved actors is an essential condition for successful value co-creation in the public services sector. Next, *information and knowledge exchange* is ranked second in this category. Given the dynamic nature of the process of co-creation, it is important for the actors to share their information and knowledge with each other. Proper information and knowledge exchange among the actors would ensure that each of them is aware of the others' needs and expectations from the co-creation process (Wood, 2016).

*Facilitating-conditions related enablers* acquires the third place in the order of priority among the enabler categorizations. In the process of value co-creation, there are some factors that are absolutely essential for facilitating the success of value co-creation in the public services sector. This group of enablers reveals those factors, hence making it an important

category of enablers. Within this category, *incentives and rewards* obtains the highest priority. Proper incentives and rewards help mitigate the opportunity cost of participation of the citizenry in a co-creation process in the public services sector. Thus, incentives and rewards, in the form of direct cash benefit transfers or discounts, facilitate citizens' participation in the co-creation process (Farr, 2016). Next, *open data* is ranked second within the category of *facilitating-conditions related enablers*. Mulder et al. (2012) suggests that open data facilitates building of efficient technological platforms that would assist interaction and communication between the public service officials and the citizenry, thus making it an important enabler for the success of value co-creation mechanisms in the public services sector.

*Competence-related enablers* acquires the fourth place in the order of priority among the enabler categorizations. Competence of the involved actors determine the success of any co-creation initiative in the public services sector. This makes it an important category of enablers. Within this category, *training* obtains the highest priority. Training improves the competence of the involved actors and also improves their willingness to participate in a co-creation process (Bharti et al., 2014). Thus, public service administration should focus on training the citizenry and also their own officials for becoming better contributors to the value co-creation process.

*Presence of social capital* is ranked second within the category of *competence-related enablers.* A strong social capital makes the citizens feel that they are not alone in the process of co-creation, and thus positively influences their service performance (Voorberg et al., 2015). Hence, Andrews and Brewer (2013) suggests that social capital is one of the most important components of a successful co-creation initiative in the public services sector. Next, *positive experience* is ranked third in this category. Buonincontri et al. (2017) suggests that creating of positive experiences is one of the primary purposes of any co-creation process. Hence, the involved actors should focus on creating positive experiences for each other, apart from

fulfilling the other stated objectives from the co-creation process. Finally, *innovation* is ranked fourth in order of priority within the category of *competence-related enablers.* The process of value co-creation is dynamic in nature and thus presents numerous challenges to the involved actors. Thus, innovation is essential for dealing with these challenges and problems, and also for improving the responsiveness of the system (Alves, 2013).

In the public services sector, there persists a constraint of resources and thus it is important to optimize the available resources. This can be done by identifying the specific set of enablers that have a direct influence on the other enabler types. Accordingly, the influential enabler groups represented by the *cause groups* and the influenced enabler groups represented by the *effect groups* are identified. Resources are then focused on the influential enabler groups (cause groups) and not on the effect groups, thus leading to resource-optimization in the public services sector.

Our analysis shows that among the four categories of enablers, *cognitive enablers* and *communication-related enablers* fall into the cause group, while *competence-related enablers* and *facilitating-conditions related enablers* fall into the effect group. This indicates that *cognitive enablers* and *communication-related enablers* are the influential enablers that influence the other two enabler categories (*competence-related enablers* and *facilitating-conditions related enablers).* Hence, the government and the public service administration should focus their resources majorly on strengthening the *cognitive enablers* and *communication-related enablers* for facilitating the success of the value co-creation process in the public services sector.

Within the *cognitive enablers* category, *commitment*, *trust* and *awareness* fall into the cause group, while *ownership*, *engagement of involved actors, role clarity* and *compatibility of public organizations with citizen participation* fall into the effect group. This indicates that

*commitment*, *trust* and *awareness* influence the other three enabler types. Next, within the c*ommunication-related enablers* category, *communication among the involved actors* fall into the cause category while *information and knowledge exchange* fall into the effect category. This indicates that *communication among the involved actors* influences the enabler type *information and knowledge exchange.* Subsequently, within the *facilitating-conditions related enablers* category, *monetary incentives* fall into the cause group, while *open data* fall into the effect group. Thus, *monetary incentives* influence the enabler type *open data*. Finally, within the *competence-related enablers* category, *training*, *experience* and *presence of social capital* fall into the cause group, while *innovativeness* falls into the effect group. Hence, this indicates that the enabler types *training*, *experience,* and *presence of social capital* together influence the enabler type *innovativeness*.

The above stated results of the *cause*-and-effect groups portray that the public service administration should invest their resources specifically on strengthening the *cause group* enabler types for facilitating the success of value co-creation processes in the public services sector of India.

Next, this study attempts to model the barriers of value co-creation in the public services sector within the context of India. Based on an extensive literature survey and experts' inputs, a total of 16 barriers were identified that were subsequently modelled using an integrated analytical approach combining two MCDM techniques: Fuzzy AHP and Fuzzy DEMATEL. To begin with, the 16 barriers were grouped into four specific categorizations. As per our analysis, the four barrier categorizations follow the order of priority as: *Culture-related Barriers, Resource-related Barriers, Competence-related Barriers* and *Management-related Barriers.*

In the public services context, culture of the involved stakeholders plays a vital role in acceptance and implementation of any scheme or initiative (Rehner et al., 2005). Hence, there is a greater need for managing the *culture-related barriers* while implementing value co-creation as a strategy in the public services sector. Within this category of *culture-related barriers, citizens' unwillingness to participate* obtains the highest priority. Dutu and Diaconu (2017) suggests that lack of skills and knowledge of the citizens in the area of participation constitute some of the primary reasons for their unwillingness to participate in the process of value co-creation. Thus, public service officials should make substantial efforts to impart requisite skills and knowledge to the co-creating citizens for enabling a successful value co-creation process in the public services sector. *Risk aversion by citizens* is ranked second within the category of *culture-related barriers.* Since the citizens are not always certain about the outcome of a co-creation process, hence they may not always be willing to risk their resources in the process (Voorberg et al., 2015); thus, hindering its success. Hence, public service officials need to educate the citizenry about the costs and benefits involved in the process, and also provide sufficient assistance to the participating citizenry for mitigating their risks during the co-creation process. *Risk-averse administrative culture* ranked third in the order of priority within the category of *culture-related barriers.* Roberts et al. (2014) suggests that many public service officials consider the process of value co-creation as unreliable due to the unpredictable behaviour of the citizens (Voorberg et al., 2015). This makes the public service officials risk-averse towards the process of co-creation. In such a scenario, the policy makers and the senior public service administrators should make efforts to educate the risk-averse public service officials on how to lead a successful co-creation process and also teach them on garnering active participation from the involved citizenry. Next, *institutionally imbedded professional culture of public employees* ranked fourth in the category of *culture-related barriers*. Torfing (2019) suggests that public service officials tend to rely more on professional knowledge and

much less on the perspectives of the citizenry. Also, they are more akin to follow their pre-defined rigid institutional structures and guidelines. This makes them less open to feedback from the citizenry, thus hampering the overall effectiveness of the co-creation process. Hence, public service officials should be open to dialogue with the citizens and also should be transparent in their decision-making process for ensuring a successful co-creation mechanism. Next, *conflict among the concerned stakeholders* is ranked fifth in the order of priority of *culture-related barriers*. There may be situations in the process of value co-creation where the involved stakeholders (such as, public service officials and citizens) may have conflicting interests (Bryson et al., 2017). Such situations adversely impact the co-creation process, and essentially requires effective negotiations among the stakeholders with an intention to resolve the stalemate. In such scenarios, the public service officials would have to lead the negotiation process for resolving the areas of conflict. Finally, *opposing role of opinion leaders* ranks sixth in the order of priority of *culture-related barriers*. Since, opinion leaders exert considerable influence on the decisions of group members in a society (Li et al., 2013), it is thus important for the public service officials to have the opinion leaders on board in favour of the co-creation process before initiating any public service initiative (Bharti et al., 2014).

*Resource-related barriers* acquires the second place in the order of priority among the barrier categorizations. The process of value co-creation requires substantial resource sharing among the involved stakeholders (Pera et al., 2016; Frow et al., 2015), thus making this category important for a successful co-creation initiative in the public services sector. Within this category, *cost of participation* obtains the highest priority. Simmons and Birchall (2005) suggest that if the perceived cost of participation outweigh the perceived returns gained from the co-creation process, the stakeholders (primarily the citizens) would not actively participate in the process. Thus, the public service officials would have to make substantial efforts to lower the cost of participation and higher the perceived benefits for all the stakeholders involved.

*Lack of operant resources* is ranked second in the order of priority within the category of *resource-related barriers.* In the process of value co-creation, not all citizens would possess the requisite operant resources (skills and knowledge), thus affecting the overall success of the process of co-creation. Hence, public service officials should recruit only those citizens who possess the necessary operant resources for contributing to the process of co-creation. Alternatively, the citizens may also be trained in acquiring the required operant resources for becoming valuable contributors to the process of co-creation (Windrum et al., 2016). Finally, *lack of ICT infrastructure* is ranked third in the order of priority within the category of *resource-related barriers.* Liu and Yuan (2015) suggest that adoption of ICT infrastructure has not been of much success in the public services context. Thus, presence of digital self-services as part of the ICT infrastructure should be emphasized upon for successful co-creation initiatives in the public services sector (Torfing et al., 2019).

*Competence-related barriers* acquires the third place in the order of priority among the barrier categorizations. The level of competence of the involved actors plays a pivotal role in the success of any value co-creation initiative in the public service sector, thus making this an important category of barriers. Within this category, *lack of leadership* obtains the highest priority. Crosby et al. (2017) suggests that leadership is essential for enhancing actor participation in a co-creation process, for overcoming collaboration-related obstacles and for stimulating innovative thinking. Thus, all the involved stakeholders of value co-creation in the public services sector must ensure effective leadership from either side to ensure manifestation of a successful co-creation mechanism. *Lack of effective job crafting* is ranked second within the category of *competence-related barriers.* Luu (2017) suggests that job crafting is essential for imparting meaning and fulfilment to the jobs of the co-creating actors. Thus, the involved actors should focus on creating effective job crafting to avoid boredom and disengagement while carrying out their shared responsibilities in the co-creation process (Harju et al., 2016).

*Lack of citizens' expertise* is ranked third within the category of *competence-related barriers.* Needham (2008) suggests that expertise of the citizens allows them to take up greater responsibility in a value co-creation process, thus contributing to enhanced effectiveness of the overall process. Hence, public service officials should focus on enhancing the expertise of the co-creating citizens for enabling them to be better contributors to the co-creation process.

*Management-related barriers* acquires the fourth place in the order of priority among the barrier categorizations. The various aspects that affect the functioning and efficiency of the public service administration also impacts the success of all the value co-creation initiatives undertaken in the public services sector. This makes *management-related barriers* an important category of barriers in the context of value co-creation in the public services sector. Within this category, *corruption* obtains the highest order of priority. For generating trust among the citizenry for the co-creation process, it is important for the public service administration to carry out measures for curbing corruption in the system. This can be done by improving transparency in the system and by using technology to eradicate bottlenecks of the co-creation process. *Lack of accountability* is ranked second in terms of order of priority within the category of *management-related barriers.* Virtanen and Stenvall (2014) suggests that government and public service managers should be accountable to the citizens in the public services sector. This would ensure that the public service officials have duly exercised their power and would hence contribute to increasing trust among the citizenry for the co-creation process. *Excessive bureaucratic control* is ranked third in order of priority within the category of *management-related barriers.* While bureaucratic structure of the public service administration is important for systematic implementation of various schemes and initiatives through the process of co-creation, yet excessive bureaucratic control may delay decision-making and also slow the responsiveness of the public service officials in the system (Needham, 2008). Thus, public service administration should focus on ensuring simplification

of the bureaucratic structure to facilitate successful value co-creation initiatives in the public services sector. *Political instability* is ranked fourth in order of priority within the category of *management-related barriers*. Bolivar (2015) suggests that political instability not only creates a state of doubt and uncertainty among the citizenry, but also hampers the functioning of the public service administration. Thus, in the public services sector, the co-creation mechanisms should be designed in such a way that political instability should not be able to increase the risks and lower the benefits of the involved actors in the system.

Furthermore, as already stated, given the constraint of resources in the public services sector, it is thus important to optimize the available resources by identifying the specific set of barriers that have a direct influence on the other barrier types. Once the influential barrier groups (cause groups) are identified, resources would then be focused only on those barriers groups, and not on all the barrier groups individually, thus leading to optimization of resources in the public services sector.

To this end, the causal diagrams obtained from our analysis help us to divide the identified barriers into cause-and-effect groups. Among the four categories of barriers, *culture-related barriers* fall into the cause group, while the other three barriers, namely, *resource-related barriers*, *management-related barriers* and *competence-related barriers* fall into the effect group. This indicates that *culture-related barriers* influence all the other three barrier categories. Thus, the government and the public service administration should focus their resources on resolving the *culture-related barriers* for enhancing the process of value co-creation in the public services sector; this would, in turn, directly impact the other three barrier categories.

Within the *culture-related barriers* category, *risk aversion by citizens, citizens' unwillingness to participate* and *institutionally imbedded professional culture of public*

*employees* fall into the cause group, while *risk-averse administrative culture*, *conflict among the concerned stakeholders* and *role of opinion leader* fall into the effect group. This indicates that *risk aversion by citizens*, *citizens' unwillingness to participate* and *institutionally imbedded professional culture of public employees* influence the other three barrier types. Next, within the *resource-related barriers* category, *cost of participation* and *lack of operant resources* fall into the cause group, while *lack of ICT infrastructure* fall into the effect group. Thus, *cost of participation* and *lack of operant resources* influence the third barrier type, i.e., *lack of ICT infrastructure.* Subsequently, within the *competence-related barriers* category, *lack of leadership* falls into the cause group, while *lack of citizens' expertise* and *lack of effective job crafting* fall into the effect group. This indicates that *lack of leadership* influences the other two barrier types, i.e., *lack of citizens' expertise* and *lack of effective job crafting.* Finally, within the *management-related barriers* category, *lack of accountability*, *political instability* and *corruption* fall into the cause group, while *excessive bureaucratic control* fall into the effect group. That is, the three cause group barriers influence the affect group barrier type, i.e., *excessive bureaucratic control.*

Thus, the above stated results of the cause-and-effect groups indicate that the government and the public service administration should focus their resources specifically on resolving the cause group barrier types for enhancing the process of value co-creation in the public services sector.

Once the enablers and barriers of value co-creation in the public services sector of India have been modelled, we then develop a comprehensive framework for value co-creation that would drive the success of policy initiatives in the public services sector. The comprehensive framework combines both the DART model and Etgar's model along with a sequential pathway for the execution of co-creation as a strategy. This sequential pathway has been obtained based

on in-depth interviews of the experts. Once the unified model was obtained, a case study approach was adopted to test the applicability of the obtained model in the specified context.

### 8.3. Implications of the Research Findings

We, now, discuss the various academic and practical implications of our study as follows:

#### 8.3.1. Academic Implications

This study has several notable academic implications. First, the study contributes to the *public management literature* by modelling the identified enablers and barriers of VCC in the public services sector. While the extant literature has already identified few of the enablers and barriers of VCC in the public services sector (Voorberg et al., 2015; Baptista et al., 2019), no study has yet provided a comprehensive review of these enablers and barriers and have also not analysed and modelled these enablers and barriers to provide clear insights regarding their order of priority and also their role in resource optimization during a VCC process in the public services sector. In that regard, the priority rankings obtained from our analysis provide key insights about the most important enabler and barrier types, and also the causal diagrams obtained provide useful insights about resource optimization during the VCC process.

Second, this study has adopted an integrated analytical approach that combines two popular Multi-criteria Decision Making (MCDM) techniques- Fuzzy AHP and Fuzzy DEMATEL. To the best of our knowledge, no study in the public administration literature has yet applied this integrated MCDM approach. Thus, this is a novel methodological approach in the public management literature, and hence contributes to the methodological advancement of the discipline.

Third, this study contributes to the theoretical advancement of the *value co-creation literature* by illustrating how each of the identified enablers and barriers strengthens the process

of VCC in the public services sector. While extant literature on VCC in the public services sector has emphasized the need to strengthen the process of VCC for improving the functioning of the overall public services sector (Osborne et al., 2016; Hardyman et al., 2015), our study advances this line of thought by analysing and modelling the various enablers and barriers of VCC that would enhance the effective implementation of various schemes and initiatives in the public services sector. These insights provide a novel contribution to the VCC literature in the public services context.

Fourth, the strategy of value co-creation in the area of public service management can prove to be a game-changer provided it is implemented with the right approach. There are inherent risks associated with co-creation and thus proper evaluation of the concerned public service scheme is essential before implementing this strategy. This study provides with a definitive approach in that direction by proposing a comprehensive framework that illustrates the path for successful implementation of value co-creation in the public services sector.

Fifth, the public management literature has dealt extensively with bureaucratic hurdles and uncertainties (Simon, 1976; Lipsky, 1980; Raaphorst, 2018). The results of this study, in the form of a developed comprehensive framework, provide a way for the citizenry and the State in forming an effective collaborative effort and thus prevent those hurdles and uncertainties of a bureaucracy dependent culture.

Finally, public management literature highlights the importance of trust, commitment and relationship among the stakeholders (Albrecht and Travaglione, 2003; Moon, 2000; Osborne et al., 2014). This study adds the importance of another essential dimension to the public management literature: *transparency*. The success of a co-creation effort in the public services context, as evident from the case, depends on all the four dimensions of trust, commitment, relationship and transparency. A lack of either of these can prove to be a

hindrance for success in this sector. Finally, this study also adds to the literature of value co-creation by reinforcing its interactive and iterative nature as suggested by Chen et al. (2017).

### 8.3.2. Practical Implications

This study provides several practical implications that are listed as follows:

- ***Ranking of the enablers and barriers in order of priority***

This study reveals the enablers and barriers of value co-creation in the public services sector of India, and also ranks them in order of their priority. The priority ranking of the enablers and barriers would help public service managers to understand the top enablers and top barriers on which they should focus more of their efforts on. For example, *awareness* as an enabler ranks above *trust*; thus, public service managers must first provide more emphasis on creating awareness among the citizenry about the process of VCC, and then gradually ensure trust-building among them. Similarly, *cost of participation* as a barrier ranks above *lack of operant resources*; thus, public service managers should prioritise lowering of *cost of participation* for the involved stakeholders, and then ensure *availability of operant resources*. Accordingly, public service managers and policy makers should invest most of their efforts and resources on the higher-ranked enablers and barriers.

- ***Setting up of effective communication infrastructure***

Our study reveals that effective communication is one of the essential pillars of success of the process of VCC in the public services sector. Thus, the public service managers should set up proper infrastructure for facilitating effective communication with the citizenry during the process of VCC. Our study further suggests that for setting up this communication infrastructure, technology can be used for building up of interactive platforms where dialogues and feedback would be facilitated. Thus, public service managers should establish regular communication sessions where exchange of information and knowledge would be encouraged.

- ***Optimization of resources***

The public services sector is constrained in terms of resource availability. Our study has identified 15 enablers and 16 barriers of value co-creation in the public services sector of India. To this end, it would require considerable number of resources to strengthen each of the enablers and barriers for a successful co-creation process. Accordingly, the causal diagrams constructed in our study suggests that resources should be focused more specifically on the *cause group* enablers and barriers (the influencing enablers and barriers). Thus, public service managers should focus majorly on the *cause group* enablers and barriers for optimizing resources during a VCC process.

- ***Focus on enhancing the competence of the involved actors***

The process of VCC requires the involved actors to be competent for participating as active contributors in the process. However, in the public services sector, the citizenry do not always possess the requisite skill, knowledge, innovation capacity, social capital and resources to be competent co-creators. To that end, our study suggests that public service managers should train and educate the citizenry in becoming competent contributors in the VCC process.

- ***Focus on cultural dimensions of the involved actors***

While the process of value co-creation is very dynamic in nature and depends on a diverse range of factors for its success, yet not many studies have focused on the cultural dimensions of the involved actors. Our study puts the focus on the cultural dimensions of the actors, and suggests that cultural-related barriers should be emphasized on first before mitigating any other barrier or barrier groups.

- ***Training and education of the involved actors***

The involved actors (especially the citizenry) of the process of co-creation in the public services sector are not always competent to be active participants of the process. Yet, without their active involvement, the co-creation process would not be a success. Hence, our study suggests

that the public service administration should impart training and education to the citizenry for making them competent for the co-creation process.

- ***Framework for successful implementation of public schemes and initiatives***

This study has developed a comprehensive framework for successful implementation of various schemes and initiatives through the process of value co-creation in the public services sector. The framework provides public service managers with the sequential path which should be followed for co-creating essential policy initiatives in the public services sector; it also states the various pre-requisites and essential elements for successful implementation of such policy initiatives. Thus, this study contributes to the practicing public administration officials by providing a definitive guide for enhanced implementation of important schemes and initiatives in the public services sector of India.

### 8.4. Limitations and Future Research Directions

This study has certain limitations that future researchers can duly address. First, the findings of the study are based upon the subjective judgments of the experts from the public services administration. Hence, the results obtained reflect the perspective of the public services administration only. However, the perspective of the citizenry (the other co-creating partner) has not been noted in this study. Thus, future researchers can model the identified enablers based on the perspective and judgment of the representatives of the citizenry as well.

Second, the study has been conducted within the context of a single case study taken from the public services sector of India. Hence, this limits the generalizability of the results across diverse contexts. Future researchers can thus apply our model for the identified enablers and barriers, with minor modifications, in different geographical or cultural contexts.

Third, this study does not determine the inter-relationships among the identified enablers and barriers. Thus, future studies can use techniques such as Structural Equation

Modelling (SEM) and Interpretive Structural Modelling (ISM) for determining the inter-relationships among these identified enablers and barriers.

Fourth, for developing the comprehensive framework, this study has used perceptual measures of assessment in its approach. Though it is a very common methodology used across public management literature (Vogel and Hattke, 2018), yet there is a chance that respondents might have stated their general beliefs and perceptions based on experience. So there exists the requirement of quantitative research to examine the strength of the proposed comprehensive framework.

Finally, our study has analysed a case that is an instance of "top-down" co-creation. The policy was framed by the Government and the citizen was then involved in the process. But, an important research question that can be explored is the optimality of a "top-down" co-creation initiative for India. That is, future research can explore whether "top-down" co-creation is an optimal option for India, and thus provide some useful insights into it.

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# Appendix 1

**Questionnaire for validation of the Enablers:**

What is your Professional Qualification?

- Graduate
- Post Graduate
- Doctorate
- If any other, please specify

How will you classify your work profile?

- Public services sector
- Private sector
- Mixed public and private ownership
- If any other, please specify

What is your work experience?

- Less than 5 years
- 6 to 10 years
- 11 to 15 years
- Greater than 15 years

***Questionnaire:***

*Please rate the following enablers on a 5-point Likert Scale ['1'- Not at all significant, '2'- Partially significant, '3'- Neutral, '4'-Highly significant, '5'- Very highly significant.*

*Further, you are also free to add any specific barrier which you think should be included in the list.*

*Please highlight only one choice in each question as follows:*

1. Commitment

    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

2. Trust

    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

3. Ownership

    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

4. Engagement of involved actors

    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

5. Awareness

    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

6. Role clarity

    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

7. Compatibility of public organizations with citizen participation

    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

8. Training

    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

9. Positive Experiences

    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

10. Presence of social capital

    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

11. Innovativeness

    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

12. Information and knowledge exchange

- Not at all significant
- Partially significant
- Neutral
- Highly significant
- Very highly significant

13. Interaction among the involved actors

- Not at all significant
- Partially significant
- Neutral
- Highly significant
- Very highly significant

14. Monetary Incentives

- Not at all significant
- Partially significant
- Neutral
- Highly significant
- Very highly significant

15. Open Data

- Not at all significant
- Partially significant
- Neutral
- Highly significant
- Very highly significant

# Appendix 2

**Questionnaire for validation of the Barriers:**

What is your Professional Qualification?

- Graduate
- Post Graduate
- Doctorate
- If any other, please specify

How will you classify your work profile?

- Public services sector
- Private sector
- Mixed public and private ownership
- If any other, please specify

What is your work experience?

- Less than 5 years
- 6 to 10 years
- 11 to 15 years
- Greater than 15 years

***Questionnaire:***

*Please rate the following barriers on a 5-point Likert Scale ['1'- Not at all significant, '2'- Partially significant, '3'- Neutral, '4'-Highly significant, '5'- Very highly significant.*

*Further, you are also free to add any specific barrier which you think should be included in the list.*

*Please highlight only one choice in each question as follows:*

1. Risk aversion by citizens

    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

2. Risk-averse administrative culture

    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

3. Citizens' unwillingness to participate

    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

4. Institutionally imbedded professional culture of public employees

    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

5. Conflict among the concerned stakeholders
    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

6. Opposing role of Opinion leader
    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

7. Cost of Participation
    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

8. Lack of Information and Communication Technology (ICT) infrastructure
    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

9. Lack of operant resources
    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

10. Excessive Bureaucratic Control
    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

11. Lack of Accountability
    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

12. Political instability
    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

13. Corruption
    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

14. Lack of Leadership
    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

15. Lack of citizens' expertise
    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

16. Lack of effective job crafting
    - Not at all significant
    - Partially significant
    - Neutral
    - Highly significant
    - Very highly significant

# Appendix 3

***Modelling of the Enablers:***

*For the successful implementation of a given public service initiative, it is important that the concerned citizens are as involved as the Government machinery. Or else, no initiative, however good on paper, is going to realize its full potential.*

*Value co-creation is that process where the Government and the Citizens come together to implement a given public service initiative (e.g., sanitation, education, healthcare etc.) and thus create value for all concerned stakeholders, especially the citizens.*

*In the successful implementation of the process of Value co-creation, there are some driving forces (enablers) that affect the effective implementation of this process.*

*We would like to know, based on your expertise, the degree of significance of each of these enablers that drive the effective implementation of Value co-creation as a strategy in the public service sector.*

**General Information:**

What is your Professional Qualification?

- Graduate
- Post Graduate
- Doctorate
- If any other, please specify

How will you classify your work profile?

- Public services sector
- Private sector
- Mixed public and private ownership
- If any other, please specify

What is your work experience?

- Less than 5 years
- 6 to 10 years
- 11 to 15 years
- Greater than 15 years

***Questionnaire:***

***Cognitive Enablers***

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Awareness | | | | | | | | | Trust | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Awareness | | | | | | | | | Commitment | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Awareness | | | | | | | | | Engagement of involved actors | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Awareness | | | | | | | | | Role clarity | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Awareness | | | | | | | | | Compatibility of public organization with citizen participation | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Awareness | | | | | | | | | Ownership | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Trust | | | | | | | | | Commitment | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Trust | | | | | | | | | Engagement of involved actors | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Trust | | | | | | | | | Role clarity | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Trust | | | | | | | | | Compatibility of public organization with citizen participation | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Trust | | | | | | | | | Ownership | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Commitment | | | | | | | | | | Engagement of involved actors | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Commitment | | | | | | | | | | Role clarity | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Commitment | | | | | | | | | | Compatibility of public organization with citizen participation | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Commitment | | | | | | | | | | Ownership | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Engagement of Involved actors | | | | | | | | | | Role Clarity | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Engagement of Involved actors | | | | | | | | | | Compatibility of public organization with citizen participation | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Engagement of Involved actors | | | | | | | | | Ownership | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Role clarity | | | | | | | | | Compatibility of public organization with citizen participation | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Role clarity | | | | | | | | | Ownership | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Compatibility of public organization with citizen participation | | | | | | | | | Ownership | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

***Communication-related Enablers***

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Interaction among the involved actors | | | | | | | | | | Information and knowledge exchange | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

***Facilitating-conditions related Enablers***

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Incentives and Rewards | | | | | | | | | Open Data | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

***Competence-related Enablers***

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Training | | | | | | | | | Presence of Social capital | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Training | | | | | | | | | Positive Experience | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Training | | | | | | | | | Innovation | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Presence of Social capital | | | | | | | | | Positive Experience | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Presence of Social capital | | | | | | | | | Innovation | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Positive Experience | | | | | | | | | Innovation | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

# Appendix 4

***Modelling of the Barriers:***

*For the successful implementation of a given public service initiative, it is important that the concerned citizens are as involved as the Government machinery. Or else, no initiative, however good on paper, is going to realize its full potential.*

*Value co-creation is that process where the Government and the Citizens come together to implement a given public service initiative (e.g., sanitation, education, healthcare etc.) and thus create value for all concerned stakeholders, especially the citizens.*

*In the successful implementation of the process of Value co-creation, there are some hindrances (barriers) that affect the effective implementation of this process.*

*We would like to know, based on your expertise, the degree of priority of each of these barriers that come in the way of effective implementation of Value co-creation as a strategy in the public service sector.*

**General Information:**

What is your Professional Qualification?

- Graduate
- Post Graduate
- Doctorate
- If any other, please specify

How will you classify your work profile?

- Public services sector
- Private sector
- Mixed public and private ownership
- If any other, please specify

What is your work experience?

- Less than 5 years
- 6 to 10 years
- 11 to 15 years
- Greater than 15 years

***Questionnaire:***

***Culture-related Barriers***

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Risk aversion by citizens | | | | | | | | | Risk-averse administrative culture | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Risk aversion by citizens | | | | | | | | | Citizens' unwillingness to participate | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Risk aversion by citizens | | | | | | | | | Institutionally embedded professional culture of public employees | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Risk aversion by citizens | | | | | | | | | Conflict among the concerned stakeholders | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Risk aversion by citizens | | | | | | | | | Role of opinion leader | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Risk-averse administrative culture | | | | | | | | | | Citizens' unwillingness to participate | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Risk-averse administrative culture | | | | | | | | | Institutionally embedded professional culture of public employees | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Risk-averse administrative culture | | | | | | | | | Conflict among the concerned stakeholders | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Risk-averse administrative culture | | | | | | | | | Role of opinion leader | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Citizens' unwillingness to participate | | | | | | | | | Institutionally embedded professional culture of public employees | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Citizens' unwillingness to participate | | | | | | | | | Conflict among the concerned stakeholders | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Citizens' unwillingness to participate | | | | | | | | | | Role of opinion leader | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Institutionally embedded professional culture of public employees | | | | | | | | | | Conflict among the concerned stakeholders | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflict among the concerned stakeholders | | | | | | | | | | Role of opinion leader | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

***Resource-related Barriers***

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost of Participation | | | | | | | | | | Lack of ICT infrastructure | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost of Participation | | | | | | | | | | Lack of Operant resources | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lack of ICT infrastructure | | | | | | | | | | Lack of Operant resources | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

*Management-related Barriers*

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Excessive Bureaucratic control | | | | | | | | | Lack of Accountability | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Excessive Bureaucratic control | | | | | | | | | Political instability | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Excessive Bureaucratic control | | | | | | | | | Corruption | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lack of Accountability | | | | | | | | | Political instability | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lack of Accountability | | | | | | | | | Corruption | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

*Competence-related Barriers*

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lack of Leadership | | | | | | | | | Lack of citizens' expertise | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lack of Leadership | | | | | | | | | Lack of effective job crafting | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| Questionnaire for Criteria Weight Calculation |
|---|

| Lack of citizens' expertise | | | | | | | | | Lack of effective job crafting | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

***Global Barriers***

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Culture-Related Barriers | | | | | | | | | Resource-related Barriers | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Culture-Related Barriers | | | | | | | | | Management-related Barriers | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Culture-Related Barriers | | | | | | | | | Competence-related Barriers | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Resource-related Barriers | | | | | | | | | Management-related Barriers | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| **Questionnaire for Criteria Weight Calculation** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Resource-related Barriers | | | | | | | | | Competence-related Barriers | | | | | | | |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

| **Questionnaire for Criteria Weight Calculation** |
|---|

| Management-related Barriers | | | | | | | | | Competence-related Barriers | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | | | | | | | | |

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**Victor Saha** is a Doctoral student at the Department of Management, Birla Institute of Technology & Science (BITS) Pilani. He has completed his MBA in Marketing and has worked as a Research Associate at the Department of Business Administration, Tripura University in an Indian Council of Social Sciences (ICSSR) sponsored project. He has published in journals such as the *Journal of Business and Industrial Marketing*, *Journal of Global Information Management*, *Journal of Non-profit and Public Sector Marketing*; *Benchmarking: An International Journal; South Asian Journal of Management* and the *Indian Journal of Marketing*. His areas of interest include services marketing, consumer behaviour and public service management.

**Dr Praveen Goyal** is an Associate Professor in Management at the Department of Management, Birla Institute of Technology & Science (BITS), Pilani. He has earned his PhD from Indian Institute of Technology (IIT), Roorkee. His research interests include services marketing, consumer behaviour and sustainability. He has published papers in the area of CSR and corporate sustainability in *Management Decision; Journal of Non-profit and Public Sector Marketing; Benchmarking: An International Journal; Journal of Modelling in Management; Sustainable Production and Consumption, Journal of Business and Industrial Marketing, Journal of Consumer Behaviour* and *Journal of Global Information Management* among others. He is the recipient of the 'Emerald Literati Network Awards for Excellence' 2016. He has been a Guest Editor for a special issue on Evidence-based Processes in Business and Systems in *International Journal of Business and Systems Research,* and "Evidence based management practices in accounting and finance", in the *International Journal of Management Practice.*

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**Dr Mani Venkatesh** is currently serving as Associate Professor, in the Department of Strategy and Entrepreneurship, Montpellier Business School (MBS), France. He has earned his PhD from Indian Institute of Technology (IIT), Roorkee and later he was awarded one of the prestigious Erasmus (European Union) fellowship to pursue his Post-Doctoral research, in Faculty of Economics (FEP), University of Porto, Portugal. His research interests include supply chain management, supply chain social sustainability, circular economy and industry 4.0, and strategy. Some of his research articles have appeared in *International Journal of Production Economics (IJPE)*, *Business Strategy and the Environment*, *Production Planning and Control*, *International Journal of Information Management*, *Resources Conservation and Recycling*, *Technological Forecasting and Social Change*, *Ecological Indicators* and *Management Decision*. He authored a book titled supply chain social sustainability for manufacturing: measurement and performance outcomes from India published by Springer Nature. He also serves as editorial advisory board member of *Management Decision* (Emerald publications).

# Analysing Value Co-creation for the Public Services Sector in India

**THESIS**

Submitted in Partial Fulfilment
Of the Requirements for the Degree Of
**DOCTOR OF PHILOSOPHY**

By

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# *CHAPTER 8: DISCUSSION, IMPLICATIONS, LIMITATIONS AND FUTURE RESEARCH DIRECTIONS*

## 8.1. Chapter Overview

In this chapter, we discuss the findings of our analysis in details, and follow it up with both academic as well as practical implications of these findings. It is worth noting that no academic study is beyond its own set of limitations. However, such limitations also serve as the breeding ground for future research studies. Accordingly, we detail the key limitations of our study, and subsequently offer directions for future studies that value co-creation scholars can undertake going forward.

## 8.2. Discussion of the Findings

This study models the enablers and barriers of value co-creation within the context of the public services sector of India. Subsequently, the study develops a comprehensive framework that shows a definitive path towards successful implementation of value co-creation as a strategy in the public services sector. We, now, discuss below the findings of our study in details.

To begin with, this study models the enablers of value co-creation within the context of the public services sector of India. A total of 15 enablers were identified based on an extensive literature review and experts' inputs. The identified enablers were subsequently modelled using an integrated analytical approach that combines two popular Multi-criteria Decision Making (MCDM) techniques- Fuzzy AHP and Fuzzy DEMATEL. To this end, the 15 enablers were grouped into four categorizations as per the similarity in their characteristics: *cognitive enablers, communication-related enablers, facilitating-conditions related enablers* and *competence-related enablers*. We now discuss the obtained results as follows.

For facilitating the process of value co-creation in the public services sector, cognitive abilities of the involved actors are of paramount importance. Accordingly, *cognitive enablers* contribute the most in enabling successful co-creation mechanisms in the public services sector. Within this category, *awareness* obtains the highest priority as per our analysis. Bharti et al. (2014) notes that for citizens to contribute to the process of co-creation, they first have to be aware of the various aspects (costs, benefits, etc.) of the process. Thus, public service officials should properly communicate to the citizens about the co-creation process and ensure their thorough awareness about the same. *Trust* is ranked second within the category of *cognitive enablers*. Fledderus et al. (2014) suggest that trust is the foundation of any co-creating partnership. Hence, it is of paramount importance that the citizens and the public service officials trust each other during the process of co-creation. Trust can be enhanced by ensuring transparency in decision-making and effective communication at regular intervals throughout the duration of the co-creation process. *Commitment* is ranked third in order of priority within the category of *cognitive enablers.* Both the public service administration and the citizenry need to be extremely committed for ensuring a successful co-creation process (Needham, 2008). For enhancing high levels of commitment, the involved actors should have a proper understanding of the benefits that can be garnered from the co-creation process. Next, *engagement of involved actors* is ranked fourth in order of priority within the category of *cognitive enablers.* Bovaird (2007) suggests that the involved actors should be highly engaged in the co-creation process for ensuring efficient resource integration. Thus, the public service officials, as the leading co-creating partner, should ensure that the citizens remain engaged throughout the process of co-creation. Next, *role clarity* is ranked fifth within the category of *cognitive enablers.* In the process of value co-creation, both the citizens and the public service officials should be clear about their roles and responsibilities. This would reduce the chances of conflicts and role ambiguities, and also ensure reduction in wastage of resources (Bharti et

al., 2014). Next, *compatibility of public organizations with citizen participation* is ranked sixth within the category of *cognitive enablers*. Voorberg et al. (2015) suggests that for a successful co-creation initiative in the public services sector, the public organizations and the citizens should develop compatibility between themselves by facilitating effective communication through the setting up of proper infrastructural facilities. Finally, *ownership* is ranked sixth within the category of *cognitive enablers.* The involved actors in a co-creation process need to feel a sense of ownership for the process to be successful. This can be achieved by empowering the actors to take decisions and carry out constructive actions that would be in the best interest of the co-creation process.

C*ommunication-related enablers* acquires the second place in the order of priority among the enabler categorizations as per our analysis. The process of value co-creation requires effective communication among the actors, thus making this category important for a successful co-creation initiative in the public services sector. Within this category, *interaction among the involved actors* obtains the highest priority ranking. Osborne (2018) suggests that value in the process of co-creation is created at the nexus of interaction. This indicates that efficient interaction among the involved actors is an essential condition for successful value co-creation in the public services sector. Next, *information and knowledge exchange* is ranked second in this category. Given the dynamic nature of the process of co-creation, it is important for the actors to share their information and knowledge with each other. Proper information and knowledge exchange among the actors would ensure that each of them is aware of the others' needs and expectations from the co-creation process (Wood, 2016).

*Facilitating-conditions related enablers* acquires the third place in the order of priority among the enabler categorizations. In the process of value co-creation, there are some factors that are absolutely essential for facilitating the success of value co-creation in the public services sector. This group of enablers reveals those factors, hence making it an important

category of enablers. Within this category, *incentives and rewards* obtains the highest priority. Proper incentives and rewards help mitigate the opportunity cost of participation of the citizenry in a co-creation process in the public services sector. Thus, incentives and rewards, in the form of direct cash benefit transfers or discounts, facilitate citizens' participation in the co-creation process (Farr, 2016). Next, *open data* is ranked second within the category of *facilitating-conditions related enablers*. Mulder et al. (2012) suggests that open data facilitates building of efficient technological platforms that would assist interaction and communication between the public service officials and the citizenry, thus making it an important enabler for the success of value co-creation mechanisms in the public services sector.

*Competence-related enablers* acquires the fourth place in the order of priority among the enabler categorizations. Competence of the involved actors determine the success of any co-creation initiative in the public services sector. This makes it an important category of enablers. Within this category, *training* obtains the highest priority. Training improves the competence of the involved actors and also improves their willingness to participate in a co-creation process (Bharti et al., 2014). Thus, public service administration should focus on training the citizenry and also their own officials for becoming better contributors to the value co-creation process.

*Presence of social capital* is ranked second within the category of *competence-related enablers.* A strong social capital makes the citizens feel that they are not alone in the process of co-creation, and thus positively influences their service performance (Voorberg et al., 2015). Hence, Andrews and Brewer (2013) suggests that social capital is one of the most important components of a successful co-creation initiative in the public services sector. Next, *positive experience* is ranked third in this category. Buonincontri et al. (2017) suggests that creating of positive experiences is one of the primary purposes of any co-creation process. Hence, the involved actors should focus on creating positive experiences for each other, apart from

fulfilling the other stated objectives from the co-creation process. Finally, *innovation* is ranked fourth in order of priority within the category of *competence-related enablers*. The process of value co-creation is dynamic in nature and thus presents numerous challenges to the involved actors. Thus, innovation is essential for dealing with these challenges and problems, and also for improving the responsiveness of the system (Alves, 2013).

In the public services sector, there persists a constraint of resources and thus it is important to optimize the available resources. This can be done by identifying the specific set of enablers that have a direct influence on the other enabler types. Accordingly, the influential enabler groups represented by the *cause groups* and the influenced enabler groups represented by the *effect groups* are identified. Resources are then focused on the influential enabler groups (cause groups) and not on the effect groups, thus leading to resource-optimization in the public services sector.

Our analysis shows that among the four categories of enablers, *cognitive enablers* and *communication-related enablers* fall into the cause group, while *competence-related enablers* and *facilitating-conditions related enablers* fall into the effect group. This indicates that *cognitive enablers* and *communication-related enablers* are the influential enablers that influence the other two enabler categories (*competence-related enablers* and *facilitating-conditions related enablers).* Hence, the government and the public service administration should focus their resources majorly on strengthening the *cognitive enablers* and *communication-related enablers* for facilitating the success of the value co-creation process in the public services sector.

Within the *cognitive enablers* category, *commitment*, *trust* and *awareness* fall into the cause group, while *ownership*, *engagement of involved actors*, *role clarity* and *compatibility of public organizations with citizen participation* fall into the effect group. This indicates that

*commitment*, *trust* and *awareness* influence the other three enabler types. Next, within the c*ommunication-related enablers* category, *communication among the involved actors* fall into the cause category while *information and knowledge exchange* fall into the effect category. This indicates that *communication among the involved actors* influences the enabler type *information and knowledge exchange.* Subsequently, within the *facilitating-conditions related enablers* category, *monetary incentives* fall into the cause group, while *open data* fall into the effect group. Thus, *monetary incentives* influence the enabler type *open data.* Finally, within the *competence-related enablers* category, *training*, *experience* and *presence of social capital* fall into the cause group, while *innovativeness* falls into the effect group. Hence, this indicates that the enabler types *training*, *experience,* and *presence of social capital* together influence the enabler type *innovativeness*.

The above stated results of the *cause*-and-effect groups portray that the public service administration should invest their resources specifically on strengthening the *cause group* enabler types for facilitating the success of value co-creation processes in the public services sector of India.

Next, this study attempts to model the barriers of value co-creation in the public services sector within the context of India. Based on an extensive literature survey and experts' inputs, a total of 16 barriers were identified that were subsequently modelled using an integrated analytical approach combining two MCDM techniques: Fuzzy AHP and Fuzzy DEMATEL. To begin with, the 16 barriers were grouped into four specific categorizations. As per our analysis, the four barrier categorizations follow the order of priority as: *Culture-related Barriers, Resource-related Barriers, Competence-related Barriers* and *Management-related Barriers.*

In the public services context, culture of the involved stakeholders plays a vital role in acceptance and implementation of any scheme or initiative (Rehner et al., 2005). Hence, there is a greater need for managing the *culture-related barriers* while implementing value co-creation as a strategy in the public services sector. Within this category of *culture-related barriers*, *citizens' unwillingness to participate* obtains the highest priority. Dutu and Diaconu (2017) suggests that lack of skills and knowledge of the citizens in the area of participation constitute some of the primary reasons for their unwillingness to participate in the process of value co-creation. Thus, public service officials should make substantial efforts to impart requisite skills and knowledge to the co-creating citizens for enabling a successful value co-creation process in the public services sector. *Risk aversion by citizens* is ranked second within the category of *culture-related barriers*. Since the citizens are not always certain about the outcome of a co-creation process, hence they may not always be willing to risk their resources in the process (Voorberg et al., 2015); thus, hindering its success. Hence, public service officials need to educate the citizenry about the costs and benefits involved in the process, and also provide sufficient assistance to the participating citizenry for mitigating their risks during the co-creation process. *Risk-averse administrative culture* ranked third in the order of priority within the category of *culture-related barriers.* Roberts et al. (2014) suggests that many public service officials consider the process of value co-creation as unreliable due to the unpredictable behaviour of the citizens (Voorberg et al., 2015). This makes the public service officials risk-averse towards the process of co-creation. In such a scenario, the policy makers and the senior public service administrators should make efforts to educate the risk-averse public service officials on how to lead a successful co-creation process and also teach them on garnering active participation from the involved citizenry. Next, *institutionally imbedded professional culture of public employees* ranked fourth in the category of *culture-related barriers.* Torfing (2019) suggests that public service officials tend to rely more on professional knowledge and

much less on the perspectives of the citizenry. Also, they are more akin to follow their pre-defined rigid institutional structures and guidelines. This makes them less open to feedback from the citizenry, thus hampering the overall effectiveness of the co-creation process. Hence, public service officials should be open to dialogue with the citizens and also should be transparent in their decision-making process for ensuring a successful co-creation mechanism. Next, *conflict among the concerned stakeholders* is ranked fifth in the order of priority of *culture-related barriers.* There may be situations in the process of value co-creation where the involved stakeholders (such as, public service officials and citizens) may have conflicting interests (Bryson et al., 2017). Such situations adversely impact the co-creation process, and essentially requires effective negotiations among the stakeholders with an intention to resolve the stalemate. In such scenarios, the public service officials would have to lead the negotiation process for resolving the areas of conflict. Finally, *opposing role of opinion leaders* ranks sixth in the order of priority of *culture-related barriers.* Since, opinion leaders exert considerable influence on the decisions of group members in a society (Li et al., 2013), it is thus important for the public service officials to have the opinion leaders on board in favour of the co-creation process before initiating any public service initiative (Bharti et al., 2014).

*Resource-related barriers* acquires the second place in the order of priority among the barrier categorizations. The process of value co-creation requires substantial resource sharing among the involved stakeholders (Pera et al., 2016; Frow et al., 2015), thus making this category important for a successful co-creation initiative in the public services sector. Within this category, *cost of participation* obtains the highest priority. Simmons and Birchall (2005) suggest that if the perceived cost of participation outweigh the perceived returns gained from the co-creation process, the stakeholders (primarily the citizens) would not actively participate in the process. Thus, the public service officials would have to make substantial efforts to lower the cost of participation and higher the perceived benefits for all the stakeholders involved.

*Lack of operant resources* is ranked second in the order of priority within the category of *resource-related barriers.* In the process of value co-creation, not all citizens would possess the requisite operant resources (skills and knowledge), thus affecting the overall success of the process of co-creation. Hence, public service officials should recruit only those citizens who possess the necessary operant resources for contributing to the process of co-creation. Alternatively, the citizens may also be trained in acquiring the required operant resources for becoming valuable contributors to the process of co-creation (Windrum et al., 2016). Finally, *lack of ICT infrastructure* is ranked third in the order of priority within the category of *resource-related barriers.* Liu and Yuan (2015) suggest that adoption of ICT infrastructure has not been of much success in the public services context. Thus, presence of digital self-services as part of the ICT infrastructure should be emphasized upon for successful co-creation initiatives in the public services sector (Torfing et al., 2019).

*Competence-related barriers* acquires the third place in the order of priority among the barrier categorizations. The level of competence of the involved actors plays a pivotal role in the success of any value co-creation initiative in the public service sector, thus making this an important category of barriers. Within this category, *lack of leadership* obtains the highest priority. Crosby et al. (2017) suggests that leadership is essential for enhancing actor participation in a co-creation process, for overcoming collaboration-related obstacles and for stimulating innovative thinking. Thus, all the involved stakeholders of value co-creation in the public services sector must ensure effective leadership from either side to ensure manifestation of a successful co-creation mechanism. *Lack of effective job crafting* is ranked second within the category of *competence-related barriers*. Luu (2017) suggests that job crafting is essential for imparting meaning and fulfilment to the jobs of the co-creating actors. Thus, the involved actors should focus on creating effective job crafting to avoid boredom and disengagement while carrying out their shared responsibilities in the co-creation process (Harju et al., 2016).

*Lack of citizens' expertise* is ranked third within the category of *competence-related barriers.* Needham (2008) suggests that expertise of the citizens allows them to take up greater responsibility in a value co-creation process, thus contributing to enhanced effectiveness of the overall process. Hence, public service officials should focus on enhancing the expertise of the co-creating citizens for enabling them to be better contributors to the co-creation process.

*Management-related barriers* acquires the fourth place in the order of priority among the barrier categorizations. The various aspects that affect the functioning and efficiency of the public service administration also impacts the success of all the value co-creation initiatives undertaken in the public services sector. This makes *management-related barriers* an important category of barriers in the context of value co-creation in the public services sector. Within this category, *corruption* obtains the highest order of priority. For generating trust among the citizenry for the co-creation process, it is important for the public service administration to carry out measures for curbing corruption in the system. This can be done by improving transparency in the system and by using technology to eradicate bottlenecks of the co-creation process. *Lack of accountability* is ranked second in terms of order of priority within the category of *management-related barriers.* Virtanen and Stenvall (2014) suggests that government and public service managers should be accountable to the citizens in the public services sector. This would ensure that the public service officials have duly exercised their power and would hence contribute to increasing trust among the citizenry for the co-creation process. *Excessive bureaucratic control* is ranked third in order of priority within the category of *management-related barriers.* While bureaucratic structure of the public service administration is important for systematic implementation of various schemes and initiatives through the process of co-creation, yet excessive bureaucratic control may delay decision-making and also slow the responsiveness of the public service officials in the system (Needham, 2008). Thus, public service administration should focus on ensuring simplification

of the bureaucratic structure to facilitate successful value co-creation initiatives in the public services sector. *Political instability* is ranked fourth in order of priority within the category of *management-related barriers*. Bolivar (2015) suggests that political instability not only creates a state of doubt and uncertainty among the citizenry, but also hampers the functioning of the public service administration. Thus, in the public services sector, the co-creation mechanisms should be designed in such a way that political instability should not be able to increase the risks and lower the benefits of the involved actors in the system.

Furthermore, as already stated, given the constraint of resources in the public services sector, it is thus important to optimize the available resources by identifying the specific set of barriers that have a direct influence on the other barrier types. Once the influential barrier groups (cause groups) are identified, resources would then be focused only on those barriers groups, and not on all the barrier groups individually, thus leading to optimization of resources in the public services sector.

To this end, the causal diagrams obtained from our analysis help us to divide the identified barriers into cause-and-effect groups. Among the four categories of barriers, *culture-related barriers* fall into the cause group, while the other three barriers, namely, *resource-related barriers*, *management-related barriers* and *competence-related barriers* fall into the effect group. This indicates that *culture-related barriers* influence all the other three barrier categories. Thus, the government and the public service administration should focus their resources on resolving the *culture-related barriers* for enhancing the process of value co-creation in the public services sector; this would, in turn, directly impact the other three barrier categories.

Within the *culture-related barriers* category, *risk aversion by citizens*, *citizens' unwillingness to participate* and *institutionally imbedded professional culture of public*

*employees* fall into the cause group, while *risk-averse administrative culture*, *conflict among the concerned stakeholders* and *role of opinion leader* fall into the effect group. This indicates that *risk aversion by citizens*, *citizens' unwillingness to participate* and *institutionally imbedded professional culture of public employees* influence the other three barrier types. Next, within the *resource-related barriers* category, *cost of participation* and *lack of operant resources* fall into the cause group, while *lack of ICT infrastructure* fall into the effect group. Thus, *cost of participation* and *lack of operant resources* influence the third barrier type, i.e., *lack of ICT infrastructure.* Subsequently, within the *competence-related barriers* category, *lack of leadership* falls into the cause group, while *lack of citizens' expertise* and *lack of effective job crafting* fall into the effect group. This indicates that *lack of leadership* influences the other two barrier types, i.e., *lack of citizens' expertise* and *lack of effective job crafting.* Finally, within the *management-related barriers* category, *lack of accountability*, *political instability* and *corruption* fall into the cause group, while *excessive bureaucratic control* fall into the effect group. That is, the three cause group barriers influence the affect group barrier type, i.e., *excessive bureaucratic control.*

Thus, the above stated results of the cause-and-effect groups indicate that the government and the public service administration should focus their resources specifically on resolving the cause group barrier types for enhancing the process of value co-creation in the public services sector.

Once the enablers and barriers of value co-creation in the public services sector of India have been modelled, we then develop a comprehensive framework for value co-creation that would drive the success of policy initiatives in the public services sector. The comprehensive framework combines both the DART model and Etgar's model along with a sequential pathway for the execution of co-creation as a strategy. This sequential pathway has been obtained based

on in-depth interviews of the experts. Once the unified model was obtained, a case study approach was adopted to test the applicability of the obtained model in the specified context.

### 8.3. Implications of the Research Findings

We, now, discuss the various academic and practical implications of our study as follows:

#### 8.3.1. Academic Implications

This study has several notable academic implications. First, the study contributes to the *public management literature* by modelling the identified enablers and barriers of VCC in the public services sector. While the extant literature has already identified few of the enablers and barriers of VCC in the public services sector (Voorberg et al., 2015; Baptista et al., 2019), no study has yet provided a comprehensive review of these enablers and barriers and have also not analysed and modelled these enablers and barriers to provide clear insights regarding their order of priority and also their role in resource optimization during a VCC process in the public services sector. In that regard, the priority rankings obtained from our analysis provide key insights about the most important enabler and barrier types, and also the causal diagrams obtained provide useful insights about resource optimization during the VCC process.

Second, this study has adopted an integrated analytical approach that combines two popular Multi-criteria Decision Making (MCDM) techniques- Fuzzy AHP and Fuzzy DEMATEL. To the best of our knowledge, no study in the public administration literature has yet applied this integrated MCDM approach. Thus, this is a novel methodological approach in the public management literature, and hence contributes to the methodological advancement of the discipline.

Third, this study contributes to the theoretical advancement of the *value co-creation literature* by illustrating how each of the identified enablers and barriers strengthens the process

of VCC in the public services sector. While extant literature on VCC in the public services sector has emphasized the need to strengthen the process of VCC for improving the functioning of the overall public services sector (Osborne et al., 2016; Hardyman et al., 2015), our study advances this line of thought by analysing and modelling the various enablers and barriers of VCC that would enhance the effective implementation of various schemes and initiatives in the public services sector. These insights provide a novel contribution to the VCC literature in the public services context.

Fourth, the strategy of value co-creation in the area of public service management can prove to be a game-changer provided it is implemented with the right approach. There are inherent risks associated with co-creation and thus proper evaluation of the concerned public service scheme is essential before implementing this strategy. This study provides with a definitive approach in that direction by proposing a comprehensive framework that illustrates the path for successful implementation of value co-creation in the public services sector.

Fifth, the public management literature has dealt extensively with bureaucratic hurdles and uncertainties (Simon, 1976; Lipsky, 1980; Raaphorst, 2018). The results of this study, in the form of a developed comprehensive framework, provide a way for the citizenry and the State in forming an effective collaborative effort and thus prevent those hurdles and uncertainties of a bureaucracy dependent culture.

Finally, public management literature highlights the importance of trust, commitment and relationship among the stakeholders (Albrecht and Travaglione, 2003; Moon, 2000; Osborne et al., 2014). This study adds the importance of another essential dimension to the public management literature: *transparency.* The success of a co-creation effort in the public services context, as evident from the case, depends on all the four dimensions of trust, commitment, relationship and transparency. A lack of either of these can prove to be a

hindrance for success in this sector. Finally, this study also adds to the literature of value co-creation by reinforcing its interactive and iterative nature as suggested by Chen et al. (2017).

### 8.3.2. Practical Implications

This study provides several practical implications that are listed as follows:

- ***Ranking of the enablers and barriers in order of priority***

This study reveals the enablers and barriers of value co-creation in the public services sector of India, and also ranks them in order of their priority. The priority ranking of the enablers and barriers would help public service managers to understand the top enablers and top barriers on which they should focus more of their efforts on. For example, *awareness* as an enabler ranks above *trust*; thus, public service managers must first provide more emphasis on creating awareness among the citizenry about the process of VCC, and then gradually ensure trust-building among them. Similarly, *cost of participation* as a barrier ranks above *lack of operant resources*; thus, public service managers should prioritise lowering of *cost of participation* for the involved stakeholders, and then ensure *availability of operant resources*. Accordingly, public service managers and policy makers should invest most of their efforts and resources on the higher-ranked enablers and barriers.

- ***Setting up of effective communication infrastructure***

Our study reveals that effective communication is one of the essential pillars of success of the process of VCC in the public services sector. Thus, the public service managers should set up proper infrastructure for facilitating effective communication with the citizenry during the process of VCC. Our study further suggests that for setting up this communication infrastructure, technology can be used for building up of interactive platforms where dialogues and feedback would be facilitated. Thus, public service managers should establish regular communication sessions where exchange of information and knowledge would be encouraged.

- ***Optimization of resources***

The public services sector is constrained in terms of resource availability. Our study has identified 15 enablers and 16 barriers of value co-creation in the public services sector of India. To this end, it would require considerable number of resources to strengthen each of the enablers and barriers for a successful co-creation process. Accordingly, the causal diagrams constructed in our study suggests that resources should be focused more specifically on the *cause group* enablers and barriers (the influencing enablers and barriers). Thus, public service managers should focus majorly on the *cause group* enablers and barriers for optimizing resources during a VCC process.

- ***Focus on enhancing the competence of the involved actors***

The process of VCC requires the involved actors to be competent for participating as active contributors in the process. However, in the public services sector, the citizenry do not always possess the requisite skill, knowledge, innovation capacity, social capital and resources to be competent co-creators. To that end, our study suggests that public service managers should train and educate the citizenry in becoming competent contributors in the VCC process.

- ***Focus on cultural dimensions of the involved actors***

While the process of value co-creation is very dynamic in nature and depends on a diverse range of factors for its success, yet not many studies have focused on the cultural dimensions of the involved actors. Our study puts the focus on the cultural dimensions of the actors, and suggests that cultural-related barriers should be emphasized on first before mitigating any other barrier or barrier groups.

- ***Training and education of the involved actors***

The involved actors (especially the citizenry) of the process of co-creation in the public services sector are not always competent to be active participants of the process. Yet, without their active involvement, the co-creation process would not be a success. Hence, our study suggests

that the public service administration should impart training and education to the citizenry for making them competent for the co-creation process.

- ***Framework for successful implementation of public schemes and initiatives***

This study has developed a comprehensive framework for successful implementation of various schemes and initiatives through the process of value co-creation in the public services sector. The framework provides public service managers with the sequential path which should be followed for co-creating essential policy initiatives in the public services sector; it also states the various pre-requisites and essential elements for successful implementation of such policy initiatives. Thus, this study contributes to the practicing public administration officials by providing a definitive guide for enhanced implementation of important schemes and initiatives in the public services sector of India.

### 8.4. Limitations and Future Research Directions

This study has certain limitations that future researchers can duly address. First, the findings of the study are based upon the subjective judgments of the experts from the public services administration. Hence, the results obtained reflect the perspective of the public services administration only. However, the perspective of the citizenry (the other co-creating partner) has not been noted in this study. Thus, future researchers can model the identified enablers based on the perspective and judgment of the representatives of the citizenry as well.

Second, the study has been conducted within the context of a single case study taken from the public services sector of India. Hence, this limits the generalizability of the results across diverse contexts. Future researchers can thus apply our model for the identified enablers and barriers, with minor modifications, in different geographical or cultural contexts.

Third, this study does not determine the inter-relationships among the identified enablers and barriers. Thus, future studies can use techniques such as Structural Equation

Modelling (SEM) and Interpretive Structural Modelling (ISM) for determining the inter-relationships among these identified enablers and barriers.

Fourth, for developing the comprehensive framework, this study has used perceptual measures of assessment in its approach. Though it is a very common methodology used across public management literature (Vogel and Hattke, 2018), yet there is a chance that respondents might have stated their general beliefs and perceptions based on experience. So there exists the requirement of quantitative research to examine the strength of the proposed comprehensive framework.

Finally, our study has analysed a case that is an instance of "top-down" co-creation. The policy was framed by the Government and the citizen was then involved in the process. But, an important research question that can be explored is the optimality of a "top-down" co-creation initiative for India. That is, future research can explore whether "top-down" co-creation is an optimal option for India, and thus provide some useful insights into it.