

Effects of Customer Value Co-Creation Behaviors and Organizational Routines on Customer
Satisfaction

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Inspired By

My Life's Hero Richard P. Feynman, Nobel Laureate Physics, 1965

My mentor of Dr. Pramod Khambete, Adjunct Faculty, IDC, IIT Bombay

Dedicated to

My wife, son, and daughter, who stood fast in this journey, encouraged me throughout.

My parents who have instilled the value of education since my childhood.

My brother in whose footsteps I follow.

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Abstract

Organisational routines have been called “*grammar of action*” and are a core topic in organisational behaviour research. Since the 1950s, routines have been seen as a source of organisational stability and change. Initially conceptualised by R. R. Nelson and Sidney Winter in 1982, organisational routines have been described as “*a pattern of behaviour that is followed repeatedly but is subject to change if conditions change*”. On the other hand, value co-creation, a fundamental construct within service-dominant logic, gives us an axiom stating that “*value co-creation is coordinated through actor-generated institutions and institutional arrangements*”. I equate these institutional arrangements to organisational routines.

In my research, I identified gaps at the intersection of these two fields of management research. There are several implications, and following are some of the questions to which interdisciplinary answers need to be found. *Do organisations “really” change routines (if so, what impact does it have on customer satisfaction) based on customer feedback or knowing customer’s value co-creation behaviours? In what ways can value co-creation behaviours influence changes in organisational routines? In what ways can organizations utilize the flexibility in organizational routines for getting optimal customer satisfaction? How should an organisation decide which organizational routines to keep within organisational boundaries and which ones to outsource to the customer (or other stakeholders)? How does change in practices (practice theoretical lens) affect organisational routines?*

As such, this research provides insights into how value co-creation behaviours of customers affect organisational routines and vice versa. I have linked these two constructs with customer satisfaction. Using mixed methods research and triangulation of qualitative and quantitative data my research derives customer (value co-creation) behaviours from a dataset on organisational routines. The results of this study provide practical insights for organisations to understand customers’ behaviours from the lens of organizational routines. This is especially true in the context of eCommerce digital platforms. There are also several policy implications for population-scale public (government) digital platforms.

I have identified three key factors – “Service Awareness”, “Citizenship Behavior” and “Task Compliance” and present an ACT model (Awareness, Citizenship, Task) for increasing customer satisfaction.

Chapter 1 Introduction

Service is the fundamental basis of exchange. – Axiom 1 / Fundamental Principle 1, (Vargo & Lusch, 2015)

On a chilly morning of January 5th, 2023¹, as the first flight from Delhi to Mopa (Goa's International Airport) was getting ready to push back from parking bay at Delhi Airport, the pilot made an appearance into the cabin. He made a couple of customary announcements and in a very enthusiastic tone asked if the passengers were all excited to fly with him to the New Goa International Airport. A resounding response from the passengers supported his energy and the flight was on its way. On the other side, passengers from this flight who were the first ones to arrive at this new airport, were greeted by an instrumental band. They were also presented with flowers. The flight landed almost half an hour before scheduled arrival time.

Few days earlier on December 27, 2022, a flight landed at Madurai airport and taxied its ways to the parking bay. Nearly 7-8 minutes later passengers were still seated patiently waiting for crew to make announcements for disembarkation. This was unlike the usual mad rush to stand up and get out of the plane as soon as it lands and is taxiing to the parking bay.

On November 26, 2022², an airline passenger on an international flight had a horrendous experience from a fellow passenger compounded by a callous response from the airline crew who refused to be flexible about accommodating the passenger's requests emerging from the trauma.

Each of the above examples emphasizes the importance of engaging customers in the process of value creation and highlights how organizational processes can be powerful tools to enhance the value that customer's see for themselves.

¹ <https://www.indiatoday.in/india/story/upbeat-crew-cheering-flyers-mark-first-flight-to-goas-mopa-airport-from-delhi-video-2317532-2023-01-05>

² <https://www.hindustantimes.com/india-news/air-india-incident-airline-should-ve-acted-swiftly-says-tata-chairman-101673200596396.html>

Motivation for Research

My motivation for research stems from my corporate experience, majority of which has been in the banking and financial services industry. Over the past 25 years, I have closely observed various organizational processes and their relationship with customer satisfaction. This observation has been entirely anecdotal and I have been intrigued by questions such as how organizational understanding of customers behaviours can be utilized to offer better services (Storbacka et al., 2016), how does customer behaviour result in creating better value for customers and organizational themselves (Kumar et al., 2017), how do (or do they) organizations undertake changes in organizational processes basis customer feedback (Morgan et al., 2005)? This search led me to the vast body of research on customer satisfaction (Otto et al., 2019), value co-creation (Prahalad & Ramaswamy, 2004; Ramaswamy, 2009) and organizational routines (Becker, 2004).

After going through a vast body of literature and narrowing down to the gaps that I found during the course, I set my research agenda to study effects at the intersection of *Value Co-Creation Behaviours, Organizational Routines and Customer Satisfaction*. I describe the rationale for arriving at this research agenda in great detail in Chapter on Literature Review.

One of the key decisions I had to make was identifying the right context for researching the above questions. The reason for this decision is that there is a variation in customer satisfaction depending on the industry type and context of customer interaction (Anderson & Sullivan, 1993), (Becker, 2005). For example, customer interaction and behaviours would be very different compared in a services setting (banking and financial services, tourism and hospitality, airline travel) in comparison to that in a traditional manufacturing industry setting (car buying, consumer durables). As such, well researched concepts of *service-dominant logic* and *goods-dominant logic* (Lusch & Vargo, 2011) became one of the cornerstones of my research (Lusch & Vargo, 2011). I further explain this difference and the construct definition in detail in this dissertation.

I set the scene for context of this study to services sector. A key reason for this that modern economy is driven by the services³ sector. According to World Bank and International Labour Organization (ILO)⁴, up to 50% of the world's employment is in the services sector. Further, the growth of platforms⁵ has itself created an interesting set of research streams. The

³ <https://www.worldbank.org/en/topic/competitiveness/publication/promise-of-services-led-development>

⁴ <https://data.worldbank.org/indicator/SL.SRV.EMPL.ZS>

⁵ Cusumano, M. A., Yoffie, D. B., & Gawer, A. (2020). The future of platforms. *MIT Sloan Management Review*, 26-34.

features of manufacturing that were once considered uniquely special for productivity growth might be increasingly shared by some service sectors, especially given the advent of ICT⁶. The context in which service is now delivered and experienced has fundamentally changed. For instance, widespread usage of technology in service delivery, is leading to a proliferation of revolutionary services and changing how customers serve themselves before, during, and after purchase (self-service). E-Commerce platforms are a great example of this and customer's behaviours in interacting with these platforms is a key driver of success or failure of any given platform.

Given this background, I chose to conduct my research in the context of services industry. Another reason to do so was, that advances in information and communications technology (ICT) over the decades have led to an exponential growth in the share of jobs within the services sector. As such, my research's managerial implications and impact would be much more for a services industry than a traditional manufacturing industry setting.

History of Management Research in Services

Management research in services has a rich history and has covered a wide range of topics, taking a serious turn since about 1998 (Donthu et al., 2020). Core service research constructs include Word of Mouth (WOM), customer satisfaction, service quality, service failure and recovery, customer engagement, service research priorities, and service-dominant logic. Service(s) marketing emerged in the early 1980s as a distinct area of marketing research and became a primary focus of marketing scholars worldwide. As early as the late 1990s, the view that the service economy also includes goods was introduced into service research. Most goods businesses started to see themselves as a service business, with offered goods being an essential part of the service. (Rust, 1998). Several decades later, service marketing transcended all of the marketing, as has been suggested by service-dominant (S-D) logic (Vargo & Lusch, 2007b), (Vargo & Lusch, 2004).

Before we proceed further, we need to look at why service research is essential and define “*service*” as a construct used in this thesis. In S-D logic, service is defined as “*the application of specialized competences (operant resources—knowledge and skills), through deeds, processes, and performances for the benefit of another entity or the entity itself*”. It is important to note that S-D logic uses the singular term, “service,” which reflects the process of doing something beneficial for and in conjunction with some entity, rather than units of output—immaterial goods—as implied by the plural “services.” Therefore, according to S-D

^{6 6} <https://www.worldbank.org/en/topic/competitiveness/publication/promise-of-services-led-development>

logic, goods and service are not alternative forms of products. Goods are tools and distribution mechanisms which serve as alternatives to direct service provision. Service represents the common denominator of the exchange process; service is what is constantly exchanged. Goods, when employed, are aids to the service-provision process. Marketing occurs as parties (individuals, organisations, etc.) exchange in markets. This exchange involves each party using its own resources for the (current or eventual) benefit of the other party. This use of resources for another party's help is "*service*." (Vargo & Lusch, 2007b). I use this extensive definition and explanation to build my research construct, develop hypothesis and analyze results throughout this dissertation.

There are a few more important concepts that need to be understood in the context of this research and to build out the antecedents of why I chose the research topic.

The first is concept is, that "*customers do not buy goods or services: they buy offerings which render services which create value*." The traditional division between goods and services is long outdated. It is not a matter of redefining services and seeing them from a customer perspective; activities render services, and things render services. The shift in focus to services is a shift from the means and the producer perspective to the utilization and the customer perspective." (Gummesson, 1995). This is an important concept as it allows us to start thinking about customer behaviours as one of the key drivers of value creation.

The second concept is, "*actors do business by performing boundary-crossing activities that generate business exchange*." (Håkansson & Prenter, 2004). This concept has also been elaborated further (perhaps independently) in identifying activities that are mandatory, voluntary, replaceable for value creation. (Santos & Eisenhardt, 2005).

The third concept is, "*value (utility) which became to be understood in terms of value-in-exchange*." This is in comparison to *value-in-exchange*, which has been dealt with separately used as another means to create value for customers, more so as "value-added". In many situations, "*value-in-use, which was a higher order concept than exchange value*," service is defined in terms of customer-defined benefit. As such, service is accorded a superordinate position in marketing (in comparison to goods), and value-in-use also takes a superordinate position about value-in-exchange and the service/goods relationship is clarified. A good summary of the above description is that "*value shift is inherently customer-oriented*" and consumer is endogenous to the value-creation process (Vargo & Lusch, 2007b).

The fourth concept is, "*service in S-D logic is defined in terms of applied resources*." Here, "applied" means resources that can act on or in concert with other resources to provide benefit (create value) vs. resources which require action to create benefit. This resource focus

and distinction are important in several regards and shifts focus away from units of output – in the form of products (goods and services) to mutually satisfying interactive processes. Similarly, it shifts the focus from static resources like plant and equipment (balance sheet resources) to the employees, the competences of the enterprise, other value-creation partners and, as noted, customers (i.e., to off-balance-sheet resources). “Service” points toward the co-creation of value through resource integration. In totality, this redefines the role of the firm and the customer providing ample opportunity for studying the interactional effects between the two.

Organizational Routines and Value Co-creation – Two Sides of a Coin

Having defined *service*, I then focus on the two key constructs used in my research. The resource integrations described in section above require us to go into the domain of organizational processes. However, in a complex environment more is needed to consider organizational processes as standalone vehicles of delivering service and ultimately value to the customer. Rather, we have to think of the complex inter-relationships, need for stability as well as change in processes and, more importantly the role of customer in interacting effectively with these. This thought process led me to the construct of organizational routines.

Organizational routines have been called grammar of action (Pentland & Rueter, 1994) and has been a core topic in organizational behaviour research. Tracing its roots back to 1950s (Pentland & Rueter, 1994), routines have been seen as a source of both organizational stability and change (Feldman, 2000). Initially conceptualised by R. R. Nelson and Sidney Winter in 1982, organizational routines are “*a pattern of behaviour that is followed repeatedly but is subject to change if conditions change*” (Becker, 2004). Over the past two decades, organizational routines community of practice (Cronin & George, 2020) has produced a rich body of research which has taken the journey from early conceptualisation of routines as stable, reliable and quasi-automatically performed patterns of actions to a practice theoretical view of dynamic capabilities view offered by research on routine dynamics (Wenzel et al., 2021). However, for the most part, routines research has focused on an organizational view of how routines change, their interdependence, relationship with learning and innovation. I discuss various perspectives on organisational routines in lot more detail in Chapter 2 on literature review.

Value co-creation (Prahalad & Ramaswamy, 2004) has played a central role in service-dominant logic (Vargo et al., 2008) whereby *customer is seen as the primary value co-creator*. Further, *value is co-created and coordinated through actor-generated institutions and institutional arrangements* (Vargo & Lusch, 2017) which I equate to organizational routines.

Taking these two distinct streams of work, I conducted an interdisciplinary research (Cronin & George, 2020) of over 150 research articles on organisational routines and value co-creation research to bring new insights on how organizational understanding of customers value co-creation behaviours could give redirection to research in both these fields. In doing so, I posed questions about how organizations could benefit from changes in organizational routines for example by knowing their customer's value co-creation behaviours (Yi & Gong, 2013). I also aimed to provide new perspective on how organizations can make effective use of customer satisfaction data (Morgan et al., 2005; Otto et al., 2019) to bring changes in institutional practices and make customers allies in bring about institutional change. I took an abstraction approach and developed broad themes among findings from the research papers that I evaluated across both these communities of practice and illuminated relationships among these themes. Another goal of this research was to bridge the gap since last substantive literature review of the organizational routines research (Becker, 2004).

Integrating Value Co-creation and Organizational Routines Research

In my research, I also conducted an integrative review (Elsbach & Knippenberg, 2020) to fill the gap in synthesis and evaluation of current body of knowledge across two streams of organizational routines and value co-creation research. I followed the cycle of “sense-making and sense-giving” (Cronin & George, 2020) and provided a way to start a new research program at the intersection of organizational routines and value co-creation research. I also found myself with an unique opportunity and challenge to bring together organizational behaviour and marketing research perspectives in integrating knowledge across two communities of practice.

Considering I was looking to organize knowledge within two domain areas to generate new insights, I took “redirection” approach (Cronin & George, 2020). I also took a disciplined imagination approach to develop ideas and speculate on how relationships between organizational routines and value co-creation and proposed empirical studies that could be carried out to validate my ideas.

Thus, my aim in conducting this research was to have a primary contribution in trying to formulate a new theory on how customer value co-creation behaviours influence / interact with organizational routines. Methodologically, I proposed to use the process described for conducting integrative reviews and took an abstraction approach to bring out new connections across value co-creation and organizational routines communities of practice. Further, I proposed to undertake an abstraction and juxtaposition exercise to bring to light new relationships between the themes generated from the two streams of research (Cronin & George, 2020).

Chapter 2 - Literature Review

Value is cocreated by multiple actors, always including the beneficiary. - (Vargo & Lusch, 2015) – Axiom 2 / Foundational Premise 6

In management research, knowledge is advanced through “*programs of research*”⁷ in which research studies build on previous work and set stage for future research. In general, management research is focused on solving larger pieces of the puzzles – solving grand challenges for example (George et al., 2016), individual studies provide pieces of the puzzle rather than solve the puzzle. To get a sense of state of the science in any domain of management research, it is imperative to look at the body of evidence in that domain rather than only at individual studies. Therefore there is value in integrative work to complement primary empirical research, including theory papers to provide guidance for programmatic research, meta-analyses to quantitatively integrate the evidence in a field of research, and integrative reviews that narratively integrate the evidence in a field of research to arrive at review driven new insight.

I took the opportunity to do a literature review to demonstrate my understanding of the domain area of research, vocabulary, taxonomy, key theories and methods used in researching the domain of interest. Literature review plays a role in “*delimiting the research problem, seeking new lines of inquiry, avoiding fruitless approaches, gaining methodological insights, identifying recommendations for further research, and seeking support for grounded theory*” (Gall et al., 1996). I utilise this chapter to achieve at least some of these objectives.

Likewise, other reasons for doing a literature review include: “*distinguishing what has been done from what needs to be done, discovering important variables relevant to the topic, synthesizing and gaining a new perspective, identifying relationships between ideas and practices, establishing the context of the topic or problem, rationalizing the significance of the problem, enhancing and acquiring the subject vocabulary, understanding the structure of the subject, relating ideas and theory to applications*” (Hart, 2018).

To begin my literature review, I referred to Cooper’s Taxonomy (Cooper, 1988), which should allow other researchers to assess the quality of this literature review and also allow me to keep this review systematic.

Characteristic	Categories
Focus	Research outcomes Research methods

⁷ <https://plato.stanford.edu/entries/lakatos>

Characteristic	Categories
	Theories Practices or applications
Goal	Integration <ul style="list-style-type: none"> a) Generalization b) Conflict Resolution c) Linguistic bridge-building Criticism Identification of central issues
Perspective	Neutral representation Espousal of position
Coverage	Exhaustive Exhaustive with selective citation Representative Central or pivotal
Organization	Historical Conceptual Methodological
Audience	Specialized scholars General scholars Practitioners or policymakers General public

Table 1 - Cooper's Taxonomy of Literature Reviews

Having defined the objectives, I turned to identify the methodology to be followed for conducting this literature review. I broadly followed the stages as described by Cooper's taxonomy for conducting the literature review (Cooper, 1982).

Stage Characteristics	Problem formation	Data collection	Data evaluation	Analysis and interpretation	Public presentation
Research questions asked	What evidence should be included in the reviews?	What procedures should be used to find relevant evidence?	What retrieved evidence should be included in the review?	What procedures should be used to make inferences about the literature as a whole?	What information should be included in the review report?

Table 2 – The Research Stages in Conducting a Literature Review

Stage 1 - Problem Formation

I started the problem formulation stage with a clear statement of my research question – “*what (if any) are the interactional effects between value co-creation behaviours and organisational routines on customer satisfaction?*”. In order to answer this question, I put forward a simple conceptual model as below. This highlights the fact that this is a multi-disciplinary research and as such from a literature review perspective, I reviewed literature across all three streams of research.

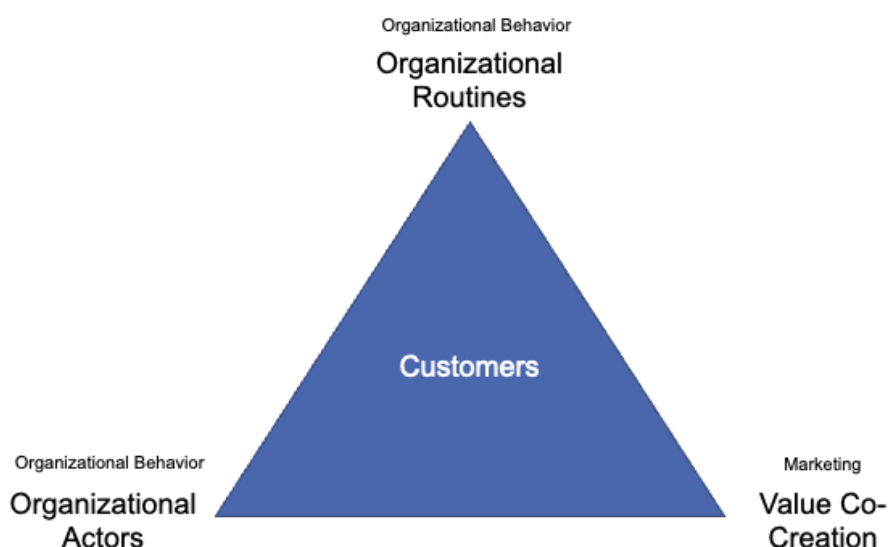


Figure 1 – Conceptual Model of Research Question

Deciding how wide to cast the net in searching for literature is a critical step in conducting a review. Cooper proposes four coverage scenarios – “*exhaustive review*” in which the reviewer promises to locate and consider every available piece of research on a certain topic, published or unpublished. The key to an exhaustive review is to define the population so that it is bounded and the number of articles to review is manageable. This is called an “*exhaustive review with selective citation*”. In this approach, one might choose only to look at articles published in journals, but not conference papers; however, a theoretical reason to exclude conference papers is advised (Cooper, 1988).

A third coverage approach is to consider a “*representative sample*” of articles and make inferences about the entire population of articles from that sample. However, random sampling needs to be fool proof.

Cooper’s fourth article selection approach is to take a “*purposive sample*” in which the reviewer examines only the central or pivotal articles in a field. The key here is to convince the reader that the selected articles are, in fact, the central or pivotal articles in a field, and equally important is to convince that the articles not chosen are not central or pivotal.

Stage 2 – Data Collection

With this background, I took the “*purposive sample*” approach for my literature review running a Scopus⁸ search on keywords “*value co-creation*”, “*service-dominant logic*”, “*customer satisfaction*” and “*organisational routines*”. Table 3 below summarises the results.

Keyword	Number of Articles
value co-creation	4157
service-dominant logic	1309
organizational routines	5860
customer satisfaction	36992

Table 3 – Articles by Key Construct Keyword

The following figures outline the number of articles in each area over the years and the Top 15 authors in each key construct.

⁸ <https://www.scopus.com/sources.uri?zone=TopNavBar&origin=searchbasic>

Documents by year

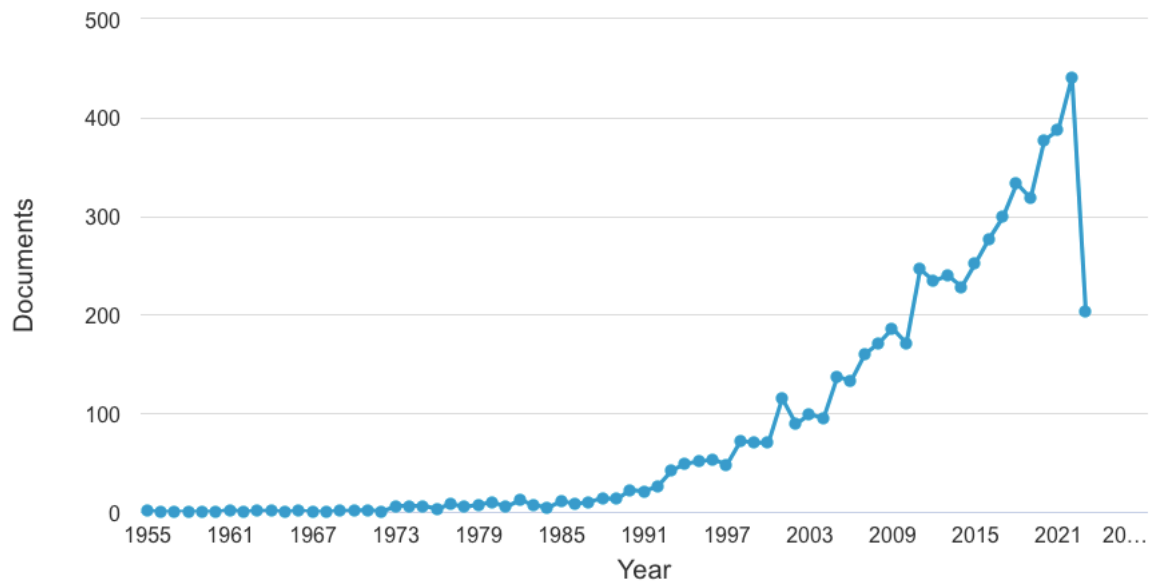


Figure 2 – Organizational Routines Literature by Year

Documents by author

Compare the document counts for up to 15 authors.

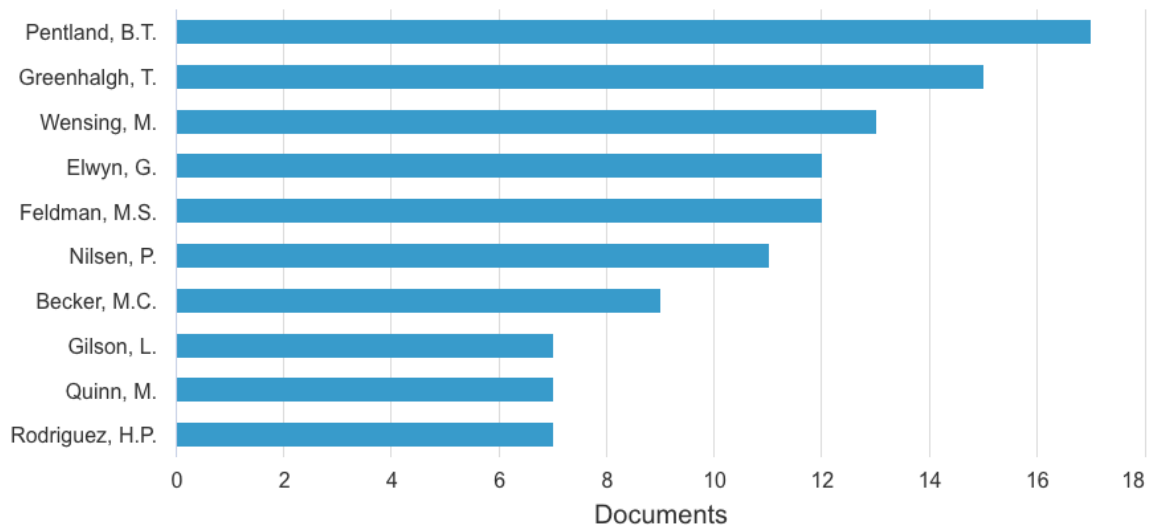


Figure 3 – Top Authors for Organizational Routines

Documents by year

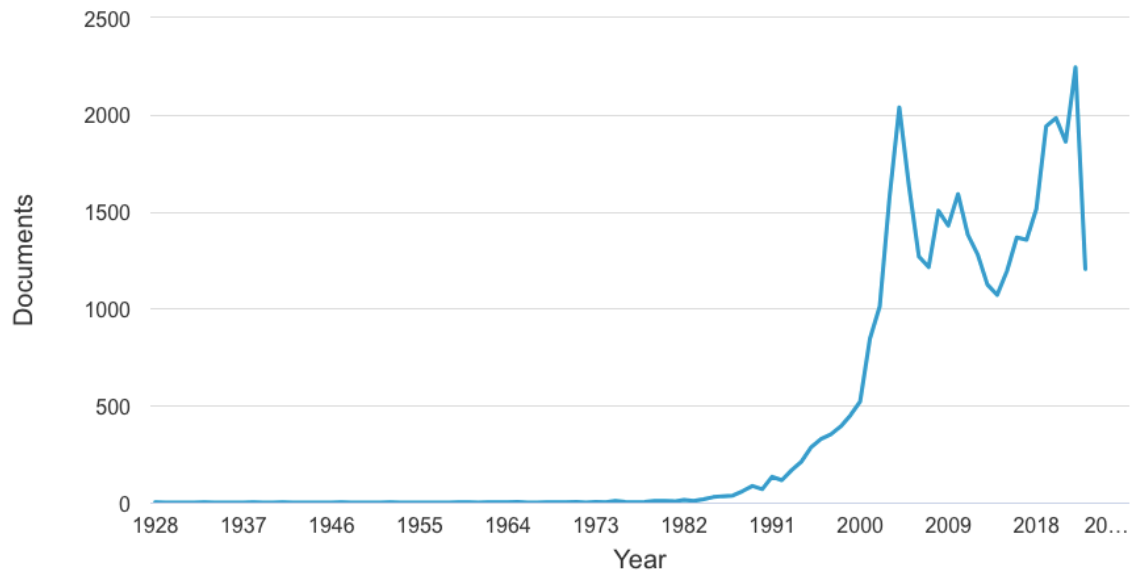


Figure 4 – Customer Satisfaction Literature by Year

Documents by author

Compare the document counts for up to 15 authors.

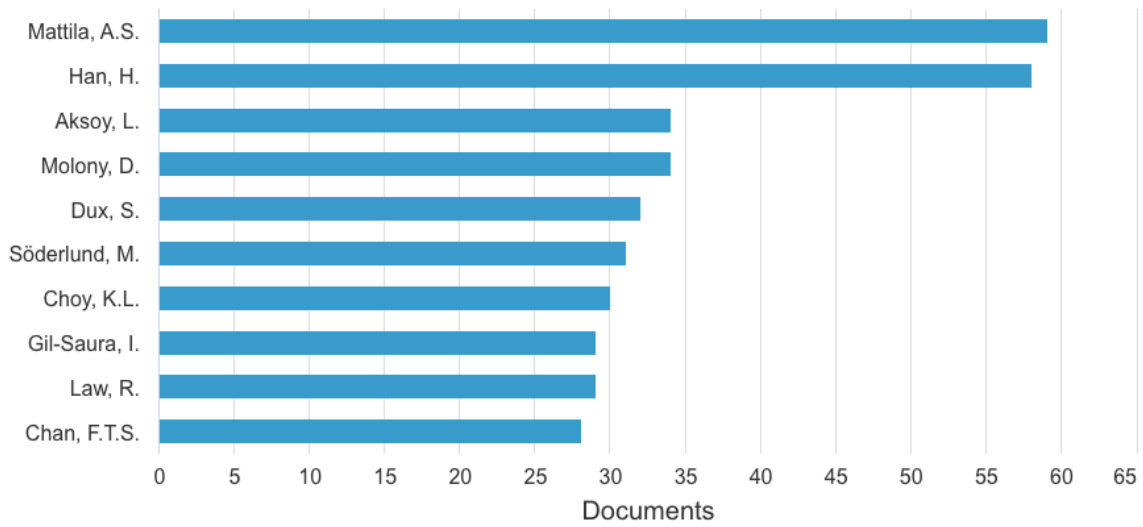


Figure 5 – Top Authors for Customer Satisfaction

Documents by year

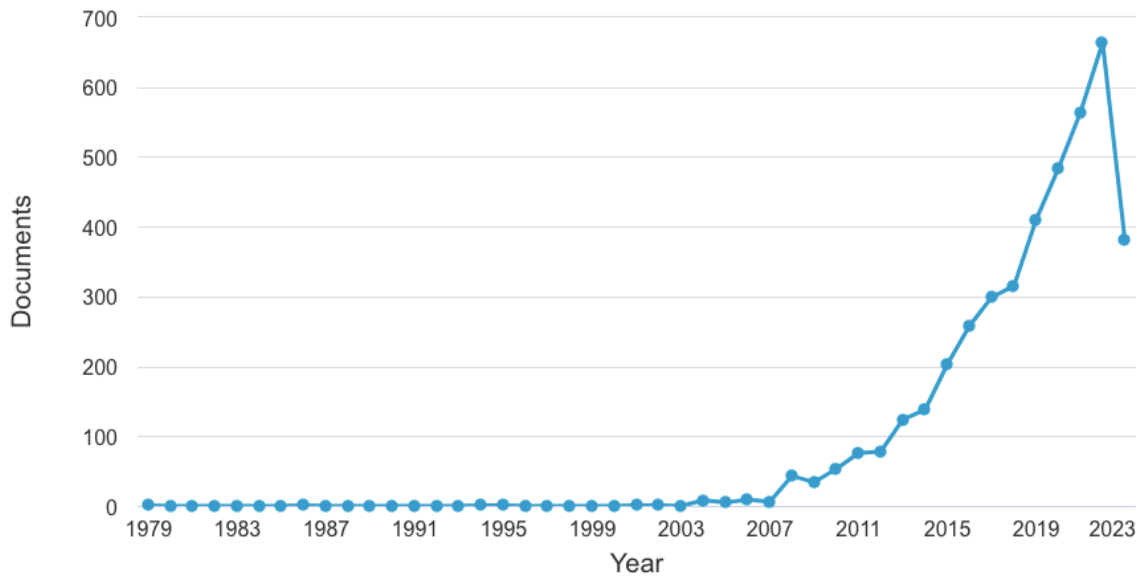


Figure 6 – Value Co-Creation Literature by Year

Documents by author

Compare the document counts for up to 15 authors.

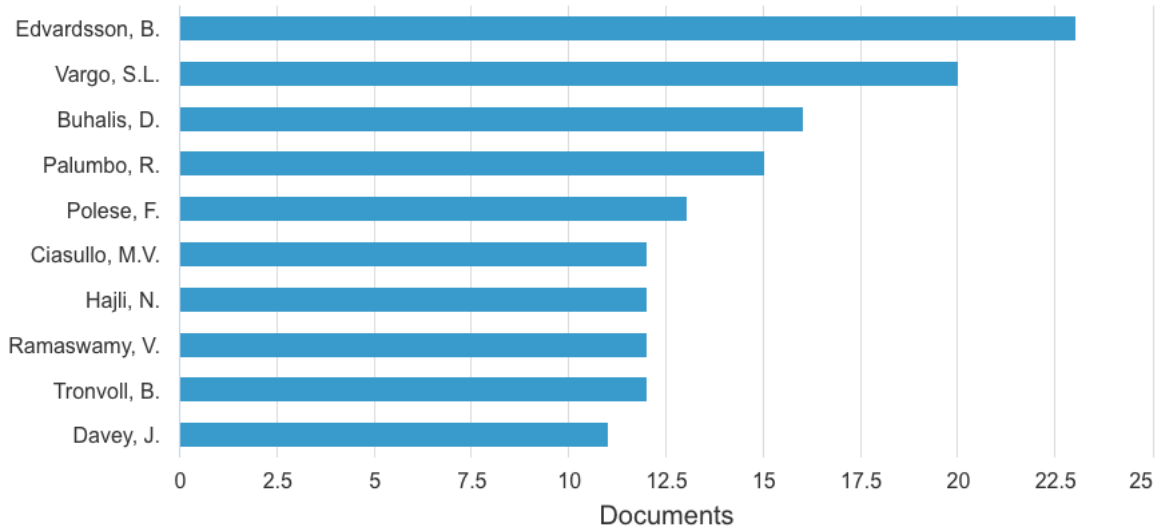


Figure 7 – Top Authors for Value Co-Creation

Documents by year

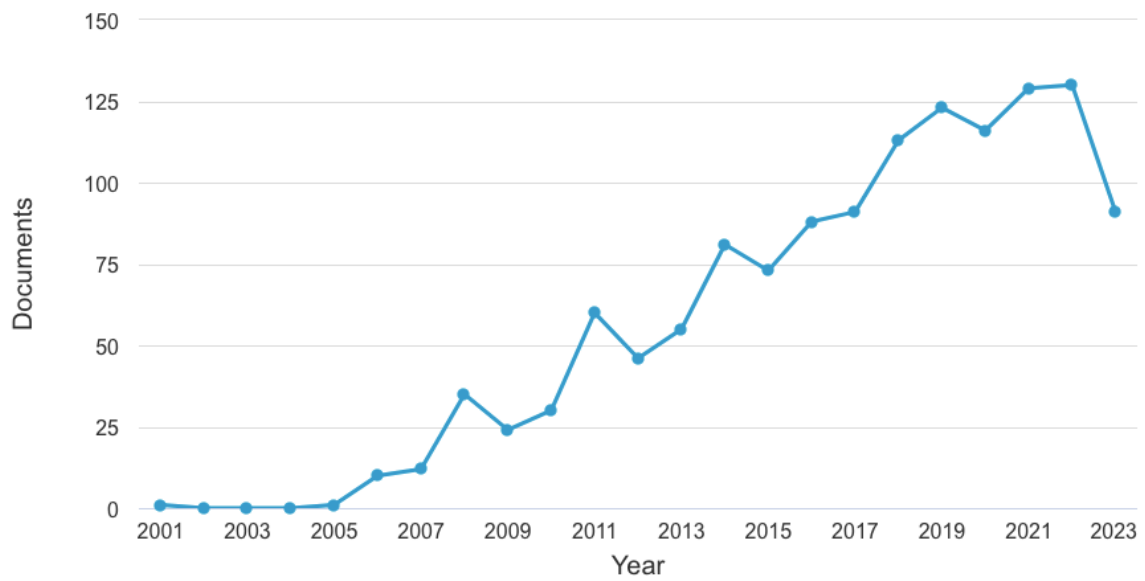


Figure 8 – Service-dominant Logic Literature by Year

Documents by author

Compare the document counts for up to 15 authors.

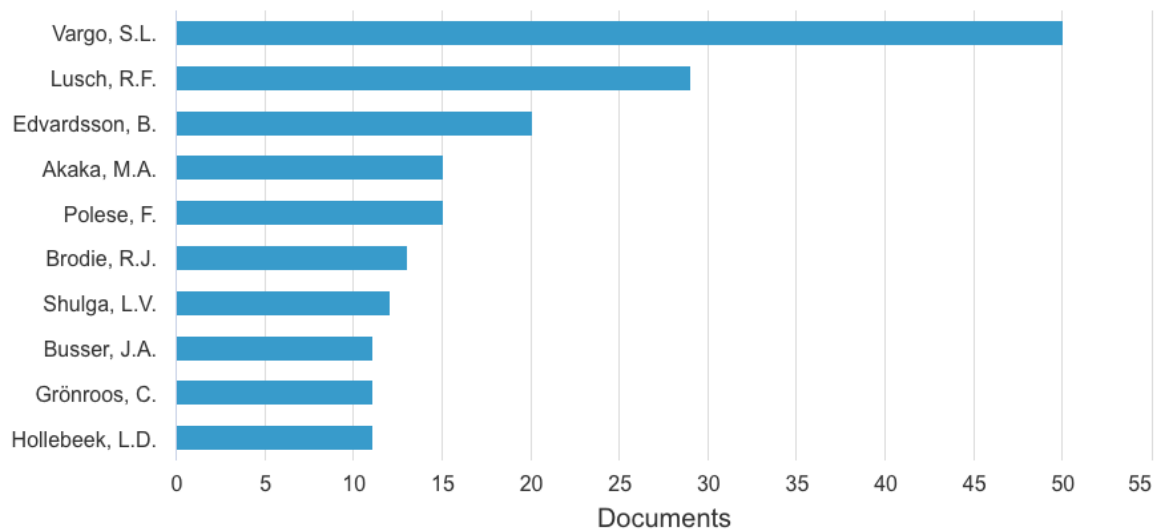


Figure 9 – Top Authors for Service-Dominant Logic

Taking input from the above search results, I then narrowed down the list of articles to be reviewed by conducting a forward and backward citation search. This allowed me to remove duplicates from the search results and focus on the most cited and impactful research works. I

further restricted my review to articles only in A/A*/B journals from the ABDC⁹ journal list to cover prior research with maximum impact. This journal-driven selection approach also is a very cost-efficient approach to systematic reviews because skimming through a predefined list of journals should be less strenuous than analysing a virtually endless amount of available other journals (Hiebl, 2021).

Stage 3 – Data Evaluation

Having described the data extraction method, I now proceed to describe the data evaluation stage and method used to evaluate the information in the articles that met the inclusion criteria. One of the key objectives of the data evaluation exercise was to identify from each article the measurement instruments used; the independent, dependent, and mediating/moderating variables investigated; the data analysis procedures; the types of experimental controls; and any other relevant data (Randolph, 2009). I used a simple tabular representation (example below) of the key research articles reviewed, their summary and the key variables investigated.

Study	Highlights of Key Results / Remarks	Type of Study	Variables
(Cohen & Bacdayan, 1994)	Empirical study of a manufacturing firm, procedural memory in organizational routines	Quantitative	Firm output, worker skill level, task difficulty
(Feldman, 2000)	Qualitative study of college housing, performative model of organizational routines	Qualitative	Multiple
(Becker et al., 2005)	Conceptual paper, explores routines in understanding organizational change	Theoretical	Multiple

Table 4 – Sample Data Evaluation for Literature Review

⁹ <https://abdc.edu.au/abdc-journal-quality-list/>

Stage 4 – Data Analysis and Interpretation

At this juncture, I focussed on the data analysis and interpretation of the results. Given that the goal of my literature review was integration, I took an “*integrative review*” method approach (Cronin & George, 2020; Elsbach & Knippenberg, 2020; Torraco, 2016b). Integrative review “*is a form of research that reviews, critiques, and synthesises representative literature on a topic in an integrated way such that new frameworks and perspectives on the topic are generated*” (Torraco, 2005).

Given organisational routines, value co-creation, service-dominant logic and customer satisfaction are mature research areas, my aim of literature review was to help identify gaps and opportunities for bringing a different theoretical perspective at the intersection of these research domains.

To make any integrative review impactful, it has to go beyond merely identifying the “*space*” for the review. Thus there was a need for critical analysis, and creative synthesis of the literature included in the review (Post et al., 2020; Torraco, 2016b). “*Critical analysis*” is the careful examination and critique of the extant literature, to identify themes, patterns, relationships, and gaps in understanding. “*Creative synthesis*”, in contrast, involves integrating existing frameworks with insights gained from the critical analysis to formulate a new perspective regarding the topic. An integrative review presents both an unique opportunity and challenge in integrating knowledge from different “*communities of practice*”. The term “*communities of practice*” acknowledges discrete researchers who study similar topics using different paradigms, conceptual language, and research traditions, even in their metatheoretical analyses (Cronin & George, 2020).

Key Construct Definitions

I now proceed to describe the key constructs used in my research and provide a detailed view of the various streams of research around each of these constructs.

1. Organizational Routines:

- Repetitive, recognizable patterns of interdependent action carried out by multiple actors (Feldman, 2000)
- Repeated patterns of behavior that are bound by rules and customs and that do not change very much from one iteration to another (Feldman, 2000)
- Organizational routine as the organizational analogue of individual skill (Becker et al., 2005)

2. Value Co-creation:

- Co-Creation - Enactment of interactional creation across interactive system-environments (afforded by interactive platforms), entailing ageing engagements and structuring organizations (Ramaswamy & Ozcan, 2018). The value creation process centers on individuals and their co-creation experiences (Prahalad & Ramaswamy, 2004)
- Value - Customer is the one who constructs and experiences value by integrating resources / processes / outcomes in his or her own social context...the customer is the value creator. (Prahalad & Ramaswamy, 2004)
- Value-In-Use: The customer's experiential evaluation of the product or service proposition beyond its functional attributes and in accordance with his/her individual motivation, specialized competences, actions, processes, and performances (Ranjan & Read, 2014)
- Value-In-Exchange: Value-in-exchange might represent expected utility, but it is not the actual utility; utility (value-in-use) can only be realized by and in the context of the life of the customer (Vargo et al., 2008)

3. **Organizational Boundaries:**

- Organizational boundary simply demarcation between the organization and its environment. Four distinct conceptions of boundaries: efficiency, power, competence, and identity. Each deals with a fundamental organizational issue— i.e., cost (efficiency), autonomy (power), growth (competence) and coherence (identity) (Santos & Eisenhardt, 2005)

4. **Customer Satisfaction:**

- Defensible and appropriate company objective – the glue that holds various corporate functions together and directs corporate resource allocation. Typically measured through surveys. (Peterson, et. al., 1992).

A Grand Tour of Customer Satisfaction Research

Research in customer satisfaction has had a rich history and dates back to 1960s and has been seen as a means of evaluating quality. Customer satisfaction can be broadly *characterised* as a “*post purchase evaluation of product quality given prepurchase expectations*” (Kotler et al., 1991). A rich literature review of customer satisfaction and the main antecedents identified by consumer research: expectations, perceived quality, and disconfirmation (Yi, 1990).

High customer satisfaction ratings are widely believed to be the best indicator of a company's future profits (Kotler et al., 1991). Firms increasingly use customer satisfaction as

a criterion for diagnosing product or service performance and often tie customer satisfaction ratings to both executive and employee compensation. However, *providing incentives to maximize customer satisfaction may actually be detrimental to the firm*¹⁰. Understanding the link between the antecedents of satisfaction and satisfaction's behavioural and economic consequences is necessary to encourage actions that will lead to an optimal level of satisfaction.

The antecedents of satisfaction have long been a subject of study for consumer research (Kristensen et al., 1999), but relatively few studies investigate the consequences of satisfaction (Bearden & Teel, 1983; Oliver & Swan, 1989). Research also identifies conditions under which dissatisfied customers will complain or switch (Hirschman, 1970) and conditions when firms should encourage dissatisfied customers to complain (Fornell & Wernerfelt, 1987, 1988).

However, why should we use customer satisfaction as a construct? The answer is that there is a *direct relationship between customer satisfaction and shareholder value* and a *positive association between customer satisfaction and the firm's long-term financial performance*. It has also been established that customer satisfaction affects current and future customer behaviour. In turn, the behaviour of satisfied customers influences the level, timing, and risk of future cash flows and, consequently, shareholder value. Further, this association has a variance across industries (Anderson et al., 2004).

Multiple theoretical perspectives also support the pivotal role of satisfaction in a firm's marketing strategy. These include *contagion perspectives* (i.e., satisfied customers buying adjacent offerings and further motivating others to purchase through word-of-mouth (Barger & Grandey, 2006); *affective-state perspectives* (i.e., satisfied customers developing positive affinities and enhanced product and brand loyalties leading to future purchases (Szymanski & Henard, 2001), *risk-reduction perspectives* (i.e., guarantees of satisfying experiences moving additional consumers to purchase (Johnson et al., 2006), *market-force perspectives* (i.e., earned a reputation for satisfying customers creating barriers to entry for non- incumbents leading to market share gains and additional scale effects (Rego et al., 2013), and *market-signaling perspectives* (i.e., promises of satisfaction making tangible the customer-centric culture valued by consumers (Singh & Sirdeshmukh, 2000).

However, the debate on whether customer satisfaction is a useful metric continues. Numerous perspectives from marketing and finance domains have been explored to provide comprehensive and insightful commentaries on (Kumar, 2016).

¹⁰ I find a related finding in the course of my research whereby services with increased expectations have lower customer satisfaction.

These perspectives are useful guiding posts for analysing the relationship between my other research constructs. I then explored the relationship between customer satisfaction and other constructs used in my research i.e., organisational routines, service-dominant (S-D) logic and value co-creation.

A Grand Tour of Organizational Routines Research

Organisational routines are repetitive patterns of interdependent actions (Feldman & Pentland, 2003). Since the foundational work of the Carnegie School i.e., James March, Richard Cyert and Herbert Simon (Cyert & March, 1963; March & Simon, 1993), scholars have acknowledged routines as core components of organisational life and have explored the characteristics of routines, their effects on firm performances, and their downsides (Feldman, 2000; Pentland & Rueter, 1994; Windrum et al., 2009; Zollo et al., 2002). There are two main perspectives to the analysis of routines and two related communities of practice (Elsbach & Knippenberg, 2020) or “camps” as the authors dubbed them (Parmigiani & Howard-Grenville, 2011). One is a so-called “*capability perspective*” led by organisational economists that studies routine effects on firms, and a “*practice perspective*” led by organisational theorists focused on how routines work in practice. Scholars engaging with the first perspective view routines as “*black boxes*” and explore their impact on firm performance, while scholars adopting the second perspective focus on action enactment and how routines operate in practice. These perspectives have also been called “*ostensive aspect*”, which represents a routine as it is. The actual enactment of a routine is called its “*performative aspect*” (Feldman, 2003).

Organisational routines research has covered various perspectives over the past two decades. These perspectives have evolved from an early definition of routines as multi-actor, interlocking, reciprocally-triggered sequences of actions (Cohen & Bacdayan, 1994) to recent studies linking routines and dynamic capabilities (Wenzel et al., 2021). Organisational routines researchers have applied various theoretical and methodological lenses such as a practice theoretical view (Wenzel et al., 2021), studying the intentional nature of routines (Makowski, 2021b), studying how an understanding-based redesigning of routines improves the effectiveness of a routine by facilitating the actions and interactions of routine participants (Bapuji et al., 2019; Bapuji et al., 2012).

Other studies have focussed on various organizational aspects of routines example, routine regulation as a source of balancing conflicting organizational goals (Salvato & Rerup, 2017), inertia in routines as a source of variation (Yi et al., 2016), role of artifacts in changes to routines (Glaser, 2017). A few studies have attempted to study the relationships between consumers and organizational routines. One such example covers consumers response and

adjustment to the unease that arises when their normal routines are disrupted (Phipps et al., 2017). Relationship between organizational routines and experience has been explored from a learning perspective (Espedal, 2016). Work on organizational boundaries identifies conditions under which organizations may want to outsource certain part of routine execution to customers (Santos & Eisenhardt, 2005). These diverse perspectives provide me with a strong theoretical ground to extract first order themes in organizational routines research and subsequently link them to other areas of research.

A Grand Tour of Service-Dominant Logic Research

Service-dominant logic (SDL) was introduced by Stephen Vargo and Robert Lusch (2004a) in a Journal of Marketing (JM) article titled “*Evolving to a New Dominant Logic for Marketing*” (Vargo & Lusch, 2004). Its beginning though, can be traced to much earlier and more deeply rooted in marketing and marketing-associated literature. S-D logic is intended to capture and extend a convergence of apparently diverse thought that has shifted the dominant logic of marketing and economic thought away from a primary concern with tangible resources, output in the form of firm-created value (goods), and transactions. The central tenet of S-D logic (S-D Logic) is that *reciprocal service, defined as the application of competencies for the benefit of another party, is the fundamental basis of economic exchange*. That is, service is exchanged for service (Vargo et al., 2017).

In contrast Goods-Dominant or G-D logic (Vargo and Lusch 2004a; Lusch and Vargo 2006b) focuses on goods—or more generally, “products,” encompassing both tangible (goods) and intangible (services) units of output—as the basis of exchange. In summary, G-D logic says the firm aims to make and sell things.

Although S-D logic is not a paradigm (Lusch et al., 2007; Vargo & Lusch, 2007a, 2007b; Vargo et al., 2008), it functions at a paradigmatic level and provides an alternative lens, a mindset, through which phenomena can be examined.

S-D logic also moves the understanding of markets and marketing from a product or output-centric to a service or process-centric focus. The most distinguishing difference between G-D logic and S-D logic can be seen in the conceptualisation of service. As mentioned, in S-D logic service is defined as the application of competencies (knowledge and skills) for the benefit of another party (Vargo and Lusch 2006). Using the singular “*service*” instead of the plural “*services*,” as traditionally employed in G-D logic, is intentional and significant. It *signals a shift from thinking about value creation regarding operand resources—usually tangible, static resources that require some action to make them valuable—to operand resources—usually intangible, dynamic resources capable of creating value* (Constantin &

Lusch, 1994). Whilst, G-D logic sees services as (somewhat inferior to goods) units of output, S-D logic sees service as the process of doing something for and with another party, thus always as a collaborative process.

This explanation led me to make connection between S-D logic and organisational routines as I equated organisational routines as a form of operant resources. These key differences between S-D logic and G-D logic are summarized in the table below and help me in formulating my thought process on linkages between S-D logic, customer value co-creation behaviour and organizational routines.

	G-D Logic	S-D Logic
Value driver	Value-in-exchange	Value-in-use or value-in-context
Creator of value	Firm, often with input from firms in a supply chain	Firm, network partners, and customers
Process of value creation	Firms embed value in “goods” or “services”, value is ‘added’ by enhancing or increasing attributes	Firms propose value through market offerings, customers continue value-creation process through use
Purpose of value	Increase wealth for the firm	Increase adaptability, survivability, and system wellbeing through service (applied knowledge and skills) of others
Measurement of value	The amount of nominal value, price received in exchange	The adaptability and survivability of the beneficiary system
Resources used	Primarily operand resources	Primarily operant resources, sometimes transferred by embedding them in operand resources-goods
Role of firm	Produce and distribute value	Propose and co-create value, provide service
Role of goods	Units of output, operand resources that are embedded with value	Vehicle for operant resources, enables access to benefits of firm competences
Role of customers	To ‘use up’ or ‘destroy’ value created by the firm	Co-create value through the integration of firm- provided resources with other private and public resources

Table 5 – G-D Logic vs. S-D Logic on Value Creation

The figure below provides the completion of a relatively coherent narrative of value cocreation through resource integration and service exchange, coordinated by shared institutional arrangements that define nested and overlapping service ecosystems.

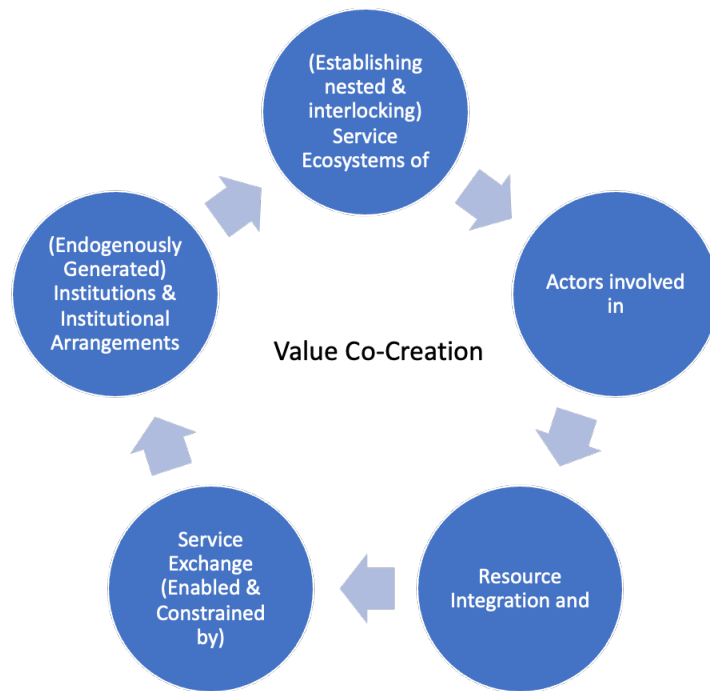


Figure 10 The narrative and process of S-D logic

This led me to the Foundational Premises of S-D logic upon which I based many of my hypotheses in this research. I will be referring to these Foundational Premises to link organisational routines (operant resources) with customer value co-creation behaviours with an aim to arrive at managerial and practical implications on how organisations can make effective use of S-D logic FPs to improve customer satisfaction and in turn, firm performance (Otto et al., 2019). The table below gives a listing of the foundational premises.

No.	Foundational Premise
1	Service is the fundamental basis of exchange
2	Indirect exchange masks the fundamental basis of exchange.
3	Goods are a distribution mechanism for service provision.
4	Operant resources are the fundamental source of competitive advantage.
5	All economies are service economies.
6	The customer is always a co-creator of value.
7	The enterprise cannot deliver value, but only offer value propositions.
8	A service-centred view is inherently customer oriented and relational.
9	All social and economic actors are resource integrators.

No.	Foundational Premise
10	Value is always uniquely and phenomenologically determined by the beneficiary.

Table 6 – Foundational Premises of S-D logic

Taking reference to FP-3, FP-4, FP-7, and FP-9 one can start to draw connections between organizational resources (goods, processes) and customer’s value co-creation behaviours. Also, it is clear to researchers that the role of “*higher value creation*” for the customer is in the firm’s competitiveness (Payne et al., 2007). This is because with the emergence of technology, and easy access to information the customer is more informed and educated, more selective and demanding and has a greater capacity of choice. This new consumer demands a greater value generation. The value co-creation process has become more necessary than ever for the organisation’s survival. The paradigm of S-D logic is based on the premise that firms do not deliver value, but rather work out value proposals (through a combination of goods and processes). It is the customers themselves who, individually, create value via the use or consumption of the products or services. This new approach emphasizes that the customer’s participation in the experience of the service is considered indispensable for value creation. (Vega-Vazquez et al., 2013).

A Grand Tour of Value Co-Creation Research

Research in value co-creation finds its roots in consumers intention to interact with firms and thereby “co-create” value (Prahalad & Ramaswamy, 2004). The changing nature of the consumer-company interaction has been described as the locus of co-creation (and co-extraction) of value and one which redefines the meaning of value and the process of value creation itself. Although the nature of value itself has been discussed and debated since Aristotle, value co-creation research got a shot in the arm with two general meanings “value-in-exchange” and “value-in-use” being articulated in context of “goods-dominant” (G-D) logic and “service-dominant” (S-D) logic (Vargo et al., 2008).

The five axioms of S-D logic covered the nature of service itself and focussed on how value is co-created by multiple actors, always including the beneficiary (Vargo & Lusch, 2016). Axiom number five of S-D logic postulates, “*Value cocreation is coordinated through actor-generated institutions and institutional arrangements*” (Vargo & Lusch, 2016). I equated a part of these arrangements to organizational routines. Considering this insight, I then looked at the progression of value co-creation research over the years. For example, research looks at tactics that disadvantaged (weak) customers can employ and provides insights into the organizing

practices that reinforce the disadvantaged positions of business customers (Appiah et al., 2021). I grounded my views in this research in a unified perspective of co-creation in interactions (Ramaswamy & Ozcan, 2018).

Recent value co-creation research has also put forward a “*dynamic exchange capabilities (DEC) framework*”, which is the firm’s ability to facilitate encounters, interactions, and engagement with actors for both exploitation and exploration of capabilities on a platform-based ecosystem of value co-creation and co-capture (Siaw & Sarpong, 2021). The dynamic capabilities view of organizations involves key assumptions and characteristics among them valuable, rare, inimitable, and non-substitutable (VRIN) resources. Dynamic capabilities therefore enable sustained competitive advantage by ensuring that firms always possess the VRIN resources required for competitive advantage at any given period. Further, the input variables dimension of dynamic capabilities involves firms’ processes, positions and paths. “Processes” refers to managerial and organisational “routines” such as work, behavioural and change processes.

Overall, research in value co-creation has taken a much broader view on the role of customers. These studies provide us a wide range of insights such as, role of customer in brand value co-creation (Merz et al., 2018), customer value co-creation over the entire relationship lifecycle (Cambra-Fierro et al., 2018), and actor engagement as a measurable micro foundation for value co-creation within the context of a service ecosystem (Storbacka et al., 2016). This allowed me to link value-co-creation, S-D logic, customer satisfaction and organizational routines.

Measuring Value Co-Creation Behaviour

To unite S-D logic, value co-creation researchers have defined the behaviour of customer co-creation as a construct comprising two differentiated types of *consumer behaviour: participation behaviour* and *citizenship behaviour* (Yi & Gong, 2013).

The first of these dimensions (*participation behaviour*) refers to the behaviour that the customer adopts during the service encounter. This is considered necessary to attain an appropriate performance in value co-creation.

The second refers (*citizenship behavior*) to a type of behavior which can create a higher value for the organization but which is not necessary for value co-creation (Bove et al., 2009; Groth, 2005). Each of these dimensions comprises four factors in the original scale: information seeking, information sharing, responsible behaviour and personal interaction in the framework of participation behavior and feedback, advocacy, helping and tolerance of citizenship behavior. These eight behaviour dimensions are (Yi & Gong, 2013):

1. *Information Seeking*: The customers need to have access to the information related to the service's basic characteristics which they are going to receive. This knowledge is going to facilitate their integration in the value co-creation process.
2. *Information Sharing*: It is necessary for the customers to actively participate, supplying information to the employees about the need that they wish to satisfy, as well as the specifications of the service that they expect to receive.
3. *Responsible Behaviour*: In the value co-creation process, customers must cooperate with the employees, following their guidelines and orientations.
4. *Personal Interaction*: Interpersonal relations between customers and employees based on courtesy, friendliness and respect are fundamental for the success of the value co-creation process.
5. *Feedback*: The information that customers supply to the employees (suggestions and orientations) and which facilitate the long-term improvement of the service provision.
6. *Advocacy*: The recommendation of the firm or its employees to family and friends.
7. *Helping*: The willingness to advise or give information to the rest of the users contributes to improving the service without the employees needing to intervene.
8. *Tolerance*: This refers to the customers being patient when the service provision does not meet their expectations.

What seems clear to researchers is the role of higher value creation for the customer in the firm's competitiveness (Payne et al., 2007). These days the customer is more informed and educated, selective and demanding and has a greater capacity for choice. This new consumer demands greater value generation from firms. Therefore, customer value creation has become more necessary than ever for the organisation's survival.

Integrating All the Streams

Now that I've given a grand tour of existing research across each of the key constructs, I made an attempt to take an integrative review (Cronin & George, 2020) approach and generate new insights leading to my hypothesis. I followed Huff's cycle of sense-making / sense-giving for exploration of a topic via multiple communities' perspectives provides sensemaking for the authors, and the integration of the different perspectives allows authors to engage in sense-giving therein (Huff, 2009).

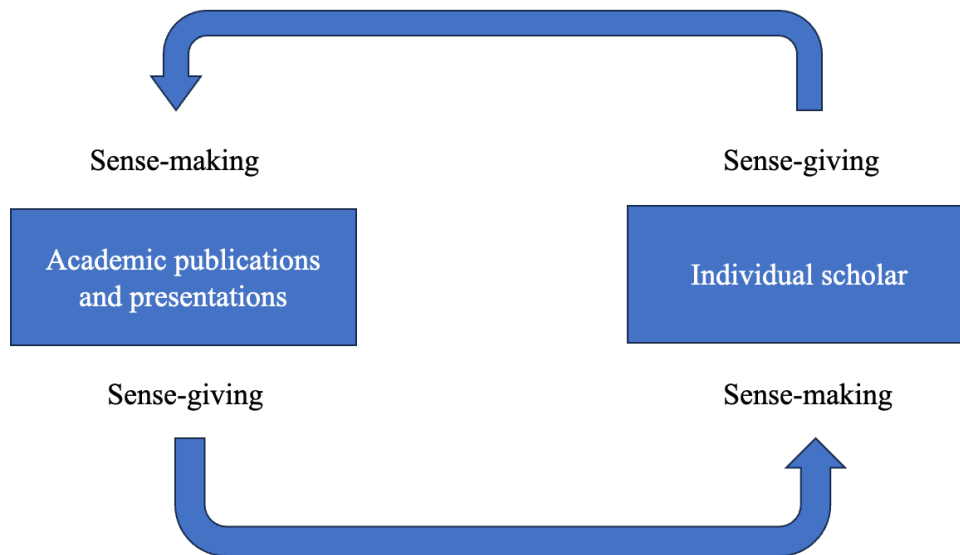


Figure 11 Huff's cycle of sense making / sense giving

An integrative review can be written from the point of view of adjudication or redirection. *Adjudication* organises domain knowledge by eliminating errors and producing “settled science” concerning a topic (Davis, 2015). Redirection organises domain knowledge by structuring it so that insights that promote new kinds of research emerge. I took a redirection approach to my work.

The spirit of adjudication and redirection has also been related to when quantitative versus qualitative methods should be used (Edmondson & McManus, 2007). When looking to test claims (i.e., settle them), one uses quantitative methods. When looking to explore new claims, one uses qualitative. I used both these methods to explore new claims and then test them.

Table below provides a view of the key themes across value co-creation, service-dominant (S-D) logic, customer satisfaction and organisational routines. I utilise these to arrive at novel insights at the intersection of these four diverse streams.

Customer Satisfaction	Value Co-creation	Organizational Routines	S-D Logic
Contagion perspective (NPS)	Dynamic capabilities perspective	Dynamic capabilities perspective	Operant resources are the fundamental source of competitive advantage (VRIN)

Customer Satisfaction	Value Co-creation	Organizational Routines	S-D Logic
Affective-state perspective (repeat customers)	(Processes) Organisational routines	Practice perspective	Value is co-created by multi-actors, such as producer, consumer, supplier, and other actor (Customer Value-Co-creation)
Risk-reduction perspective (guaranteed satisfying experiences)	Organizational boundaries (Efficiency)	Ostensive routines	Value is individually decided by the beneficiary, such as producer, consumer, supplier, and other actors (Customer Value Co-Creation Behaviours)
Market-force perspectives (increased market share)	Actor (Customer) Engagement in Value Co-creation	Performative routines	Actors cannot convey value but can create value propositions (Value Co-Creation Behaviours)
Market-Signalling perspectives (promises of satisfaction making tangible customer-centric culture valued by consumers)	Role of customer in brand enhancement	Source of stability and change	Value co-creation is coordinated through actor-generated institutions and institutional arrangements (Organizational Routines)
	Valuable, rare, inimitable, and non-	Consumer response to change in routines	

Customer Satisfaction	Value Co-creation	Organizational Routines	S-D Logic
	substitutable (VRIN) resources (Sources of competitive Advantage)		
		Boundaries of organization routines	

Table 7 – Integration of key research constructs

The figure below shows the linkages between the 3 constructs (value co-creation, customer satisfaction, organisational routines) underpinning, which is service-dominant (S-D) logic.

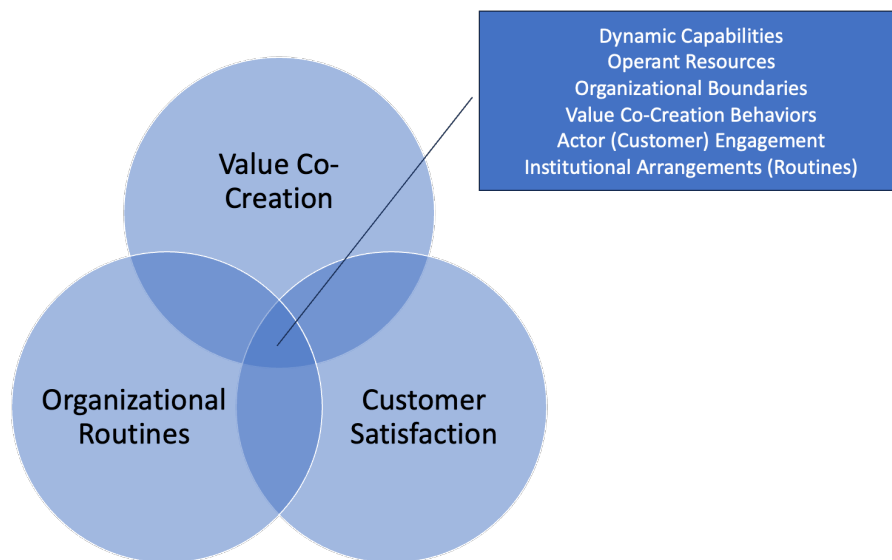


Figure 12 Common themes across key research constructs

Having identified these common themes, I applied the process of abstraction and juxtaposition to use the findings from across the four communities of practice to develop broader themes among findings and illuminate the relationships among these themes. Figure below shows the thematic synthesis and associations between four constructs and takes me closer to formulating a hypothesis.

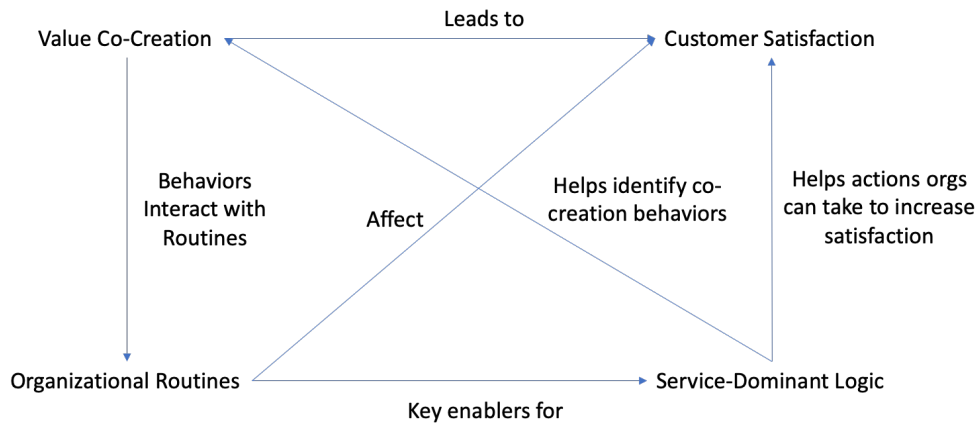


Figure 13 Thematic synthesis and the association between key research constructs

Redirection to the Organizational Routines, Value Co-Creation and Customer Satisfaction Research

Having laid down the thematic commonalities, I brought redirection to the research in organisational routines, value co-creation and customer satisfaction. This redirection was required because although the individual streams of research take perspectives on common themes, their interactional effects still need to be studied. For example, a research gap exists in studying the interaction between value co-creation (behaviours) and organisational routines. Another opportunity would be a longitudinal study of how value co-creation behaviours change over time and even influence changes in organisational routines.

Firms' usage of customer satisfaction data has been researched (Morgan et al., 2005). It does provide some commentary on how customer satisfaction information usage (CSIU) may provide an important mechanism for directing the firm's resource deployments and the behaviour of its personnel. However, a gap exists in conducting an empirical study on the relationship between organisational routines and customer satisfaction information usage.

A relatively recent study of the evolution and prospects of service-dominant (S-D) logic provides us with a view that there are islands of research within the S-D logic (Wilden et al., 2017). Thus an opportunity exists to bring some of the key axioms from S-D logic into the redirection of organisational routines and value co-creation research.

To recap, this was the journey through which I arrived at my key research question i.e., "*Effects of Value Co-Creation Behaviours and Organizational Routines on Customer Satisfaction*". This also allows me to generate novel insights and a variety of test hypotheses basis the thematic synthesis described above.

In the next chapter, I describe in depth my research methodology and start to set the specific context in which I have conducted my research.

Chapter 3 - Research Methodology

All social and economic actors are resource integrators - (Vargo & Lusch, 2015) – Axiom 3 / Foundational Premise 9

Choosing the Research Method

Having described the motivation and rationale behind my research question, I now describe my adopted methodologies. One of the recurring issues in social and behavioural sciences research is the relative value of different research approaches, especially with intense debates on different epistemologies e.g., positivist¹¹ versus interpretive¹² and methodologies e.g., qualitative versus quantitative (Venkatesh et al., 2013). Diversity in research methods is considered a major strength in research, and mixed methods research which has been termed the third methodological movement (paradigm), has gained prominence over the past decade. Quantitative and qualitative methods represent the first and second movements (paradigms), respectively (Newman & Ridenour, 2008; Tashakkori & Teddlie, 2003; Teddlie & Tashakkori, 2009).

Although the terms mixed methods and multimethod have been used interchangeably in social and behavioral sciences, there are significant conceptual differences between the two. In multimethod research, researchers employ two or more research methods but may (or may not) restrict the research to a single worldview (Mingers & Brocklesby, 1997; Tashakkori & Teddlie, 2003; Teddlie & Tashakkori, 2009).

Multimethodology research can be conducted using either a single paradigm or multiple paradigms. In contrast, mixed methods research is more in line with methodology combination, which essentially requires multiple worldviews (i.e., a combination of qualitative and quantitative research methods). *Mixed methods research* uses quantitative and qualitative research methods, either concurrently (i.e., independent of each other) or sequentially (e.g., findings from one approach inform the other), to understand a phenomenon of interest (Johnson et al., 2016). *Therefore, all mixed methods research studies are, by definition, multimethod research, but all multimethod studies are not mixed methods research.*

Therefore, it is evident that there is value in using both quantitative and qualitative worldviews as applied in mixed methods research, and it helps to develop a deep understanding of a phenomenon of interest.

¹¹ https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=5995&context=journal_articles

¹² <https://plato.stanford.edu/entries/law-interpretivist/>

Considering my multi-disciplinary research, I chose to conduct mixed methods research. I used interviews (a qualitative data collection approach) and surveys (a quantitative data collection approach) to collect and analyze data about my research question. In addition, I relied on additional types of mixed methods designs i.e., triangulation i.e., merging qualitative and quantitative data to understand a research problem (Carter et al., 2014; Jick, 1979); explanatory i.e., using qualitative data to help explain or elaborate quantitative results; and exploratory i.e., collect quantitative data to test and explain a relationship found in qualitative data (Creswell, 2007).

There are three major strengths of mixed methods research. First, mixed methods research can simultaneously address confirmatory and exploratory research questions (Tashakkori & Teddlie, 2003; Teddlie & Tashakkori, 2009). Qualitative methods have typically been used in social sciences for exploratory research to develop a deep understanding of a phenomenon and/or to inductively generate new theoretical insights (Punch 1998; Walsham 2006). In contrast, quantitative methods, such as theory testing, have typically been used more for confirmatory studies.

Second, mixed methods research can provide more robust inferences than a single method or worldview (Tashakkori & Teddlie, 2003; Teddlie & Tashakkori, 2009). Research employing rigorous qualitative or quantitative methods offers rich insights into various phenomena. Mixed methods research can leverage qualitative and quantitative methods' complementary strengths and nonoverlapping weaknesses and offer greater insights on a phenomenon that each cannot offer individually (Johnson and Turner 2003). For example, interviews, a qualitative data collection approach, can provide depth in a research inquiry by allowing researchers to gain deep insights from rich narratives, and surveys, a quantitative data collection approach, can bring breadth to a study by helping researchers gather data about different aspects of a phenomenon from many participants. Together, these two data collection approaches helped me as a researcher make better and more accurate inferences—that is, meta-inferences. Meta-inferences represent an integrative view of findings from qualitative and quantitative strands of mixed-methods research, and are considered essential components of mixed-methods research (Tashakkori & Teddlie, 2003; Teddlie & Tashakkori, 2009).

Addressing the Challenges in Mixed Methods Research

An important recommendation for mixed methods studies is explicitly clarifying several relevant aspects in the written report. A key issue is to determine the core reason or rationale for collecting both forms of data and provide a clear rationale for the interrelationship between the quantitative and qualitative phases (Creswell et al., 2003; Molina-Azorin et al.,

2017). Some key recommendations are made in further clarifying the rationale for using mixed methods research. One of these is a well-written purpose statement and research question, which I have covered in the previous chapters. The multidisciplinary nature of the research question warrants a quantitative and qualitative study. I also explicitly state the rationale for mixing quantitative and qualitative methods and data i.e., to triangulate results. Considering one of the research goals was to bridge the science-practice gap, it has been pointed out that to demonstrate a study's practical significance, there is a need to describe quantitative results in a way that makes sense for practitioners (Aguinis et al., 2010). To this effect, it is suggested that this purpose can be achieved by including practitioners in each research project as part of a qualitative study. I did this by conducting qualitative interviews with practitioners. Therefore, I further defend my choice of using mixed methods research where a quantitative study has been conducted in parallel with a qualitative part where practitioners became participants.

Some barriers and challenges of mixed methods research must also be considered. Mixed-methods studies require extensive time, resources, and effort and require that researchers develop a broader set of skills; as such, conducting mixed-methods research takes work. In the process, I had to develop skills that span quantitative and qualitative designs, which I would demonstrate in the research execution and results chapters.

Quantitative Data Analysis

The data collection stage of empirical research involves several choices, such as the particular type of research design, what sampling procedures are implemented, whether to use control variables and which ones in particular, and how to manage missing data (Aguinis et al., 2019). Research surveys are a key tool in quantitative data analysis wherein by asking questions of only a few hundred or thousand members of a carefully defined population, one can make fairly precise estimates of the distribution of behaviors and opinions of thousands or millions of people (or units) in that population using the power of statistical analysis (Stern et al., 2014). This ability to generalize with statistical confidence based on probability theory tends to separate surveys from other commonly used research methods such as focus groups, ethnographic methods, or cognitive interviews for collecting information about people's characteristics, attitudes, and behaviours (Kish, 2011; Valliant et al., 2000).

Survey Design Principles

Having decided to use the survey as a data-gathering tool, I now describe the approach used for designing the survey. I referred to stringent guidelines to ensure meaningful insights are attained. (Hulland et al., 2018); (Hinkin, 1998) (Aguinis et al., 2009). Survey unit representation deals with the representative population that the survey describes and provides

the desired data (in cases where the survey does not involve self-reports). For me to generalise findings from the units represented in the study to some broader population, issues related to the definition of the target population, sampling, and non-response bias need to be considered. However, given in a typical academic (marketing) survey, there is often no obvious target population to which the researcher wants to generalise the findings, the sample studied is arbitrary (e.g., chosen based on ease of access), and it is difficult to talk about selection bias when the sample is one of convenience (although nonresponse will lead to loss of power) (Hulland et al., 2018). I referred to this approach in designing the survey used in my research. Further, given one of my primary goals was to test theoretical hypotheses of interest, the most important consideration was to select the right measurement objects and a research context in which the hypotheses can be meaningfully tested using data sources (both primary and secondary).

I address common method bias by creating a short time difference between the dependent variable and independent variable measurements.

Choice of measurement object and selection of raters to provide measurements.

To move further with the survey design and as a good practice, the research question will determine the measurement object. In marketing surveys, the measurement object is usually an individual (e.g., consumer, salesperson) or a firm (although other units are possible, such as ads). In my research, the measurement object is an individual, i.e., the consumer; survey measures are based on self-report. I once again describe the unit of analysis for the raters and the constructs studied in the survey.

Customers (Survey Raters): There is a clear distinction between customer and consumer as covered by Service-Dominant Logic (SDL). The theme of *consumers* comprises concepts such as economic, goods, tangible, and cultural, as well as exchange. Most of these concepts strongly connect the term “consumers” and GDL thinking. The distance between consumer and customer reflects the importance of language in distinguishing Goods-Dominant Logic (GDL) from SDL. The theme of *customers* comprises concepts such as *co-creation, relationship, and brand*—more SDL-friendly terms.

Organizational Routines (Survey Construct): Repetitive, recognisable patterns of interdependent action carried out by multiple actors (Feldman, 2000). Organizational routines have been used as a unit of analysis in several research studies (Pentland, 2005).

Value Co-creation (Survey Construct):

Co-Creation - Enactment of interactional creation across interactive system environments (afforded by interactive platforms), entailing agencing engagements and

structuring organizations (Ramaswamy & Ozcan, 2018). The value creation process centers on individuals and their co-creation experiences (Prahalad & Ramaswamy, 2004)

Value - Customer is the one who constructs and experiences value by integrating resources / processes / outcomes in his or her own social context...the customer is the value creator. (Prahalad & Ramaswamy, 2004)

Value-In-Use: The customer's experiential evaluation of the product or service proposition beyond its functional attributes and in accordance with his/her individual motivation, specialized competences, actions, processes, and performances (Ranjan & Read, 2014)

Value-In-Exchange: Value-in-exchange might represent expected utility, but it is not the actual utility; utility (value-in-use) can only be realized by and in the context of the life of the customer (Vargo et al., 2008)

Customer Satisfaction (Survey Construct): Defensible and appropriate company objective – the glue that holds various corporate functions together and directs corporate resource allocation. Typically measured through surveys. (Peterson, et. al., 1992). Post-purchase evaluation of product quality given prepurchase expectations. (Kotler et al., 1991)

Description of Sampling

Considering that the primary aim of my research is to test the veracity of proposed theoretical effects, using a convenience sample may suffice (Hulland et al., 2018). Moving further from here, I describe some key definitions and cover my approach towards handling them. Some definitions are needed to make a good sample more precise.

Observation unit: An object on which a measurement is taken. This is the basic unit of observation, sometimes called an element. I have described the observation units in the section above.

Target population: The complete collection of observations a researcher wants to study. Defining the target population is an important and often difficult part of the study. In my research, the target population is the service provider's customer base being studied.

Sample: A subset of a population.

Sampled population: The collection of all possible observation units that might have been chosen in a sample; the population from which the sample was taken.

Sampling unit: A unit that can be selected for a sample. In my research, I took a specific subset of the entire population based on ease of access to the samples. As such, this limits the generalizability of my sample size to the entire population.

Sampling frame: A list, map, or other specification of sampling units in the population from which a sample may be selected.

The figure below clearly represents the target population and the sampling frame population.

Target Population		Sampling frame population	
Not included in sampling frame		Sampled population	
	Not reachable		
	Refuse to respond		Not eligible for survey
	Not capable of responding		

Figure 14 Target population and the sampling frame population

Addressing Pitfalls of Survey Design

One of the common pitfalls that can occur during sampling is “*selection bias*”, which occurs when some part of the target population is outside the sampled population or, more generally, when some population units are sampled at a different rate than intended by the investigator. In one of my surveys, my target population was the entire set of customers who avail the service, and given the paucity of time, I chose to take the “*sample of convenience*¹³” (*i.e., accessibility*). Therefore, there is an inherent selection bias in the sample. However, I compensated for this selection bias by triangulating the data with another independent survey which has a much larger sample size comprising of a wide range of customers which effectively covers the target population. As such, I derived my initial set of insights using the smaller sample survey and then generalised it using the larger sample survey.

¹³ A sample of convenience is often biased since the units that are easiest to select or most likely to respond are usually not representative of the harder-to-select or nonresponding units.

Another common pitfall is “*measurement error*” which occurs when a response in the survey differs from the true value. Measurement bias occurs when the response differs from the true value in one direction. As with selection bias, measurement error and bias must be considered and minimised in the design stage of the survey. The following are the common reasons for measurement error:

People sometimes do not tell the truth: Obtaining truthful responses is challenging in surveys involving sensitive subject matter. In my research, there is no sensitive topic; hence I did not face the challenge of responders not telling the truth. Further, I triangulated survey responses with qualitative data (interviews) and validated the findings with what the survey respondents shared.

People forget: One problem faced in the design of surveys is *telescoping*. When asked to place the time of a past event, people have a systematic tendency to recall that recent events occurred farther back in time (backward telescoping) and distant events occurred more recently (forward telescoping) than is actually the case (*Morwitz, 1997*). I address this issue by specifically asking questions that were contained to less than 6 months ago.

Other issues include: Respondents giving different answers to different interviewers, and respondents saying what they think an interviewer wants to hear or what they think will impress the interviewer, a particular interviewer affecting the accuracy of the response, by misreading questions, recording responses inaccurately, or antagonizing the respondent. In my research, this issue does not occur since the method of conducting the survey is via an online channel.

Certain words mean different things to different people: To address this, I clearly described the constructs in the survey.

Question wording and question order greatly affect the responses obtained: To address this, I tested the survey with a small sample size and incorporated feedback into the survey.

Questionnaire Design

A key step in survey design is the design of a questionnaire. Following are key recommendations towards the same.

Testing of survey questions before administering the survey: I tested my questionnaire several times on a small sample of target population members iterating through the language, construct definitions and order of questions. Respondents were asked how they felt about the survey questionnaire and their interpretation of the questions.

Please keep *it simple and clear*: Questions that seemed unclear during the tests were simplified, and language changed to ensure that respondents were unambiguously able to answer those.

Use specific questions instead of general ones, if possible: Survey questions were kept precise and related to the exact construct being studied.

Relate your questions to the concept of interest: Survey questions were kept precise and related to the exact construct being studied.

Decide whether to use open or closed questions: An open question allows respondents to form their response categories; in a closed question (multiple choice), the respondent chooses from a set of categories read or displayed. A closed question may prompt the respondent to remember responses that might otherwise be forgotten, and it is by the principle that specific questions are better than general ones. A well-written closed question will usually elicit more accurate responses if the subject matter has been thoroughly pretested and responses of interest are known. If the survey is exploratory or the questions are sensitive, it is often better to use an open question. I opted for closed-ended questions, given that I needed precise responses, which allowed me to get a higher response rate.

Report the actual question asked: The results section recommends that actual questions be reported. I follow the same guidelines in reporting the results.

Avoid questions that prompt or motivate the respondent to say what you want. These are often called *leading* or *loaded questions*. I did not ask such questions in my survey.

Consider the social desirability of responses to questions, and write questions that elicit honest responses: My survey had certain questions centred around social desirability behaviours.

Avoid double negatives: Double negatives needlessly confuse the respondent. I have not used double negatives in my survey.

Use forced-choice rather than agree/disagree questions: I followed the standard Likert scale format to elicit responses instead of agree/disagree questions (Carifio & Perla, 2008; Norman, 2010; Sullivan & Artino, 2013).

Ask only one concept per question. In particular, avoid what is sometimes called double-barrelled questions, so named because if one barrel of the shotgun does not get you, the other one will.

Pay attention to question order effects. If you ask more than one question on a topic, it is usually (but only sometimes) better to ask the more general question first and follow it by the specific questions.

Survey Administration

Surveys can be conducted in different settings, and different questionnaire methods involve either paper and pencil, electronic (computer mouse/keyboard) or telephone keypad vehicles for collecting the data. These modes differ at different levels (Bowling, 2005). Irrespective of the mode of survey administration, there are many potential influences on responses. These differences can make it difficult to separate the effects of each on the quality of the data obtained. As we've seen in the previous section, even minor changes in question-wording, question order, or response format can result in differences in the type of response obtained.

There is certainly a lot of cognitive load (burden) on the survey respondents. There are at least four steps involved in answering questionnaires, which make cognitive demands on respondents: comprehension of the question, recall of requested information from memory, evaluation of the link between the retrieved information and the question, and communication of the response. Likely, the channel of questionnaire presentation (e.g. auditory, oral, visual) affects the cognitive burden placed on respondents, especially the demand for literacy in the case of visual self-administration methods. As each mode inevitably imposes different cognitive requirements on respondents and varies in the amount of privacy and anonymity they afford respondents, these can affect the process of responding to questions and thus on, the quality of the data. The following are key indicators of survey data quality (Bowling, 2005).

1. Accuracy, or validity, of response (validity) (checks can be made against a 'true value' only when validating information is available).
2. The absence of social desirability bias is when the answer is determined by socially acceptable norms rather than the true situation (inversely proportional to the number of socially desirable answers for a particular question).
3. Item response (inversely proportional to the number of missing responses in the questionnaire).
4. Amount of information (indicated by the number of responses to open-ended questions or checklists).
5. The similarity of response distributions obtained by different modes of questionnaire administration (indicated by lack of significant differences between the estimates obtained using different modes of administration).

The table below compares the potential biases in each questionnaire administration method.

Potential for	Face-to-face interviews	Telephone interviews	Self-administered, postal	Self-administered, programmed, electronic
More complete population coverage for sampling	High	Low	High	Low
Cognitive burden	Low	Great	Great	Great
Survey response	High	Low	Medium – low	Low
Item response/completion of questionnaire	High	Low	Low	Low
Question order effects	Low	Low	High	Low
Response-choice order effects	Moderate	High	High	High
Recall bias	Low	Low	High	High
Social desirability bias	High	High	Low	Low
'Yes-saying' bias	High	High	Low	Low
Interviewer bias	High	High	—	—
Length of verbal response/ amount of information	High	Low	—	—
Willingness to disclose sensitive information	Low	Low	High	High
Respondents' preferences for mode of administration	High	Low	Low	Moderate

Table 8 - Potential biases in each questionnaire administration method

I administered the survey via Qualtrics¹⁴, an online survey administration tool. I chose this mode of survey administration due to its inherent strengths as listed down below: global reach, B-to-B and B-to-C appeal, flexibility, speed and timeliness, technological innovations, convenience, ease of data entry and analysis, question diversity, low administration costs, ease of follow-up, controlled sampling, ease of extensive sampling, control of question and answer order, required completion of answers (mandatory/voluntary). Among the significant weaknesses are perception as junk email (I addressed this by writing a personalised email and follow-up), Skewed attributes of the internet population: upscale, male, possible questions about sample selection (representativeness) and implementation, lack of online experience/expertise amongst respondents (this was addressed due to a sample population that was very conversant with internet and online surveys), technological variations, unclear answering instructions (this was addressed through clear articulation of constructs and giving context to the question), impersonal notifications (this was addressed through personalised email, follow-up conversations), privacy and security issues (this was addressed through personalised email, follow-up conversations), low response rates (Evans & Mathur, 2005).

Data Analysis

Having described the methodology adopted to design the questionnaire and administer the survey, I now focus on the methodology adopted for data analysis. I started my analysis by visually inspecting the data to ensure everything runs smoothly in the survey data extract. Aside from ensuring the robustness of statistical analysis at every step, I also referred to research on

¹⁴ <https://www.qualtrics.com/>

common mistakes made during the process and pay particular attention to common reasons for reviewers' comments (Green et al., 2016). For example, in analyses of reviewers' evaluations (i.e., numerical ratings on general manuscript dimensions), the authors coded manuscript submissions for statistical techniques (e.g., factor analysis, analysis of variance) to determine what analytical factors were most predictive of manuscript decisions (Gilliland & Cortina, 1997). It has been noted that manuscripts that predominantly used factor analysis or analysis of variance (ANOVA) received less favourable recommendations than papers that relied on correlations, regression, Linear Structural Relations (LISREL), confirmatory factor analysis (CFA), path analysis, or other methods (Green et al., 2016).

Descriptive Statistics

I started my analysis by running descriptive statistics (mean, median, mode) using all the variables in the survey. I then performed further tests using techniques such as independent samples t-test. This is considering, this is one of the simplest research designs and involves comparison of mean scores on a quantitative Y (dependent) variable outcome between two groups; membership in each of the two groups is identified by each person's score on a categorical X (independent) variable that identifies membership in one of just two groups. This helps me as the researcher to test whether there is a statistically significant difference in mean scores on Y between the groups. In the context of a well-controlled experimental design, a significant difference in means may be interpreted as evidence that the manipulated independent variable (Warner, 2012).

After running a series of independent samples t-tests, I ran a one-way between-subjects (between-S) analysis of variance (ANOVA) which is used in research situations where the researcher wants to compare means on a quantitative Y outcome variable across two or more groups. Group membership is identified by each participant's score on a categorical X predictor variable. ANOVA is a generalization of the t test; a t test provides information about the distance between the means on a quantitative outcome variable for just two groups, whereas a one-way ANOVA compares means on a quantitative variable across any number of groups. The categorical predictor variable in an ANOVA may represent either naturally occurring groups or groups formed by a researcher and then exposed to different interventions. In ANOVA, the categorical predictor variable is called a factor; the groups are called the levels of this factor (Warner, 2012).

Correlation Analysis

I then ran correlations between customer satisfaction and value co-creation behaviors. I used Pearson's r to describe the strength of the linear relationship between two quantitative.

variables. The two variables are designated X (predictor) and Y (outcome). Pearson's r has values that range from -1.00 to $+1.00$. The sign of r provides information about the direction of the relationship between X and Y. A positive correlation indicates that as scores on X increase, scores on Y also tend to increase; a negative correlation indicates that as scores on X increase, scores on Y tend to decrease; and a correlation near 0 indicates that as scores on X increase, scores on Y neither increase nor decrease in a linear manner. The absolute magnitude of Pearson's r provides information about the strength of the linear association between scores on X and Y. For values of r close to 0, there is no linear association between X and Y. When $r = +1.00$, there is a perfect positive linear association; when $r = -1.00$, there is a perfect negative linear association. Intermediate values of r correspond to intermediate strength of the relationship. However, there are several issues to be handled given when performing and analyzing correlation analysis and I explain these in context of my research Chapter 6 (*Results and Interpretation*) (Warner, 2012).

Factor Analysis

However, given that the number of variables was high (15), I also performed Confirmatory Factor Analysis (CFA) as a form of factor analysis that models the relationships between observed indicators (e.g., items in a scale) and the latent factors that they are supposed to measure (Nye, 2022). In doing so, I also tested the construct validity of the survey instrument measures by determining whether the latent factor(s) underlying a set of indicators are consistent with the theoretical conceptualization of the construct(s) they are intended to assess. CFA confirms an a priori factor structure and is appropriate for established constructs. In my research, the a priori factor structure is derived from the qualitative data (interviews). Some of the limitations of CFA are that these models typically impose simple structure, which can limit their utility with complex data and require advanced knowledge of the factor structure and given my research objective and the kind of data that I was analyzing, I did not have to utilize advanced factor analysis methods as these limitations were not encountered.

I also conducted power analyses for the hypothesized model to determine whether the sample size is large enough to detect the predicted effects. This is important because the sample size requirements for CFA estimation are complicated and can be affected by several model characteristics. In my research, power analyses indicated the adequacy of sample size.

As with other types of analyses, missing data is also a significant concern when estimating CFA models. A lot has been written about missing data analyses, and I relied on the methods like listwise and pairwise deletion is commonly used in statistical programs (e.g., SPSS) given missing data is missing completely at random (Newman, 2014; Nye, 2022).

After treating the missing values and running power analysis again I evaluated the model fit. One of the most widely used fit indices is the chi-square (χ^2) index of fit. The null hypothesis for this fit index is that the covariance matrix implied by the model is precisely equal to the observed. covariance matrix for the variables in the model. Therefore, larger χ^2 values indicate poor fit. However, the chi-square also has several limitations and is affected by several data characteristics. One of the key limitations of the chi-square is that it is severely affected by sample size. It becomes more sensitive to even trivial misspecifications as the sample size increases. Due to the limitations of the chi-square, several other fit indices have been developed. This includes the RMSEA, CFI, TLI, and SRMR. These indices were specifically developed to address the limitations of the chi-square and provide an alternative perspective on the fit of a model. In addition to examining traditional fit indices, I also examine other characteristics of the model to provide a more comprehensive estimate of fit. As noted above, all the traditional fit indices have some limitations. In addition, it is important to remember that all these indices are global fit indices. In other words, they reflect the fit of a model but may not accurately reflect misfit in some parts of the model (Nye, 2022).

Regression Tests

After running the correlations, I then conducted a bivariate regression analysis which provides an equation that predicts raw scores on a quantitative Y variable from raw scores on an X variable; in addition, it also provides me with an equation to predict z or standardized scores on Y from standardized scores on X. The predictor or X variable is usually also quantitative, but it can be dichotomous. Like Pearson's r, bivariate regression assumes that the relation between Y and X is linear; this implies that scores on Y can be predicted as a linear function of scores on X using an equation (Warner, 2012). Research application of bivariate regression typically involves two or three steps:

1. Estimate the coefficients for the regression equation (i.e., finds numerical estimates for the intercept and slope).
2. Assess how well or poorly this equation predicts scores on Y (using both statistical significance tests and effect-size indexes).
3. Use the bivariate regression equation to generate predicted scores for individual people and use the predicted scores as a basis for decisions.

Given the survey had multiple variables a bivariate regression did not give me the complete picture. As such, I proceeded to generalize regression analysis to include more than one predictor variable (X). The correlation between the actual Y scores and the predicted Y' scores

in a regression analysis is called a multiple R (or sometimes just R) because the prediction may be based on multiple predictor variables.

Having performed factor analysis, I again conducted a bivariate and multi-variate regression analysis to establish models to explain my dependent variable (customer satisfaction) against my independent variables (value co-creation behaviors).

Classification and Regression Trees

Given my interest in going beyond exploratory research, I then ran predictive models based on the survey data. This gave me further insights into the effects of value co-creation behaviors on customer satisfaction. To do this, I chose to use decision tree-structured models, which are predictive models that use tree-like diagrams. I provide here a brief description of the most popular classification and regression tree models. These are important concepts that I had to learn while running decision trees and helped set the parameters for models being run using SPSS software.

To start with there are two types of decision trees:

- *Classification Trees*: The target variable takes a finite set of values.
- *Regression Trees*: The target variable takes real numbers.

With advances in computing over the recent decades and the availability of software, supervised learning has become a powerful technique for survey researchers. In this case, the main aim is to build prediction models for some outcome of interest, given a set of predictor variables (features). The relationship between outcome and features is learned with training data (predictors and outcome available), such that the derived model can be applied to predict the outcome for new, previously unseen observations (test data). This task requires finding a model that is flexible enough to closely approximate the true function between the outcome and its predictors while also being robust to (changes in) the training set being used (bias-variance trade-off (Hastie et al., 2009).

Against this background, one must find an optimal model for a given method (model tuning) and/or select the best model among different learning methods concerning expected performance in new data. Within a given training set, out-of-sample prediction performance can e.g., be estimated by cross-validation, which (repeatedly) uses different training data pieces for model building and evaluation (Foster et al., 2016; Kuhn & Johnson, 2013).

While a wide range of supervised learning methods can be used in the prediction setting, tree-based approaches might be beneficial in a (longitudinal) survey research context: Tree-based plans offer a variety of flexible tools that are (a) able to handle diverse data without the need of extensive pre-processing and for which (b) fast computational implementations are

often available. Further, tree-based algorithms preclude the necessity to pre-select predictor variables from a set of potential features since the tree-building algorithm can detect the informative variables. However, tree-based methods differ regarding the prediction performance they may achieve, and the effort typically needed for model tuning. Following is a brief description of the most popular tree models.

Automatic Interaction Detection (AID) (Morgan & Sonquist, 1963) is the first regression tree algorithm published in the literature. Starting at the root node, AID recursively splits the data in each node into two children's nodes.

THeta Automatic Interaction Detection (THAID) (Messenger & Mandell, 1972) extends the ideas from *AID* model to classification, in which Y is a categorical variable.

Classification And Regression Trees (CART) (Breiman et al., 1984) was one of the first models to generate interest in classification and regression trees. It follows the same *greedy search approach* as *AID* and *THAID* but adds several novel improvements. Instead of using *stopping rules*, it *grows a large tree* and then *prunes it to a size with the lowest cross-validation estimate of error*. The *pruning* procedure is ingenious, based on the idea of weakest-link cutting, with the links indexed by the values of a cost-complexity parameter. This solves the *under-fitting* and *over-fitting* problems of *AID* and *THAID*, although with increased computation cost. To deal with *missing data* values at a node, *CART* uses a *series of "surrogate" splits*, which are *splits on alternate variables* that substitute for the preferred split when the latter is inapplicable because of missing values. Surrogate splits also provide an importance score for each X variable. These scores, which measure how well the surrogate splits predict the preferred splits, can help to detect masking. *CART* can also employ linear splits, that is, splits on linear combinations of variables, by stochastic search. Brown et al. (1996) proposed a linear programming solution as an alternative.

CHi-squared Automatic Interaction Detector (CHAID) (Kass, 1980) employs an approach like *stepwise regression* for split selection. It was originally designed for classification and later extended to regression. To search for an X variable to split a node, the latter is initially split into two or more children's nodes, with their number depending on the type of variable. *CHAID* recognizes three variable types: *categorical, ordered without missing values (called monotonic)*, and *ordered with missing values (called floating)*. A separate category is defined for missing values in a categorical variable. If X is categorical, a node t is split into one child node for each category of X . If X is monotonic, t is split into 10 children's nodes, with each child node defined by an interval of X values. If X is floating, t is split into 10 children's nodes plus one for missing values. *Pairs of children nodes* are then considered for *merging* by using

Bonferroni-adjusted significance tests. The *merged children's nodes* are then considered for *division*, again by means of *Bonferroni-adjusted tests*. Each *X* variable is assessed with a *Bonferroni-adjusted p-value*, and the *one with the smallest p-value is selected to split the node*.

Numerous other models have evolved over the years, which are variations or extensions of the one's described above and others novel in their nature (Kotsiantis et al., 2007; Lim et al., 2000; Loh, 2011). I chose to go with CHAID and CART models as these come closest to the data that I have been handling and the prediction capabilities offered.

Moderation Testing

One of my aims was to test hypotheses of factors moderating the relationship between value co-creation behaviors and organizational routines. A moderator variable influences the nature (e.g., magnitude and/or direction) of the effect of an antecedent on an outcome. The figure below illustrates the concept of moderation.

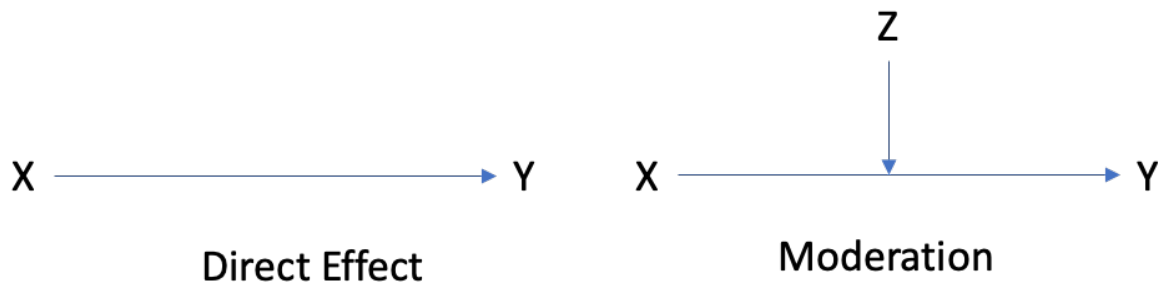


Figure 15 – Direct and Moderation Effects

This shows that the moderator variable *Z* influences the *X* to *Y* path. When the moderator variable is categorical (e.g., industry type), the traditional data-analytic approach is subgrouping analysis, which consists of comparing correlation or regression coefficients across the various subgroups or categories (Aguinis & Pierce, 1998; Boyd et al., 2012). When the moderating effect is continuous (e.g., firm resources), studies typically rely on moderated multiple regression (Aiken et al., 1991; Cohen, 1978), which consists of creating a regression model that predicts the outcome based on a predictor *X*, a second predictor *Z* hypothesised to be a moderator, and the product term between *X* and *Z*, which carries information on the moderating effect of *Z* on the *X*-*Y* relation. The regression coefficient for the *XZ* product term from which *X* and *Z* have been partialled out offers information on the presence and magnitude of the moderating effect (Aguinis et al., 2016; Sardeshmukh & Vandenberg, 2016).

In my research, I use both categorical and continuous variables as such I rely on both traditional data-analytic approach of subgroup analysis and using a product term between variables of interest.

Finally, there are a few areas to watch out for when conducting moderation testing, and I mention these here and, in the Results, *and Interpretation* chapter.

1. *Lack of attention to measurement error*
2. *Variable Distributions Are Assumed to Include the Full Range of Possible Values:*
3. *Unequal Sample Size Across Moderator-Based Categories*
4. Insufficient statistical power
5. Artificial Dichotomization of Continuous Moderators
6. *Presumed Effects of Correlations Between Product Term and Its Components*
7. *Interpreting First-Order Effects Based on Models Excluding Product Terms*

It was not possible for me to address all of these given the scope of research, availability of data and time constraints. I cover these limitations in directions for future research.

Triangulation with Qualitative Data

Considering I am using mixed methods research, I now move on to describe the usage of qualitative data to triangulate with my quantitative methods. Triangulation is broadly defined by Denzin (1978: 291) as "*the combination of methodologies in the study of the same phenomenon.*" The triangulation metaphor is from navigation and military strategy that use multiple reference points to locate an object's exact position (Smith, 1975: 273). Given basic principles of geometry, multiple viewpoints allow for greater accuracy. Similarly, organizational researchers can improve the accuracy of their judgments by collecting different kinds of data bearing on the same phenomenon (Jick, 1979).

Triangulation provides researchers with several important opportunities. First, it allows researchers to be more confident of their results. This is the overall strength of the multi-method design. Triangulation can play many other constructive roles as well. It can stimulate the creation of inventive methods, and new ways of capturing a problem to balance with conventional data-collection methods. Triangulation may also help uncover a phenomenon's deviant or off-quadrant dimension. Different viewpoints are likely to produce some elements which do not fit a theory or model. Thus, old theories are refashioned, or new theories developed.

Figure below gives a view of the triangulation I have used in my research.

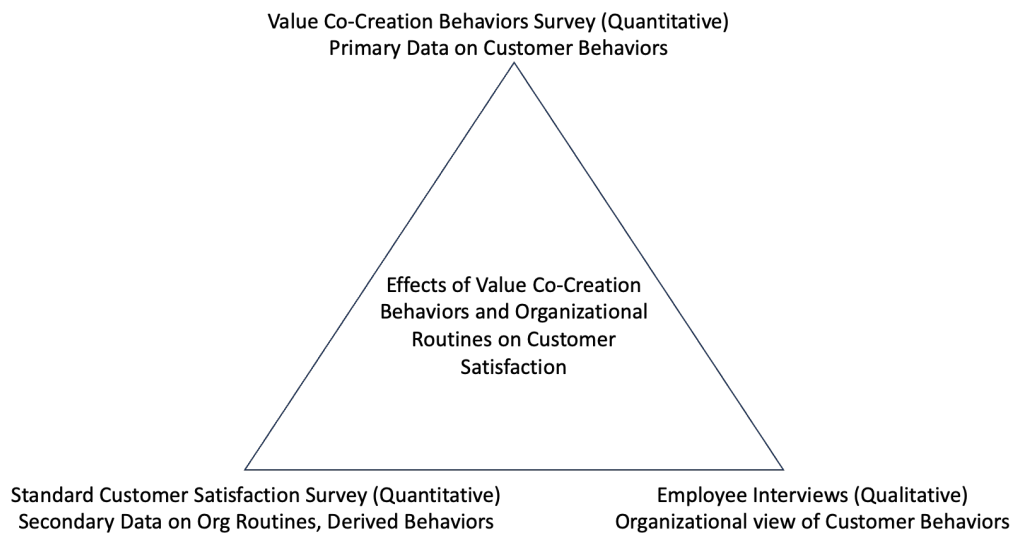


Figure 16 - Triangulation Method in Research

There are many ways to triangulate e.g., “within-method”, which uses multiple techniques within a given method to collect and interpret data. Triangulation in quantitative methods such as survey research can take the form of multiple scales or indices focused on the same construct. Triangulation in qualitative methods can take the form of different methods of participation observation.

In contrast, the “*between-method*” triangulation focused on convergent validation. The use of complementary methods is generally thought to lead to more valid results, as noted. It is currently the archetype of triangulation strategies.

In short, “*within-method*” triangulation essentially involves cross-checking for internal consistency or reliability, while “*between-method*” triangulation tests the degree of external validity.

I used the “*between-method*” triangulation technique to increase the external validity of the results.

Choice of Qualitative Research Method

Qualitative research has a rich history, and by building theory inductively, research based on qualitative data offers insights that challenge taken-for-granted theories and expose new theoretical directions. Yet, effectively unpacking new theories requires researchers to take advantage of the breadth and variety of approaches to qualitative research. Qualitative data can be described as nonreducible text, including words and visuals delivered in static (e.g., paper) or dynamic form (e.g., theatre). Although these qualitative data can be digitized, synthesized, and even counted, doing so first requires interpretation of the data to discern patterns and insights. Given the broad forms in which qualitative data may appear, a researcher’s onto-

epistemological assumptions often shape his/ her approaches to this analytical process (Bansal et al., 2018). When adopting qualitative methods, researchers draw on observations from the data to introduce abstract knowledge that can generalize beyond specific contexts. Therefore, inductive theorizing grounded in data can broaden the researchers' epistemological frame with longer leaps than hypo-deductive logic based on quantitative data, yielding completely novel ideas.

There are many types of qualitative research designs and methods:

- *Ethnography*: Originates from the field of anthropology and is used to describe characteristics of culture within groups, communities, and organizations.
- *Discourse analysis*: Has roots in linguistics and is used to explicate the forms and functions of semiotic events such as written words, spoken dialogue, and visual texts. One type of discourse analysis is content analysis, which management scholars have used to examine language and its effects on individual and organizational outcomes.
- *Ethnomethodology and conversation analysis*: Emerged from sociology, examine the methods people use to produce and understand the social order of everyday activity.
- *Phenomenology*: Involves a philosophical commitment to privileging an individual's unique situation and provides a first-person point of view.
- *Archival and historical methods*: Employs the practices of historians in describing past events, to- ward accounting for the present and anticipating the future.
- *Structured interviews and focus groups*: These are especially popular in the management field, are designed to increase the reliability and credibility of qualitative data, as research subjects provide comparable and contrasting responses to the same interview questions.

I chose the “*Structured Interviews*” approach to gather qualitative data for my research. The reason for doing so is that structured interviews allowed me, as the researcher, to hear how participants in my study described various situations, thereby helping me to see into their world (i.e., to understand their perceptions, interpretations, thoughts, and emotions) and to discover phenomena that I might not know if I had relied on other methods such as observations, surveys, or laboratory studies. As an interviewee, I also used rich, evocative language to describe the situations my research participants dealt with, which helped me as a researcher to discover aspects of a phenomenon which might otherwise not have been uncovered through quantitative data.

Designing and Conducting the Semi-Structured Interview

Designing and conducting structured interviews is one of the most critical phases of qualitative research methods. In an interview, “*What one already knows is as important as*

what one wants to know. What one wants to know determines which questions one will ask. What one already knows will determine how one asks them" (Leech, 2003).

There are many types of interviews with many styles of questions, each appropriate in different circumstances. Ethnographers often use unstructured interviews which are conversations than interviews. These are most appropriate when the interviewer has limited knowledge about a topic or wants an insider perspective. However, there is a tendency for such discussions to be very open-ended and are best used as a source of insight rather than hypothesis testing.

On the other hand, semi-structured interviews are also those with open-ended questions, but it is a style that is often used in elite interviewing. Questions in this style are based on prior knowledge of theory and the domain area in which the interview is conducted.

I developed a good understanding of the underlying theory and domain area through real-world experience, so I chose the semi-structured interview style. There are many nuances associated with conducting a semi-structured, and I followed those based on recommendations from other researchers (Leech, 2003).

I designed the interview questionnaire based on best practice recommendations starting with "*grand tour questions*". As the name suggests, these questions ask respondents to give a verbal tour of something they know well. The primary benefit of the question is that it gets respondents talking but in a reasonably focused way. I use "*prompts*" to keep my respondents talking and use them to rescue the conversation when responses turn to mush. Active listening is a key skill for conducting any good interview, and I practiced this when testing the interview questionnaire before the actual interviews were conducted.

Finally, I focused on achieving rigor in qualitative research, like the quantitative method described earlier in this chapter. I referred to the "*Eight Criteria of Quality in Qualitative Research*" which is marked by (a) worthy topic, (b) rich rigor, (c) sincerity, (d) credibility, (e) resonance, (f) significant contribution, (g) ethics, and (h) meaningful coherence (Tracy, 2010).

Data Analysis and Theory Generation

Once qualitative data was gathered, I focused on data analysis and theory generation techniques. I used the "*Grounded Theory Method*" (GTM) developed by Barney Glaser and Anselm Strauss (Strauss & Corbin, 1997). GTM claims to be a qualitative methodology to generate theory inductively and is defined by Glaser as "*a general methodology of analysis linked with data collection that uses a systematically applied set of methods to generate an inductive theory about a substantive area*". Perhaps obvious but as the names suggests one of

the key benefits of GTM is that “*theory is grounded in empirical reality*” or “*theory emerges from data*”.

There are many versions of GTM i.e., the original version of (Strauss & Corbin, 1997) and a subsequent exhaustive update by Cathy Charmaz (Charmaz, 2014). Given its widespread acceptance in qualitative research over the past two decades, I used the latter to conduct my research. Grounded theory is predicated on emergent logic. This method starts with a systematic, inductive approach to collecting and analyzing data to develop theoretical analyses. The method also includes checking emergent categories that emerge from successive levels of study through hypothetical and deductive reasoning. Grounded theory offers systematic analytic strategies that combine explicitness and flexibility.

According to Charmaz, fundamental tenets of the grounded theory method include: (1) minimizing preconceived ideas about the research problem and the data, (2) using simultaneous data collection and analysis to inform each other, (3) remaining open to varied explanations and/ or understandings of the data, and (4) focusing data analysis to construct middle-range theories. As a result, I used GTM before conducting the quantitative research to form constructs that fed into my quantitative research.

Effective use of the grounded theory method depends on adopting several of Glaser and Strauss’s early grounded theory guidelines with modern caveats. These are as follows:

- *Coding Practices*: Crucial coding practices lay the foundation of grounded theory research.
- *Memo Writing*: Writing progressively more analytic than descriptive memos helps advance grounded theory practice.
- *Theoretical Sampling*: A pivotal but often neglected grounded theory strategy, theoretical sampling distinguishes grounded theory from other methods.
- *Practicing Theoretical Saturation*: Theoretical saturation is widely claimed but is to be carefully practiced.

These four strategies enabled me to make the theoretical analysis as the basis for sorting and integrating their studies.

Coding of Data

Coding is the beginning of analyzing data in grounded theory. Coding consists of at least two phases: *initial coding* and *focused coding*. Initial or open coding requires close reading and interrogation of the data. This coding phase helps me move my attention from the research field to data analysis. This is mainly so as I could engage in simultaneous data

collection and analysis. As a grounded theorist, I conducted coding as I gathered data. Specific forms of grounded theory coding led me to focus on the data's possible meanings and stick closely to it while actively interrogating them. This phase is called “*interrogating the data*”. This involved line-by-line coding, goes deeper into the phenomenon, and attempts to explicate it. This type of coding gave me more directions to consider and already suggests emergent links between processes in the data. Often there are leads through “*in vivo*” codes, which consist of research participants’ direct statements. “*In vivo*” principles aided me in discerning participants’ meanings and explaining their emergent actions. After initial codes are established, the most frequent and/ or significant ones are identified and focused or selective coding is carried out. This coding allowed me to sort and synthesizing large amounts of data, expediting the work. I then scrutinized the focused codes to evaluate which ones best explained or interpreted the empirical phenomenon. These codes then became tentative theoretical *categories* to be treated as tentative categories subject to further analytics treatment (in my case these categories informed the variables in my quantitative research).

Memo Writing

One of the key techniques in GTM is memo writing which is about capturing ideas in process and in progress. Successive memos on the same category trace its development and aided me to gather more data to illuminate the category and probe deeper into its analysis. Memos can be partial, tentative, and exploratory. The acts of writing and storing memos provided a framework for exploring, checking, and developing ideas. Writing memos allowed me to learn about the data rather than just summarizing material (Charmaz, 2008).

Theoretical Sampling

Theoretical sampling keeps a study grounded and is a method of sampling data for developing an academic category. The term “*sampling*” is confusing, and as a researcher, it was important for me to separate the notion of sampling from studying populations and their characteristics. In GTM, one can conduct theoretical sampling only after having tentative categories to develop or refine. It is impossible to anticipate where the theoretical inquiry will go, as such theoretical sampling may take a researcher into new research sites and substantive areas. The logic of theoretical sampling distinguishes grounded theory from other types of qualitative inquiry. Through considering all possible theoretical understandings of their data, as a grounded theorist I was able to create tentative interpretations, then return to the field and gather more data to check and refine the categories. This makes GTM abductive by nature, allowed me as the researcher to imagine

all possible hypothetical accounts to explain surprising findings and then subjecting these theoretical accounts to test. Abductive logic involves both imaginative interpretation and reasoning about experience, which grounded theorists invoke when they check and refine their categories (Charmaz, 2014).

Theoretical Saturation

Theoretical saturation means saturation of the properties of an academic category. Theoretical saturation occurs when gathering more data sheds, no further light on the properties of their theoretical type. Much theoretical sampling is devoted to attaining theoretical saturation, and academic classes are mandatory for this achievement. There needs to be more substantive literature on how one can provide evidence of having achieved theoretical saturation (Charmaz, 2008). However, in my research, I stayed with saturation of codes and categories from the qualitative data gathered.

I conducted my research using all the key concepts within GTM and that helped me in generating rich theoretical insights which further inform my quantitative research.

Exploratory Use of Topic Modeling

Further to the triangulation using quantitative (survey data) and qualitative data (grounded theory analysis of interviews) I explored use of topic modeling. The techniques described in qualitative methods in this chapter are resource intensive. Recent availability of large textual data sets in particular social media (e.g., Twitter, Facebook) and increased computational power has made text mining an attractive method that has the potential to mitigate some of these limitations. Thus, topic modeling as a specific text mining technique can be seen as a new and complementary strategy of inquiry to study organizational phenomena. There is acceptance for this method in management research (Hannigan et al., 2019; Schmiedel et al., 2018). The term “*text mining*” itself refers to computational methods for extracting potentially useful knowledge from large amounts of text data.

Topic modelling can be understood as an automated method for content analysis and thus complements traditional content analysis approaches and comprises of four basic phases.

- **Data collection Phase:** Enables researchers to work with a much larger corpus of documents than would be possible with manual methods; yet the mechanics behind topic modeling algorithms require a text corpus sufficiently large to produce valid and reliable results.

- Coding Phase: Standard topic modeling uses unsupervised machine learning methods that can be compared to exploratory, inductive approaches in which codes are suggested by the data instead of a predefined coding schema (Debortoli et al., 2016; Quinn et al., 2010)
- Content analysis Phase: Manual approaches typically use frequency counts and cross-tabulations in combination with a qualitative description of themes emerging from the investigation (Duriau et al., 2007); similarly, topic modelling also combines quantitative analyses (e.g., summary statistics based on document metadata) and qualitative interpretation (based on highly associated documents and highly associated words) to analyze content (Quinn et al., 2010).
- Interpretation of Results Phase: The strength of topic modelling is to feed identified topics into subsequent statistical analysis methods (e.g., clustering, principal components analysis, regression) (Debortoli et al., 2016). Thus, it analyzes text corpora on a large scale to explore and aids in identifying potentially new concepts or new concept relations, topic modeling complements existing research methods.

There are various unsupervised machine learning methods and the most popular among these is probabilistic topic modeling. Probabilistic topic models, like Latent Dirichlet Allocation (LDA), are algorithms that can inductively identify topics running through a large collection of documents¹⁵ and assign individual documents to these topics. Topic modeling algorithms like LDA take a relational approach to meaning in the sense that co-occurrences of words are important in defining their meaning and the meaning of topics (more the occurrence more the weight).

In my research I used social media data and run LDA topic modeling to extract topics which provided me with an additional lens into the theory I built as well as external validity. I present those topics in the chapter on “*Results and Interpretation*”.

Novel Application of Mixed Methods Research

The rich body of literature on value co-creation has been either one that has espoused and developed our theoretical understanding of the phenomenon or used quantitative methods to measure customer participation in various organizational

¹⁵ Document here refers to any text form which is fed as an input into an unsupervised machine learning model.

processes such as brand building (Merz et al., 2018; Yi & Gong, 2013). (Chen & Wang, 2016; Cossío-Silva et al., 2016; Pinho et al., 2014; Storbacka et al., 2016).

On the other hand, research in organizational routines has mostly been qualitative in nature and ranged from case studies, process studies to a practice theoretical lens of studying organizational routines (Cohen & Bacdayan, 1994; Feldman, 2000; Feldman & Rafaeli, 2002; Howard-Grenville & Rerup, 2016; Labatut et al., 2012; Pentland & Hærem, 2015; Salvato & Rerup, 2017; Wenzel et al., 2021; Wright, 2014).

By combining quantitative research (survey methods), qualitative research (interview methods) and topic modelling I took a novel approach in bringing together organizational routines and value co-creation routines research. For example, applying quantitative methods to understanding organizational routines is by itself a novel contribution to this body of knowledge. Further, I have demonstrated the ability to derive value co-creation behaviors from observations on organizational routines. This gives another unique way to conduct studies on organizational routines and gives us the ability to understand value co-creation behavior from an organizational perspective.

I now move towards explaining the execution of the research methods described in this chapter.

Chapter 4 - Research Execution

Value is always uniquely and phenomenologically determined by the beneficiary - (Vargo & Lusch, 2015) – Axiom 4 / Foundational Premise 10

Choice of Context and Organization

In this chapter, I detail the research execution and take the next step towards analyzing the data and interpreting results. Despite identifying the right research methods, it is possible to get the execution wrong for a variety of reasons. For example, (a) there are no hard and fast rules to apply; matching research design to research questions is as much art as science; and (b) external factors sometimes constrain researchers' ability to carry out optimal designs (Bono & McNamara, 2011). Access to organizations, the people in them, and rich data about them present a significant challenge for management scholars. However, in my research I was fortunate to be able to get liberal access to both organizational data and people.

I started my research execution by identifying the right context in which to conduct the study. After carefully examining the various possible industries to conduct my study, I narrowed it down onto the airline industry. This is because fierce competition in the airline industry requires effective online and offline customer relations management to retain customer satisfaction and drive future income. Customer feedback is also critical since it is a source for business growth and performance, improvement of customer experience and innovative product and service offerings (Siering et al., 2018). Satisfying passengers and translating this satisfaction into behavioral commitment is key for airlines to remain competitive. Research has also suggested that airlines need to understand better their diverse customer base to take service improvement strategies since they are inherently multicultural businesses. Airline customers share their experiences through various online platforms (Berezina et al., 2016). However, only a few studies in the airline sector have used online customer-generated content by conducting quantitative studies of sentiments or customer feedback survey data to identify critical elements of the airline services (Edvardsson, 1992; Sezgen et al., 2019). As such this study also fills that gap.

Another interesting aspect of conducting this study in the context of airlines is that it allows distinguishing airlines from one another in terms of their business models e.g., full service vs. low-cost airlines in effect the differentiation between customer satisfaction and nature of service provided. This also provided me with an opportunity to include parameters in the study from the customer point of view, expectations prior to purchase, and perceptions after consumption of airline service may differ based on the airline's business model due to the nature of service and products offered by low-cost carriers (LCCs) and full-service network carriers

(FSNCs) may show differences. Passengers may form different expectations for low-cost airlines and as opposed to full-service carriers, which then translates into dis/satisfaction based on their overall assessment of service performance and expectations from the airline (Sezgen et al., 2019).

Consumer utility expectations may increase proportionality to the amount they pay. Since value is a trade-off between what one gives and gets, value perceptions form customer expectations and perceptions and their satisfaction towards the different service classes (Parasuraman et al., 1991; Zeithaml et al., 1993). Therefore, passengers may value different service attributes differently and as a result, their satisfaction levels would differ.

Considering the above, I conducted my research in two stages:

Stage 1: Measured value co-creation behaviors for a broad range of parameters which could affect customers' perception of the airline service. This was done with a smaller sample size by administering a value co-creation behaviors survey.

Stage 2: Derived the value co-creation behaviors from a large customer satisfaction data set of a large commercial airline offering a range of value-added services. For this stage, I partnered with a large airline to conduct my research. This airline company is the largest airline in India with a market share of 56.8% and the 7th largest airline in the world by daily departures. Nearly 86 million customers flew this airline between April 2022 and March 2023 giving a huge opportunity study quantitative customer satisfaction data. The choice of partner organization was also motivated because of the ease of access to the organizational data and its people.

Measuring Value Co-Creation Behaviors

As a researcher, my interest is in measuring customer value co-creation behaviors. To do so, I relied on a validated scale which addresses the following gaps in prior literature:

- Identifies and measures customers' behavior in co-creating value.
- Fully validates a comprehensive customer value co-creation behavior construct.
- Explores the hierarchical dimensionality of customer value co-creation behavior.

Using this validated scale allowed me to use a pre-defined protocol for measuring customer value co-creation behaviors that captured all related dimensions of customer behavior across industries (Yi & Gong, 2013).

My survey is based on measuring the eight key factors which comprise of value co-creation behaviors as follows:

- Customer Participation Behavior:
 - Information Seeking
 - Information Sharing
 - Responsible Behavior
 - Personal Interaction
- Customer Citizenship Behavior
 - Feedback
 - Advocacy
 - Helping
 - Tolerance

I started designing the survey based on the above validated scale and qualitative interview data analysis. Qualitative interview data analysis gave me insights on the language to be used to frame the questions. Questions were adapted to the airline industry context, and responses were gathered using a 5-point Likert scale (Carifio & Perla, 2008; Norman, 2010; Sullivan & Artino, 2013). Survey was set up on Qualtrics and tested with a set of respondents to gain feedback on the question clarity, sequence and time taken to complete the survey. On average, it took between 7-9 minutes to complete the survey, and last question of the survey also captured the respondent's feedback on the quality of the survey indicating that over 90% of the respondents found the survey easy to understand. Detailed survey questions can be found in the appendix.

IRB approval was sought for the survey administration (please see appendix for details). Survey was sent via email with a Qualtrics link to all alumni (approx. 10,000) of Indian School of Business. Survey was kept open for 6 weeks and regular follow-ups were made via email, phone, and social media. A total of 215 responses were received and these were then analyzed for hypothesis testing, regression, and prediction models (See Chapter on *Results and Interpretation*). I treated this survey result as primary data and is one of the parts of triangulation.

Linking Value Co-Creation Behaviors and Organizational Routines Through Customer Satisfaction Survey

Next, I utilized standard customer satisfaction survey conducted by the airline being studied to link value co-creation behaviors and organizational routines. This survey is carried

out by the airline as part of their normal customer satisfaction practices and the survey links are sent to the primary passenger (where there are multiple passengers) within 48 hours of completion of journey. As such I treated this as secondary data and is the second part of triangulation. The airline shared de-personalized data removing elements of the survey such as passenger name record, email, phone number. The survey captured customer feedback on a scale of 0-10 for the core Net Promoter Score Question and 0-5 for all other questions. Survey captures customer feedback on various experiences throughout the airline travel starting from ticket booking through arrival and baggage delivery. Initial set of questions captured feedback at a macro level of experiences (I called this as Level 1), and the next set of questions captured feedback at micro level of experiences (I called this as Level 2).

I equated these to feedback on various organizational routines, since customer experiences are the result of organizational operations and processes (Anderson & Sullivan, 1993; Bapuji et al., 2019; Deken et al., 2016; Espedal, 2016; Glaser, 2017; Goh & Pentland, 2019; Howard-Grenville & Rerup, 2016; Kumar, 2016; Makowski, 2021b; Morgan et al., 2005; Otto et al., 2019; Salvato & Rerup, 2017; Sezgen et al., 2019). As such, this is in a novel way to identify customer’s views on organizational routines.

Besides the survey on customer experiences the survey also captured numerous control variable such as customer demographics e.g., gender, corporate or non-corporate customer, unaccompanied minor, first time flyer, wheelchair bound customer. Besides, the survey also captured special services availed by the customer such as pre-booking of food, fast forward services (allowing preferential boarding). Survey gave me a lot of insight into customer behavior through ways of interacting with the airline through capturing feedback on experience e.g., web-check in, on board purchase of meals, interaction with website, call center, onboard employees. Survey allows us to infer customer behavior during check-in, boarding, attention to information. Following table gives a full set of parameters covered in the survey and I broke these down into dependent variable, independent variable, control variable.

Survey Parameter	Description	Variable Type
NPS	Measures the net promoter score	Dependent
Booking experience	Experience of booking the ticket as per the mode of ticket booking	Independent
Pre-travel information experience	Experience of messages sent by airline prior to reaching airport	Independent

Survey Parameter	Description	Variable Type
Check-in experience	Experience of checking in based on the mode of check-in	Independent
Boarding experience	Experience of boarding based on time taken to board, announcements	Independent
On-board experience	Overall onboard experience	Independent
Snacks and beverage	Overall snacks and beverage experience in case customer has purchased snacks onboard or prebooked meals	Independent
Arrival experience	Overall arrival experience	Independent
Ease of booking (itinerary/meals/seat selection, etc.)	Website or call centre experience of booking special services	Independent
Required information available on website or app	Overall experience of interaction with website	Independent
Relevant information before arriving at airport (sms, email)	Experience of receiving information before arriving at the airport	Independent
Query handling – Call Center/ Dottie/ Social media	Experience of interaction with call centre	Independent
Convenience of using Web / Kiosk check-in	Experience of using a web check in or kiosk	Independent
Staff efficiency at baggage drop counter	Staff efficiency at baggage drop counter	Independent
Staff efficiency at check-in counter	Staff efficiency at check-in counter	Independent
Staff politeness - Check-in/ baggage drop counter	Staff politeness - Check-in/ baggage drop counter	Independent
Clarity of flight related information (Screens/ boards)	Clarity of flight related information (Screens/ boards)	Independent
Announcements by Gate manager	Announcements by Gate manager	Independent
Staff politeness – Boarding	Staff politeness – Boarding	Independent

Survey Parameter	Description	Variable Type
Gate change handling	Handling of gate changes by gate manager through announcements and / or information display boards or airport announcements	Independent
Bus experience (if availed)	Bus experience	Independent
Crew politeness	Crew politeness	Independent
Crew attentiveness to your needs	Crew attentiveness to your needs	Independent
Quality of pre booked snacks	Quality of pre booked snacks	Independent
Quality of snacks bought on board	Quality of snacks bought on board	Independent
Ease of payment	Ease of payment in case meal services availed onboard	Independent
Announcements by crew	Announcements by crew	Independent
Announcements by pilot	Announcements by pilot	Independent
Upkeep of aircraft seats	Upkeep of aircraft seats	Independent
Cabin cleanliness	Cabin cleanliness	Independent
Toilet cleanliness	Toilet cleanliness	Independent
Baggage delivery	Baggage delivery	Independent
Staff politeness – Arrival helpdesk	Staff politeness – Arrival helpdesk	Independent
Query handling at call centre or social media	Overall experience of interacting with call centre / social media handling	Independent
Pre Booked Meal	Flag to indicated if customer has pre booked meal	Control
Baggage Count	Count of number of bags	Control
Check In Type	Mode of check-in	Control
Departure Date	Date (day of the week)	Control
Arrival Date	Date (day of the week)	Control
Departure Station	Departure Airport (Metro, Non-Metro)	Control
Arrival Station	Arrival Airport (Metro, Non-Metro)	Control
Source of Booking	Website, Online Travel Agency	Control

Survey Parameter	Description	Variable Type
Onboard Meal Purchased	Whether customer purchased meal onboard	Control
Departure Delay	Is the flight delayed?	Control
Fast Forward Service	Fast Forward Service	Control
Delay In Flight	Duration	Control
Customer Type	Customer Type	Control
Gender	Gender	Control
Domestic Travel Indicator	Domestic Travel Indicator	Control
International Travel Indicator	International Travel Indicator	Control
Infant Indicator	Infant Indicator	Control
Special Service Request	Special Service Request Code	Control
Student	Student	Control
SUPR	Superior Service Code	Control
Fast Forward Service	Fast Forward Service Code	Control
PRBG	Priority Boarding	Control
SRCT	Senior Citizen	Control
FTIM	First Time Traveller	Control
UMNR	Unaccompanied Minor	Control
Wheelchair	Wheelchair	Control
Departure Delay	Departure Delay	Control
Journey Type - Direct, Hopping	Journey Type - Direct, Hopping	Control
Departure Time of Day	Early Morning, Morning, Afternoon, Evening, Late Evening	Control
Arrival Time of Day	Early Morning, Morning, Afternoon, Evening, Late Evening	Control
Passenger Moved from One Plane to Another	Passenger Moved from One Plane to Another	Control
Delay > 15 Minutes	Delay > 15 Minutes	Control
Total Number of Pax	Single Traveller or Group	Control

Table 9 – Customer Satisfaction Survey Parameters

It is evident from the above table that there are many both independent and control variables. In order to arrive at a smaller number of independent variables I conduct Principal Component Analysis (PCA) and Confirmatory Factor Analysis (CFA) (Conway & Huffcutt, 2016; Nye, 2022).

I used many of the selection variables such as demographics, special services to test my hypothesis via simple moderation techniques (Aguinis et al., 2016; Sardeshmukh & Vandenberg, 2016). I also derived customer value co-creation behaviors based on the various interactions indicated by control behavior. For example, the act of pre booking meal indicates that the customer is “*sharing information*” with the organization about a service that s/he is expecting. Correspondingly, the feedback on “*snacks and meal experience*” indicates how well the organization received that information (i.e., a priori knowledge of customer’s behavior) and acted on it.

In deriving information about the customer’s behaviour from the independent variables and control variables I generated a novel way of understanding customer satisfaction feedback and give organizations a way to understand the interaction of customers with the organizational routines.

Qualitative Study of Organizational Employees

The third part of triangulation in my research is a qualitative study of organizational employees of the airline. This study was aimed at understanding the airline employee’s view of value co-creational behaviors of their customers. This also allowed me to identify factors that moderate or mediate the value co-creational behaviors of customers through organizational routines. To run this study, I designed and conducted semi-structured interviews with airline employees involved in enactment of customer facing organizational routines (i.e., practices).

Sample selection (of interviewees) for qualitative study of organizational employees was done on basis of two factors:

- Functional area of interest - Airport operations covering reservations, check-in counter, boarding gate, arrival halls, customer complaints handling, call center, ground staff (skippers)
- Theoretical sampling - Theoretical sampling is the process of data collection (in Grounded Theory Method – GTM) for generating theory whereby the analyst jointly collects, codes, and analyzes his data and decides what data to collect next and where to find them, to develop his theory as it emerges. This process of data collection is controlled by the emerging theory. There is no such thing as an ideal sample size in

GTM; instead, size is based on saturation. That is, sample size is based on a judgment, in coding and analyzing, of theoretical saturation of categories, which implies that “no new properties emerge, and the same properties continually emerge” and that gaps in major categories are filled. Saturation is always a subjective judgment and the decision to stop theoretical sampling, using the methodological guidelines, is always influenced by the scope of the research project, particularly in terms of time and resources. This judgment is a real challenge, and the outcome could always be different; further theoretical sampling can usually be motivated.

Interviewees were administered a consent form (read out by myself during interviews via Microsoft Teams or Zoom) and an explicit consent was sought for record purposes. Interviews were conducted in audio, audio visual or visual mode depending on the Internet connectivity and comfort level of the subjects. In my research, all interviewees accepted the consent and proceeded to take part in the interview. Draft of consent form read out to interviewees is available for further reference in the appendix section. An interview guide was created in line with best practices for conducting qualitative interviews (Dexter, 2006; Galletta, 2013; Leech, 2003; McCracken, 1988).

A typical interview lasted 1 hour from introduction to conclusion. Following format was followed for conducting the interviews.

- The Grand Tour Question:
 - o Describe the nature of your work?
- Understanding Employees Perspective of Customer Interactions:
 - o Tell us your experience of customer interactions with the airline?
 - o What factors according to you contribute to customer satisfaction?
- Understanding Organizational Practices and Procedures:
 - o Describe the nature of organizational practices / procedures you perform?
 - o Describe customer’s participation in the organizational practices / procedures?
- Understanding Customer Behavior:
 - o Describe the behavior of the customers you serve?
- Critical Incident:
 - o Tell us about a critical incident on how you handled a difficult situation at work?
- Follow-on questions:
 - o These were based on the interviewee’s responses to the previous questions and elaborated on the organizational routines being covered.

Further to these interviews, I used Grounded Theory Methods (GTM) to derive theory from qualitative data gathered during this study. All the audio-visual recordings were transcribed using Otter.ai¹⁶ software (transcription quality was about 80% accurate considering Indian accent). The initial set of codes were done using line by line coding, manual coding technique. However, an interesting development took place around March 2023 post the launch of ChatGPT i.e., Generative AI gave an opportunity to try a novel way of coding the data. Atlas.ti¹⁷ also launched an AI based qualitative coding offering. With approval from my academic supervisors, I chose to use that as a novel way of completing the remaining GTM based qualitative data analysis. Besides being hugely time saving this use of technology provided a new way to understand qualitative data.

These codes, categories and concepts were used to validate factors used in the quantitative studies and provided rich qualitative evidence in support of the theory that I put forward in my analysis.

Topic Modeling of Social Media Tweets

Further to the triangulation via three sources of data, I also conducted topic modeling of social media tweets on the airline's Twitter handle. There is research on the presence of social media-based brand communities (SMBCs) that are unique in their social context, structure, scale, storytelling, and affiliated brand communities. One such study sheds light on ways through which organizations deploy resources to facilitate the value via SMBCs. The same study investigates the value-facilitating resource strategies of two organizations that host brand communities on social media. In other words, how do organizations deploy resources that are both tangible (e.g., staff, supporters) and intangible (e.g., social media platforms) in this virtual context to enable value creation (Sorensen, 2021). The same study provides a model of how value co-creation can happen using SMBCs as a vehicle through active participation of the customers.

Taking reference to this theoretical background, I ran topic modeling to identify what were the topics of interest were emerging from the social media chatter of airline's customers. I took nearly 2000 tweets and conducted topic modeling using LDA to arrive at topics. These corroborated with qualitative and quantitative data and gave an additional level of validity.

Having described the Research Execution, I now move on to present the Results and Interpretation in detail.

¹⁶ <https://otter.ai/>

¹⁷ <https://atlasti.com/ai-coding-powered-by-openai>

Chapter 5 - Results and Interpretation

Value cocreation is coordinated through actor-generated institutions and institutional arrangements - (Vargo & Lusch, 2015) – Axiom 5 / Foundational Premise 11

Standards and Recommendations for Reporting Results

Reporting of results of research is as important, if not more, than the methods employed to conduct the investigation. It is a vital part of maintaining transparency within science and to that extent, numerous reporting standards have been developed over the years. I have tried to follow the American Psychological Association (APA) style of reporting throughout this thesis (Appelbaum et al., 2018). Since my research is non-experimental, I followed guidelines as below.

Reporting Standards for Studies Using No Experimental Manipulation (Single-Group Designs, Natural-Group Comparisons, etc.; in Addition to Material Presented in Table 1)

Paper section and topic	Description
Title/Abstract	
Study design	<ul style="list-style-type: none"> • Describe the design of the study.
Data use	<ul style="list-style-type: none"> • State the type of data used.
Method	
Participant selection	<ul style="list-style-type: none"> • Describe the method(s) of selecting participants (i.e., the units to be observed, classified, etc.), including <ul style="list-style-type: none"> • Method(s) of selecting participants for each group (e.g., methods of sampling, place of recruitment) and the number of cases in each group • Matching criteria (e.g., propensity score), if matching was used • Identify data sources used (e.g., sources of observations, archival records), and if relevant, include codes or algorithms to select participants or link records.
Variables	<ul style="list-style-type: none"> • Define all variables clearly, including <ul style="list-style-type: none"> • Exposure • Potential predictors, confounders, and effect modifiers • State how each variable was measured.
Comparability of assessment	<ul style="list-style-type: none"> • Describe comparability of assessment across groups (e.g., the likelihood of observing or recording an outcome in each group for reasons unrelated to the effect of the intervention).
Analysis	<ul style="list-style-type: none"> • Describe how predictors, confounders, and effect modifiers were included in the analysis.
Discussion	
Limitations	<ul style="list-style-type: none"> • Describe potential limitations of the study. As relevant, describe the possibility of misclassification, unmeasured confounding, and changing eligibility criteria over time.

Figure 17 - Reporting Standards for Non-Experimental Studies (Adapted from (Appelbaum et al., 2018)

Reporting standards for various statistical analyses are provide a necessary consistency that allows for results to be readily interpreted across studies (Köhler et al., 2017). Following are general guidelines recommended in this context:

General Guideline 1: Justify Data Analytic Choices vis-à-vis Research Questions: Choice of analytic (statistical) methods is to be clearly articulated in the context of research question. This is because often, the researcher may use a particular technique regardless of the questions being asked simply because a particular method (or methods) are commonly used by others rather than because they are well matched with the Introduction, Literature Review, and Methods sections of the paper (Appelbaum et al., 2018).

General Guideline 2: Report Enough Detail for Analyses to Be Reproduced:

In science, replicability is key and therefore upon reading a research article if another researcher conducts the same analyses as the author using the same data, then they should be able to reproduce the results from previous studies exactly (Appelbaum et al., 2018). This is “the first law of applied statistics.” (DiCiccio & Efron, 1996; Gleser, 1996)

It is vital that the author provide enough information for other researchers to repeat the reported analyses. In quantitative analysis, this means providing descriptive statistics and correlations (or co-variances) for all variables included in all analyses. For literal reproducibility, authors must also describe analyses in sufficient detail.

Following are few additional recommendations for reporting Ordinary Least Squares (OLS) Regression methods (Arbaugh & Hwang, 2012):

Recommendation 1 – Values to Report: For any regression model, the criterion variance explained (i.e., R-squared), F value (with associated degrees of freedom), and the model’s statistical significance (i.e., p value or standard error) should be reported. The regression coefficients (unstandardized (B) and/or standardized (b)) for all predictors included in the model should also be reported along with results of the associated t tests for each. For models that involve sequential addition of predictors, the following values should also be reported: change in R-squared values, standard errors, and associated tests of statistical significance (i.e., F value associated with change in models) (Köhler et al., 2017).

Recommendation 2: Graphical Depictions: For many regression applications, little value is gained from any graphical representations of results. For more sophisticated models, however, a figure may help to communicate results. For tests involving interactions, we recommend authors routinely provide an illustrative figure (Aiken et al., 1991).

Recommendation 3: Models Testing Moderation: It is recommended that researcher reports full correlation–covariance matrices including product terms. Equally, accurate standardized values must be reported. A proper solution for moderated regression coming from forming the product of standardized variables and using this as the product in a regression based on Z scores must be used. Note that the intercept in this analysis is nonzero (Köhler et al., 2017).

Hypothesis Building Using Value Co-Creation Behaviors Survey

As described in chapter on “*Research Execution*” the Value Co-Creation Behaviors Survey was conducted to gather primary data on customer behaviors. The survey was sent to a population of c. 10000+ of which 215 responded (2.15% response rate). I began by inspecting descriptive statistics and performing correlation analysis between NPS and various Level 1 Organizational Routines. I then moved to conducting independent samples t-tests using a variety of demographic factors through sub-group analysis. I then conducted factor analysis to reduce the dimensions of value co-creation behaviors. Linear regression was conducted between NPS and the reduced factors to arrive at a predictive model for NPS. Finally, I ran decision tree analysis to arrive at a path to get high levels of satisfaction and identifying which factors lead to that.

Descriptive Statistics Correlation Analysis

Table below gives the descriptive statistics and figure below gives a histogram representation of the dependent variable Net Promoter Score (NPS).

Statistics			NPS_Scale		
NPS_Scale					
N	Valid	213			
	Missing	2			
Mean		4.23			
Median		4.00			
Mode		4			
Std. Deviation		.782			
Variance		.612			
Skewness		-1.086			
Std. Error of Skewness		.167			
Kurtosis		1.566			
Std. Error of Kurtosis		.332			
Percentiles	25	4.00			
	50	4.00			
	75	5.00			
				N	%
			0	1	0.5%
			1	7	3.3%
			2	19	8.8%
			3	101	47.0%
			4	85	39.5%
			Missing System	2	0.9%
			Total	215	100.0%

Table 10 - Value Co-Creation Behaviours (Descriptive Stats)

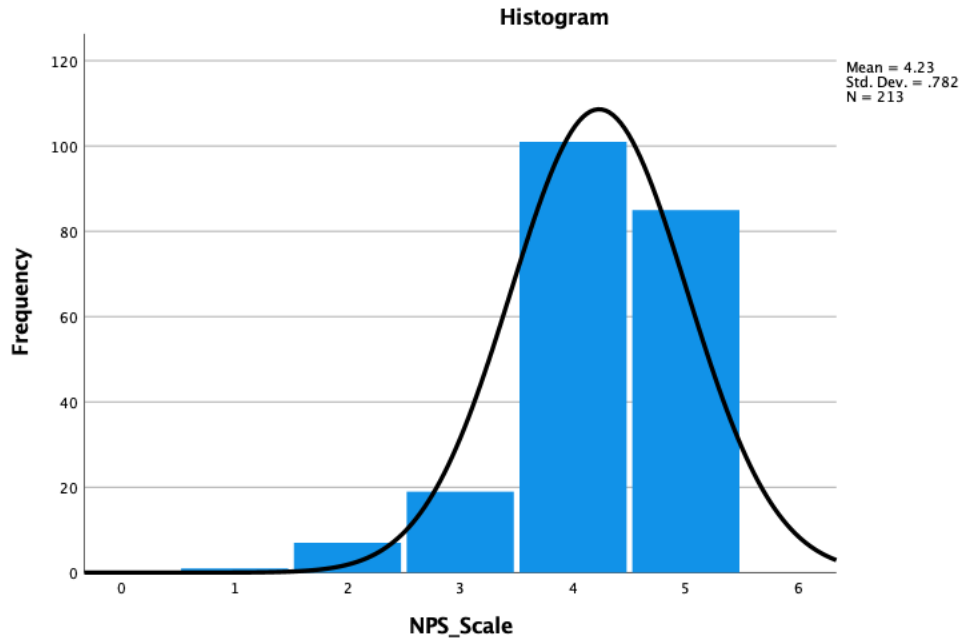


Figure 18 - Distribution of NPS Scores from Value Co-Creation Behaviour Survey

One can see that the data is normally distributed with a negative skewness of -1.086 and a kurtosis of 1.566. Acceptable values of skewness fall between -3 and $+3$, and kurtosis is appropriate from a range of -10 to $+10$.

I coded the categorical variables in the survey results as per the below table to arrive at ordinal variables and Likert scale output was used ordinal variables (Carifio & Perla, 2008; Norman, 2010; Sullivan & Artino, 2013) – see appendix for further details.

Next, I performed correlation analysis between NPS and the first order organizational routines (I call them Level 1 routines). Figure below shows a strong positive correlation between all the Level 1 routines and NPS.

		Correlations								
		1	2	3	4	5	6	7	8	9
1. NPS_Scale	Pearson Correlation	--								
	Sum of Squares and Cross-products	129.728								
	Covariance	.612								
	N	213								
2. Booking_Experience	Pearson Correlation	.330**	--							
	Sig. (2-tailed)	.000								
	Sum of Squares and Cross-products	47.859	162.493							
	Covariance	.226	.759							
3. Pre_Travel_Information_Experience	Pearson Correlation	.344**	.671**	--						
	Sig. (2-tailed)	.000	.000							
	Sum of Squares and Cross-products	55.770	121.916	202.995						
	Covariance	.263	.570	.949						
4. Check_In_Experience	Pearson Correlation	.322**	.475**	.609**	--					
	Sig. (2-tailed)	.000	.000	.000						
	Sum of Squares and Cross-products	51.469	84.995	121.944	197.330					
	Covariance	.243	.397	.570	.922					
5. Boarding_Experience	Pearson Correlation	.347**	.517**	.540**	.573**	--				
	Sig. (2-tailed)	.000	.000	.000	.000					
	Sum of Squares and Cross-products	54.540	90.833	105.991	110.888	189.981				
	Covariance	.257	.424	.495	.518	.888				
6. Inflight_Food_Experience	Pearson Correlation	.334**	.371**	.385**	.371**	.429**	--			
	Sig. (2-tailed)	.000	.000	.000	.000	.000				
	Sum of Squares and Cross-products	67.066	83.381	96.577	91.921	104.153	310.484			
	Covariance	.316	.390	.451	.430	.487	1.451			
7. Arrivals_Experience	Pearson Correlation	.326**	.311**	.340**	.377**	.504**	.431**	--		
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000			
	Sum of Squares and Cross-products	47.540	50.833	61.991	67.888	88.981	97.153	163.981		
	Covariance	.224	.238	.290	.317	.416	.454	.766		
8. Baggage_Handling_Experience	Pearson Correlation	.278**	.359**	.395**	.361**	.377**	.409**	.468**	--	
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000		
	Sum of Squares and Cross-products	47.784	69.367	85.409	76.912	78.819	109.247	90.819	229.981	
	Covariance	.225	.324	.399	.359	.368	.510	.424	1.075	
9. Call_Centre_Experience	Pearson Correlation	.377**	.436**	.482**	.420**	.418**	.365**	.333**	.455**	--
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	
	Sum of Squares and Cross-products	74.178	96.070	118.837	102.047	99.674	111.186	73.674	119.326	299.302
	Covariance	.350	.449	.555	.477	.466	.520	.344	.558	1.399
	N	213	215	215	215	215	215	215	215	215

** . Correlation is significant at the 0.01 level (2-tailed).

Figure 19 - Value Co-Creation Behaviours Survey - NPS vs. Level 1 Org Routines

I then added customer preferences such as flexibility with airline, recency of air travel, and performed correlation analysis between NPS and the feedback on Level 1 organizational routines.

		Correlations												
		1	2	3	4	5	6	7	8	9	10	11	12	13
1. NPS_Scale	Pearson Correlation	--												
	Sum of Squares and Cross-products	129.728												
	Covariance	.612												
	N	213												
2. Booking_Experience	Pearson Correlation	.330**	--											
	Sig. (2-tailed)	.000												
	Sum of Squares and Cross-products	47.859	162.493											
	Covariance	.226	.759											
3. Pre_Travel_Information_Experience	Pearson Correlation	.344**	.671**	--										
	Sig. (2-tailed)	.000	.000											
	Sum of Squares and Cross-products	55.770	121.916	202.995										
	Covariance	.263	.570	.949										
4. Check_In_Experience	Pearson Correlation	.322**	.475**	.609**	--									
	Sig. (2-tailed)	.000	.000	.000										
	Sum of Squares and Cross-products	51.469	84.995	121.944	197.330									
	Covariance	.243	.397	.570	.922									
5. Boarding_Experience	Pearson Correlation	.347**	.517**	.540**	.573**	--								
	Sig. (2-tailed)	.000	.000	.000	.000									
	Sum of Squares and Cross-products	54.540	90.833	105.991	110.888	189.981								
	Covariance	.257	.424	.495	.518	.888								
6. Inflight_Food_Experience	Pearson Correlation	.334**	.371**	.385**	.371**	.429**	--							
	Sig. (2-tailed)	.000	.000	.000	.000	.000								
	Sum of Squares and Cross-products	67.066	83.381	96.577	91.921	104.153	310.484							
	Covariance	.316	.390	.451	.430	.487	1.451							
7. Arrivals_Experience	Pearson Correlation	.326**	.311**	.340**	.377**	.504**	.431**	--						
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000							
	Sum of Squares and Cross-products	47.540	50.833	61.991	67.888	88.981	97.153	163.981						
	Covariance	.224	.238	.290	.317	.416	.454	.766						
8. Baggage_Handling_Experience	Pearson Correlation	.278**	.359**	.395**	.361**	.377**	.409**	.468**	--					
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000						
	Sum of Squares and Cross-products	47.784	69.367	85.409	76.912	78.819	109.247	90.819	229.981					
	Covariance	.225	.324	.399	.359	.368	.510	.424	1.075					
9. Call_Centre_Experience	Pearson Correlation	.377**	.436**	.482**	.420**	.418**	.365**	.333**	.455**	--				
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000					
	Sum of Squares and Cross-products	74.178	96.070	118.837	102.047	99.674	111.186	73.674	119.326	299.302				
	Covariance	.350	.449	.555	.477	.466	.520	.344	.558	1.399				
10. Advance_Travel_Plan	Pearson Correlation	.040	.107	.140*	.028	.065	.021	.064	.058	.033	--			
	Sig. (2-tailed)	.562	.118	.040	.685	.346	.754	.352	.395	.626				
	Sum of Squares and Cross-products	6.150	18.419	27.023	5.279	12.047	5.116	11.047	11.953	7.814	182.884			
	Covariance	.029	.086	.126	.025	.056	.024	.052	.056	.037	.855			
11. Flexible_Airline	Pearson Correlation	-.120	-.062	-.073	-.071	-.113	-.134*	-.126	-.103	-.001	-.013	--		
	Sig. (2-tailed)	.081	.362	.286	.300	.100	.049	.064	.132	.988	.848			
	Sum of Squares and Cross-products	-20.437	-11.972	-15.665	-14.981	-23.330	-35.526	-24.330	-23.470	-2.279	-2.674	225.888		
	Covariance	-.096	-.056	-.073	-.070	-.109	-.166	-.114	-.110	-.001	-.012	1.056		
12. Pay_Own_Travel	Pearson Correlation	-.073	-.030	-.095	-.042	.032	-.110	-.054	-.042	.029	.182**	.205**	--	
	Sig. (2-tailed)	.291	.660	.167	.540	.636	.108	.433	.542	.667	.008	.003		
	Sum of Squares and Cross-products	-12.362	-5.763	-20.153	-8.842	6.693	-28.967	-10.307	-9.493	7.628	36.767	46.051	223.935	
	Covariance	-.058	-.027	-.094	-.041	.031	-.135	-.048	-.044	.036	.172	.215	1.046	
13. Sensitive_Airfare_Fluctuations	Pearson Correlation	-.028	-.096	-.055	-.091	-.023	-.138*	-.045	-.086	-.099	.036	.196**	.304**	--
	Sig. (2-tailed)	.680	.163	.422	.185	.742	.043	.512	.210	.147	.604	.004	.000	
	Sum of Squares and Cross-products	-4.869	-18.405	-11.856	-19.270	-4.712	-36.879	-8.712	-19.688	-25.953	7.279	44.619	68.758	228.530
	Covariance	-.023	-.086	-.055	-.090	-.022	-.172	-.041	-.092	-.121	.034	.208	.321	1.068
N	213	215	215	215	215	215	215	215	215	215	215	215	215	215

** . Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 11 - Value Co-Creation Behaviours Survey - NPS vs. Customer Preferences

I found a significant negative correlation between flexibility to airline, sensitivity to airfare fluctuations and in-flight food experience at $p < .05$. This could be attributed to in-flight

food being a key differentiating factor as the customer's become less flexible with choice of airline and are also sensitive to airfares.

I then ran Independent Sample t-tests after controlling for each demographic variable such as gender, purpose of travel, preferred airline. I chose to run this test because I wanted to compare the means between two unrelated groups on the same continuous, dependent variable. The results are as follows:

Controlling for *Gender* there is no statistically significant difference in the means of NPS and feedback on all Level 1 routines except in case of Arrivals experience where $p \leq .05$.

Group Statistics

	Gender_Scale	N	Mean	Std. Deviation	Std. Error Mean
NPS_Scale	Female	41	4.12	.900	.141
	Male	169	4.25	.754	.058
Booking_Experience	Female	41	3.05	.805	.126
	Male	171	3.11	.857	.066
Pre_Travel_Information_Experience	Female	41	2.90	.944	.147
	Male	171	3.06	.950	.073
Check_In_Experience	Female	41	3.00	1.000	.156
	Male	171	3.08	.929	.071
Boarding_Experience	Female	41	3.05	.947	.148
	Male	171	3.04	.894	.068
Inflight_Food_Experience	Female	41	2.39	1.070	.167
	Male	171	2.44	1.232	.094
Arrivals_Experience	Female	41	3.00	.742	.116
	Male	171	3.01	.911	.070
Baggage_Handling_Experience	Female	41	2.54	1.002	.157
	Male	171	2.61	1.048	.080
Call_Centre_Experience	Female	41	2.07	1.253	.196
	Male	171	2.21	1.159	.089

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
NPS_Scale	Equal variances assumed	.027	.869	-.927	208	.355	-.127	.137	-.396	.143
	Equal variances not assumed			-.832	54.419	.409	-.127	.152	-.431	.178
Booking_Experience	Equal variances assumed	.798	.373	-.423	210	.673	-.062	.147	-.353	.228
	Equal variances not assumed			-.440	63.613	.662	-.062	.142	-.346	.221
Pre_Travel_Information_Experience	Equal variances assumed	.205	.651	-.946	210	.345	-.156	.165	-.481	.169
	Equal variances not assumed			-.950	60.960	.346	-.156	.164	-.485	.172
Check_In_Experience	Equal variances assumed	.003	.955	-.499	210	.618	-.082	.164	-.405	.241
	Equal variances not assumed			-.477	57.703	.635	-.082	.172	-.425	.262
Boarding_Experience	Equal variances assumed	.002	.964	.087	210	.931	.014	.157	-.296	.324
	Equal variances not assumed			.084	58.267	.933	.014	.163	-.313	.340
Inflight_Food_Experience	Equal variances assumed	1.669	.198	-.231	210	.817	-.048	.209	-.461	.364
	Equal variances not assumed			-.252	67.892	.802	-.048	.192	-.431	.334
Arrivals_Experience	Equal variances assumed	4.347	.038	-.038	210	.970	-.006	.153	-.308	.296
	Equal variances not assumed			-.043	71.941	.966	-.006	.135	-.275	.264
Baggage_Handling_Experience	Equal variances assumed	.540	.463	-.396	210	.692	-.072	.181	-.428	.285
	Equal variances not assumed			-.407	62.703	.685	-.072	.176	-.423	.280
Call_Centre_Experience	Equal variances assumed	.236	.628	-.671	210	.503	-.137	.205	-.541	.266
	Equal variances not assumed			-.639	57.536	.525	-.137	.215	-.567	.293

Independent Samples Effect Sizes

		Standardizer ^a	Point Estimate	95% Confidence Interval	
				Lower	Upper
NPS_Scale	Cohen's d	.784	-.161	-.503	.180
	Hedges' correction	.787	-.161	-.501	.180
	Glass's delta	.754	-.168	-.509	.174
Booking_Experience	Cohen's d	.847	-.074	-.414	.267
	Hedges' correction	.850	-.073	-.413	.266
	Glass's delta	.857	-.073	-.414	.268
Pre_Travel_Information_Experience	Cohen's d	.949	-.164	-.505	.177
	Hedges' correction	.952	-.164	-.504	.176
	Glass's delta	.950	-.164	-.505	.177
Check_In_Experience	Cohen's d	.943	-.087	-.428	.254
	Hedges' correction	.947	-.086	-.426	.253
	Glass's delta	.929	-.088	-.429	.253
Boarding_Experience	Cohen's d	.904	.015	-.326	.356
	Hedges' correction	.907	.015	-.325	.355
	Glass's delta	.894	.015	-.326	.356
Inflight_Food_Experience	Cohen's d	1.203	-.040	-.381	.301
	Hedges' correction	1.207	-.040	-.380	.300
	Glass's delta	1.232	-.039	-.380	.302
Arrivals_Experience	Cohen's d	.881	-.007	-.347	.334
	Hedges' correction	.884	-.007	-.346	.333
	Glass's delta	.911	-.006	-.347	.334
Baggage_Handling_Experience	Cohen's d	1.040	-.069	-.410	.272
	Hedges' correction	1.043	-.069	-.408	.271
	Glass's delta	1.048	-.068	-.409	.273
Call_Centre_Experience	Cohen's d	1.178	-.117	-.458	.224
	Hedges' correction	1.182	-.116	-.456	.224
	Glass's delta	1.159	-.118	-.459	.223

a. The denominator used in estimating the effect sizes.
 Cohen's d uses the pooled standard deviation.
 Hedges' correction uses the pooled standard deviation, plus a correction factor.
 Glass's delta uses the sample standard deviation of the control group.

Table 12- Value Co-Creation Behaviours Survey – NPS vs. Gender

Controlling for *Purpose of Travel (Business vs. Leisure)* there is statistically significant difference in the means of overall NPS and booking experience at $p < .05$. However, there is no statistically significant difference on all other Level 1 routines. Business travelers have a higher NPS score compared to leisure traveler. This could be attributed to stickiness with the airline and a result of consistent experience provided by the airline to business travelers. We shall further look at this in the Customer Satisfaction Survey.

Group Statistics

	Purpose_Scale	N	Mean	Std. Deviation	Std. Error Mean
NPS_Scale	Business	74	4.30	.872	.101
	Leisure	139	4.19	.731	.062
Booking_Experience	Business	74	3.08	1.017	.118
	Leisure	141	3.09	.788	.066
Pre_Travel_Information_Experience	Business	74	3.08	1.017	.118
	Leisure	141	2.96	.952	.080
Check_In_Experience	Business	74	3.09	.982	.114
	Leisure	141	3.04	.952	.080
Boarding_Experience	Business	74	2.99	.914	.106
	Leisure	141	3.02	.960	.081
Inflight_Food_Experience	Business	74	2.42	1.250	.145
	Leisure	141	2.43	1.185	.100
Arrivals_Experience	Business	74	2.97	.921	.107
	Leisure	141	3.03	.853	.072
Baggage_Handling_Experience	Business	74	2.70	1.144	.133
	Leisure	141	2.53	.975	.082
Call_Centre_Experience	Business	74	2.05	1.248	.145
	Leisure	141	2.22	1.147	.097

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
NPS_Scale	Equal variances assumed	6.447	.012	.915	211	.361	.103	.113	-.119	.325
	Equal variances not assumed			.868	128.393	.387	.103	.119	-.132	.338
Booking_Experience	Equal variances assumed	5.629	.019	-.032	213	.974	-.004	.125	-.251	.243
	Equal variances not assumed			-.030	120.054	.976	-.004	.136	-.272	.264
Pre_Travel_Information_Experience	Equal variances assumed	.682	.410	.833	213	.406	.117	.140	-.159	.392
	Equal variances not assumed			.816	140.091	.416	.117	.143	-.166	.399
Check_In_Experience	Equal variances assumed	.165	.685	.428	213	.669	.059	.138	-.213	.331
	Equal variances not assumed			.424	144.471	.672	.059	.139	-.216	.335
Boarding_Experience	Equal variances assumed	.157	.692	-.257	213	.798	-.035	.136	-.302	.232
	Equal variances not assumed			-.261	154.874	.795	-.035	.133	-.298	.229
Inflight_Food_Experience	Equal variances assumed	.588	.444	-.038	213	.970	-.007	.173	-.348	.335
	Equal variances not assumed			-.038	141.657	.970	-.007	.176	-.355	.342
Arrivals_Experience	Equal variances assumed	1.188	.277	-.440	213	.660	-.055	.126	-.304	.193
	Equal variances not assumed			-.430	138.838	.668	-.055	.129	-.310	.200
Baggage_Handling_Experience	Equal variances assumed	2.378	.125	1.149	213	.252	.171	.149	-.122	.464
	Equal variances not assumed			1.093	129.508	.276	.171	.156	-.138	.480
Call_Centre_Experience	Equal variances assumed	1.289	.258	-.977	213	.330	-.166	.170	-.500	.169
	Equal variances not assumed			-.951	137.890	.343	-.166	.174	-.511	.179

Independent Samples Effect Sizes

		Standardizer ^a	Point Estimate	95% Confidence Interval	
				Lower	Upper
NPS_Scale	Cohen's d	.783	.132	-.151	.414
	Hedges' correction	.785	.131	-.150	.412
	Glass's delta	.731	.141	-.142	.423
Booking_Experience	Cohen's d	.873	-.005	-.286	.277
	Hedges' correction	.877	-.005	-.285	.276
	Glass's delta	.788	-.005	-.286	.276
Pre_Travel_Information_Experience	Cohen's d	.975	.120	-.162	.401
	Hedges' correction	.978	.119	-.162	.400
	Glass's delta	.952	.122	-.159	.404
Check_In_Experience	Cohen's d	.962	.061	-.220	.343
	Hedges' correction	.966	.061	-.219	.342
	Glass's delta	.952	.062	-.219	.343
Boarding_Experience	Cohen's d	.944	-.037	-.318	.245
	Hedges' correction	.948	-.037	-.317	.244
	Glass's delta	.960	-.036	-.318	.245
Inflight_Food_Experience	Cohen's d	1.207	-.005	-.287	.276
	Hedges' correction	1.212	-.005	-.286	.275
	Glass's delta	1.185	-.006	-.287	.276
Arrivals_Experience	Cohen's d	.877	-.063	-.345	.218
	Hedges' correction	.880	-.063	-.343	.218
	Glass's delta	.853	-.065	-.346	.217
Baggage_Handling_Experience	Cohen's d	1.036	.165	-.117	.446
	Hedges' correction	1.040	.164	-.117	.445
	Glass's delta	.975	.175	-.107	.457
Call_Centre_Experience	Cohen's d	1.183	-.140	-.422	.142
	Hedges' correction	1.187	-.140	-.420	.141
	Glass's delta	1.147	-.145	-.426	.138

a. The denominator used in estimating the effect sizes.
 Cohen's d uses the pooled standard deviation.
 Hedges' correction uses the pooled standard deviation, plus a correction factor.
 Glass's delta uses the sample standard deviation of the control group.

Table 13 - Value Co-Creation Behaviours Survey – NPS vs. Purpose of Travel

Controlling for *Preferred Airline (Full Service vs. Lost Cost)* there is no statistically significant difference in the means of overall NPS and all Level 1 routines at $p < .05$. Linking this back to the correlation analysis between NPS, Level 1 routines and Sensitivity to Price Fluctuations the only Level 1 routine which has a statistically significant difference is the “In Flight Food Service”.

Group Statistics

	Preferred_Airline_Coded	N	Mean	Std. Deviation	Std. Error Mean
NPS_Scale	Low Cost	118	4.14	.840	.077
	Full Service	95	4.34	.694	.071
Booking_Experience	Low Cost	120	3.12	.871	.080
	Full Service	95	3.04	.874	.090
Pre_Travel_Information_Experience	Low Cost	120	3.02	.970	.089
	Full Service	95	2.99	.984	.101
Check_In_Experience	Low Cost	120	2.98	.944	.086
	Full Service	95	3.15	.978	.100
Boarding_Experience	Low Cost	120	2.90	.974	.089
	Full Service	95	3.15	.887	.091
Inflight_Food_Experience	Low Cost	120	2.10	1.111	.101
	Full Service	95	2.83	1.200	.123
Arrivals_Experience	Low Cost	120	2.98	.845	.077
	Full Service	95	3.05	.915	.094
Baggage_Handling_Experience	Low Cost	120	2.50	1.037	.095
	Full Service	95	2.71	1.030	.106
Call_Centre_Experience	Low Cost	120	2.10	1.103	.101
	Full Service	95	2.24	1.278	.131

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
NPS_Scale	Equal variances assumed	.317	.574	-1.797	211	.074	-.193	.107	-.404	.019
	Equal variances not assumed			-1.834	210.854	.068	-.193	.105	-.400	.014
Booking_Experience	Equal variances assumed	.023	.880	.622	213	.534	.075	.120	-.162	.311
	Equal variances not assumed			.622	201.546	.535	.075	.120	-.162	.311
Pre_Travel_Information_Experience	Equal variances assumed	.041	.840	.203	213	.839	.027	.134	-.237	.291
	Equal variances not assumed			.203	200.532	.840	.027	.134	-.238	.292
Check_In_Experience	Equal variances assumed	.416	.520	-1.245	213	.214	-.164	.132	-.424	.096
	Equal variances not assumed			-1.240	198.449	.216	-.164	.132	-.425	.097
Boarding_Experience	Equal variances assumed	.000	.999	-1.924	213	.056	-.247	.129	-.501	.006
	Equal variances not assumed			-1.945	208.798	.053	-.247	.127	-.498	.003
Inflight_Food_Experience	Equal variances assumed	.130	.719	-4.629	213	.000	-.732	.158	-1.043	-.420
	Equal variances not assumed			-4.587	194.207	.000	-.732	.159	-1.046	-.417
Arrivals_Experience	Equal variances assumed	2.282	.132	-.645	213	.520	-.078	.120	-.315	.160
	Equal variances not assumed			-.639	193.892	.524	-.078	.122	-.317	.162
Baggage_Handling_Experience	Equal variances assumed	.382	.537	-1.445	213	.150	-.205	.142	-.485	.075
	Equal variances not assumed			-1.447	202.428	.150	-.205	.142	-.485	.075
Call_Centre_Experience	Equal variances assumed	3.490	.063	-.874	213	.383	-.142	.163	-.462	.178
	Equal variances not assumed			-.860	186.407	.391	-.142	.165	-.468	.184

Independent Samples Effect Sizes

		Standardizer ^a	Point Estimate	95% Confidence Interval	
				Lower	Upper
NPS_Scale	Cohen's d	.778	-.248	-.519	.024
	Hedges' correction	.781	-.247	-.517	.024
	Glass's delta	.694	-.278	-.550	-.004
Booking_Experience	Cohen's d	.873	.085	-.184	.355
	Hedges' correction	.876	.085	-.183	.353
	Glass's delta	.874	.085	-.184	.355
Pre_Travel_Information_Experience	Cohen's d	.976	.028	-.241	.297
	Hedges' correction	.980	.028	-.240	.296
	Glass's delta	.984	.028	-.242	.297
Check_In_Experience	Cohen's d	.959	-.171	-.440	.099
	Hedges' correction	.962	-.170	-.439	.098
	Glass's delta	.978	-.168	-.437	.103
Boarding_Experience	Cohen's d	.936	-.264	-.534	.006
	Hedges' correction	.940	-.263	-.532	.006
	Glass's delta	.887	-.279	-.550	-.006
Inflight_Food_Experience	Cohen's d	1.151	-.636	-.911	-.359
	Hedges' correction	1.155	-.633	-.908	-.358
	Glass's delta	1.200	-.610	-.891	-.325
Arrivals_Experience	Cohen's d	.877	-.089	-.358	.181
	Hedges' correction	.880	-.088	-.356	.180
	Glass's delta	.915	-.085	-.354	.185
Baggage_Handling_Experience	Cohen's d	1.034	-.199	-.468	.072
	Hedges' correction	1.038	-.198	-.466	.071
	Glass's delta	1.030	-.199	-.469	.072
Call_Centre_Experience	Cohen's d	1.183	-.120	-.389	.149
	Hedges' correction	1.187	-.120	-.388	.149
	Glass's delta	1.278	-.111	-.381	.159

a. The denominator used in estimating the effect sizes.
 Cohen's d uses the pooled standard deviation.
 Hedges' correction uses the pooled standard deviation, plus a correction factor.
 Glass's delta uses the sample standard deviation of the control group.

Table 14 - Value Co-Creation Behaviours Survey – NPS vs. Preferred Airline (Low Cost / Full Service)

I then ran a correlation between the value co-creation behaviors. There are number of interesting findings from this study as summarized below:

- Strong positive correlations between:
 - *Patience towards service and tolerance, adaptability towards service*
 - *Asking information of others and providing feedback for service improvement.*
 - *Searching for information and providing feedback for service improvement, asking for information for others.*
 - *Paying attention to service, searching for service information, asking information of others.*
 - *Providing necessary service information, communicating service needs and asking information of others.*
 - *Performing voluntary tasks, completing expected behaviors, and searching necessary information, communicating service needs.*
 - *Following employees' directives and completing expected behaviors.*

- *Negative correlations* were observed between many behaviors. However, these are not statistically significant yet are worth mentioning and exploring further. One of the reasons for the statistical insignificance could be a smaller sample size.
 - *Feedback for service improvement and tolerance towards service*
 - *Asking information of others and patient towards service*
 - *Performing voluntary tasks and tolerance towards service, adaptability towards service*
 - *Assisting other customers and tolerance towards service*
 - *Providing advice to other customers and tolerance towards service, communicating needs for service, providing necessary information for a service, performing voluntary tasks*

Key inferences that one can draw from the above correlations analysis is that certain value co-creating behaviors are complimentary and therefore reinforce each other. Whereas others would go in opposite direction for example – by explicitly finding information about a service expectation of a service increase and therefore tolerance towards a service decrease.

This set of findings has strong support in theories of customer expectations of a service and service recovery. Likewise research on service recovery refers to “zone of tolerance” which corroborates the opposing direction in which customer value co-creation behaviors go especially when service expectations are not met (Van Vaerenbergh et al., 2018; Zeithaml et al., 1993; Zhu et al., 2013).

		Correlations														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Tolerant_Service	Pearson Correlation	--														
	Sum of Squares and Cross-products	257.953														
	Covariance	1.205														
	N	215														
2. Patient_Service	Pearson Correlation	.346**	--													
	Sig. (2-tailed)	.000														
	Sum of Squares and Cross-products	83.674	227.321													
	Covariance	.391	1.062													
3. Adapt_Service	Pearson Correlation	.408**	.424**	--												
	Sig. (2-tailed)	.000	.000													
	Sum of Squares and Cross-products	103.070	100.488	247.395												
	Covariance	.482	.470	1.156												
4. Feedback_Service_Improvement	Pearson Correlation	-.082	.078	.058	--											
	Sig. (2-tailed)	.234	.256	.396												
	Sum of Squares and Cross-products	-24.977	22.363	17.465	363.888											
	Covariance	-.117	.104	.082	1.700											
5. Ask_Info_Others	Pearson Correlation	.021	-.034	.130	.268**	--										
	Sig. (2-tailed)	.754	.623	.057	.000											
	Sum of Squares and Cross-products	6.395	-9.433	37.907	94.902	344.540										
	Covariance	.030	-.044	.177	.443	1.610										
6. Search_Service_Information	Pearson Correlation	-.010	.037	.044	.157*	.192**	--									
	Sig. (2-tailed)	.881	.585	.521	.021	.005										
	Sum of Squares and Cross-products	-2.395	8.233	10.093	43.698	51.860	212.140									
	Covariance	-.011	.038	.047	.204	.242	.991									
7. Pay_Attention_Service	Pearson Correlation	.055	.026	.034	.124	.268**	.221**	--								
	Sig. (2-tailed)	.421	.701	.618	.070	.000	.001									
	Sum of Squares and Cross-products	13.767	6.172	8.349	36.716	77.377	50.023	241.237								
	Covariance	.064	.029	.039	.172	.362	.234	1.127								
8. Communicate_Needs_Service	Pearson Correlation	.044	.129	.097	.091	.199**	.049	.037	--							
	Sig. (2-tailed)	.518	.060	.157	.184	.003	.479	.586								
	Sum of Squares and Cross-products	8.791	23.935	18.814	21.405	45.479	8.721	7.153	152.158							
	Covariance	.041	.112	.088	.100	.213	.041	.033	.711							
9. Provide_Necessary_Information_Service	Pearson Correlation	.005	.160*	.024	.099	.027	.173*	.065	.572**	--						
	Sig. (2-tailed)	.941	.019	.732	.146	.695	.011	.342	.000							
	Sum of Squares and Cross-products	.907	26.949	4.140	21.247	5.591	28.209	11.335	78.981	125.414						
	Covariance	.004	.126	.019	.099	.026	.132	.053	.369	.586						
10. Perform_Voluntary_Tasks	Pearson Correlation	-.008	.092	-.031	.061	.009	.188**	.122	.203**	.364**	--					
	Sig. (2-tailed)	.913	.181	.651	.373	.893	.006	.075	.003	.000						
	Sum of Squares and Cross-products	-1.442	16.507	-5.837	13.921	2.056	32.744	22.591	29.912	48.716	142.902					
	Covariance	-.007	.077	-.027	.065	.010	.153	.106	.140	.228	.668					
11. Complete_Behaviours_Expected	Pearson Correlation	-.029	.117	-.006	.093	.079	.256**	.085	.256**	.423**	.624**	--				
	Sig. (2-tailed)	.677	.086	.929	.173	.252	.000	.216	.000	.000	.000					
	Sum of Squares and Cross-products	-4.093	15.749	-.860	15.847	12.991	33.209	11.735	28.181	42.214	66.516	79.414				
	Covariance	-.019	.074	-.004	.074	.061	.155	.055	.132	.197	.311	.371				
12. Follow_Employee_Directives	Pearson Correlation	.004	.089	.013	.051	.047	.175*	.079	.264**	.378**	.601**	.804**	--			
	Sig. (2-tailed)	.958	.193	.847	.458	.497	.010	.249	.000	.000	.000	.000				
	Sum of Squares and Cross-products	.488	11.419	1.767	8.256	7.349	21.651	10.442	27.698	35.977	61.140	60.977	72.372			
	Covariance	.002	.053	.008	.039	.034	.101	.049	.129	.168	.286	.285	.338			
13. Assist_Other_Customers	Pearson Correlation	-.027	.084	.118	.182**	.088	.102	.133	.122	.208**	.131	.249**	.253**	--		
	Sig. (2-tailed)	.694	.220	.085	.008	.197	.136	.052	.075	.002	.055	.000	.000			
	Sum of Squares and Cross-products	-4.698	13.716	20.047	37.549	17.730	16.070	22.312	16.260	25.205	16.972	24.005	23.326	117.135		
	Covariance	-.022	.064	.094	.175	.083	.075	.104	.076	.118	.079	.112	.109	.547		
14. Advice_Other_Customer	Pearson Correlation	-.016	.002	.083	.278**	.195**	.160*	.178**	-.029	-.028	-.027	.037	.003	.267**	--	
	Sig. (2-tailed)	.817	.979	.227	.000	.004	.019	.009	.669	.684	.695	.587	.969	.000		
	Sum of Squares and Cross-products	-4.419	.470	22.628	92.009	62.758	40.442	48.107	-6.284	-5.437	-5.577	5.763	.395	50.121	301.833	
	Covariance	-.021	.002	.106	.430	.293	.189	.225	-.029	-.025	-.026	.027	.002	.234	1.410	
15. Patient_Letting_Other_Customers	Pearson Correlation	.083	.183**	.194**	.106	.027	.273**	.187**	.079	.182**	.151*	.264**	.276**	.298**	.272**	--
	Sig. (2-tailed)	.226	.007	.004	.121	.696	.000	.006	.247	.008	.027	.000	.000	.000	.000	
	Sum of Squares and Cross-products	15.698	32.484	35.953	23.851	5.870	46.930	34.288	11.540	23.995	21.228	27.795	27.674	38.065	55.679	139.135
	Covariance	.073	.152	.168	.111	.027	.219	.160	.054	.112	.099	.130	.129	.178	.260	.650
	N	215	215	215	215	215	215	215	215	215	215	215	215	215	215	215

** . Correlation is significant at the 0.01 level (2-tailed).
* . Correlation is significant at the 0.05 level (2-tailed).

Table 15 - Value Co-Creation Behaviours Survey - Correlation between Behaviours

These findings have strong support in theories of customer expectations of a service and service recovery. Likewise research on service recovery refers to “zone of tolerance” which

corroborates the opposing direction in which customer value co-creation behaviors go especially when service expectations are not met (Van Vaerenbergh et al., 2018; Zeithaml et al., 1993; Zhu et al., 2013).

I then ran a correlation between value co-creation behaviors and customer preferences on sharing feedback e.g., survey, social media, comfort level with usage of technology. I found the following correlations:

- Strong positive correlations: Statistically significant
 - *Comfort level with technology, Self-Service preference and Searching for Service Information, Providing Necessary Information, Performing Voluntary Tasks, Completing Expected Behaviors*
 - *Social media preference, survey preference and Providing Feedback on Service Improvement, Asking Information of Others, Searching for Service Information*
- Negative correlations: Although, these are not statistically significant yet are worth mentioning and exploring further. Qualitative data analysis supports these findings wherein first-time flyers, passengers who have a strong sense of entitlement and therefore take to complaining easily are the ones who demonstrate these opposing behaviors.
 - *Comfort level with technology, Self-Service preference and Service Tolerance, Asking Information of Others,*
 - *Social media preference, survey preference and Service Tolerance, Patience with Service, Performing Voluntary Tasks, Completing Expected Behaviors*

In addition to the above I put forward a series of propositions:

- Significant negative correlation between attention to service and tolerance to service.
 - **Proposition 1** – Customer who have high expectations of a service show lesser tolerance behavior towards the service (experience)
- Significant positive correlation between adaptability to a service and tolerance to service
 - **Proposition 2** – Customers who are adaptable to a service (due to lack of awareness or known expectations to be adaptable) also show greater tolerance behavior to service.
- Insignificant negative correlation between feedback towards service improvement and patience towards service

- **Proposition 3** – Need more data but proposition could be – Customers who have greater propensity to provide feedback towards a service show lesser patience towards the service (experience)
- Significant correlation between providing necessary information and patience towards service
 - **Proposition 4** – Customers who share necessary information for customer experience also show greater patience towards service experience
- Significant correlation between patience in letting other customers get a service to adaptability towards a service
 - **Proposition 5** – Customers who show behavior on letting other customers get a service (experience) demonstrate greater adaptability towards a service (experience)
- Significant correlation between behavior on asking info from / of others and providing feedback for service improvement
 - **Proposition 6** – Customers who have increased awareness of a service through borrowed experience have higher propensity to give feedback on service improvement
- Significant correlation between behavior on searching service information and providing feedback for service improvement
 - **Proposition 7** – Customers who demonstrate behavior on searching for service information are also more likely to give feedback on service improvement
- Significant correlation between behavior on assisting others and providing feedback for service improvement
 - **Proposition 8** – Customers who have greater willingness to assist others also have higher propensity to give feedback on service improvement
- Significant correlation between behavior on providing advice to other customers and providing feedback for service improvement
 - **Proposition 9** – Customers who have increased willingness to advice other customers also have higher propensity to give feedback on service improvement
- Significant correlation between searching for service information and asking info of others
 - **Proposition 10** – Customer who demonstrate behavior on searching for service information also demonstrate behavior of asking others for service information
- Significant correlation between paying attention to service and asking info of others

- **Proposition 11** – Customer who demonstrate behavior on paying attention to service also demonstrate behavior of asking others for service information
- Significant correlation between communicating service needs and asking info of others
 - **Proposition 12** – Customer who demonstrate behavior on communicating service needs also ask info of others
- Significant correlation between providing advice to other customers and asking info of others
 - **Proposition 13** – Customer who demonstrate behavior on providing advice to other customers also demonstrate behavior of asking others for service information
- Significant correlation between searching for service information and following employee directives
 - **Proposition 14** – Customer who demonstrate behavior on searching for service information also demonstrate behavior of following employee directives
- Significant correlation between searching for service information and perform voluntary tasks
 - **Proposition 15** – Customer who demonstrate behavior on searching for service information also demonstrate behavior of performing voluntary tasks
- Significant correlation between searching for service information and completing expected behaviors
 - **Proposition 16** – Customer who demonstrate behavior on searching for service information also demonstrate behavior of completing expected behaviors
- Significant correlation between following employee directives and performing voluntary tasks
 - **Proposition 17** – Customer who demonstrate behavior of following employee directives also perform voluntary tasks.
- Significant correlation between patient in letting other customers avail service and assisting other customers.
 - **Proposition 18** – Customer who demonstrate behavior of letting other customers avail service also demonstrate behavior of assisting other customers.

Factor Analysis

Considering the number of value co-creation behaviors being measured is high, I run factor analysis to reduce the number of dimensions. I chose to run Principal Component Analysis as it is one of the most valuable results from applied linear algebra given it has a

simple, non-parametric method of extracting relevant information from confusing data sets. With minimal additional effort PCA provides a roadmap for how to reduce a complex data set to a lower dimension to reveal the sometimes hidden, simplified structure that often under- lie it (Shlens, 2014).

I started by inspecting the results of the KMO and Bartlett’s test to see sufficiency of the sample size. Given KMO measure of adequacy is .719 and $p < .05$ we can safely proceed with PCA.

KMO and Bartlett's Test

Kaiser–Meyer–Olkin Measure of Sampling Adequacy.		.719
Bartlett's Test of Sphericity	Approx. Chi-Square	823.594
	df	120
	Sig.	.000

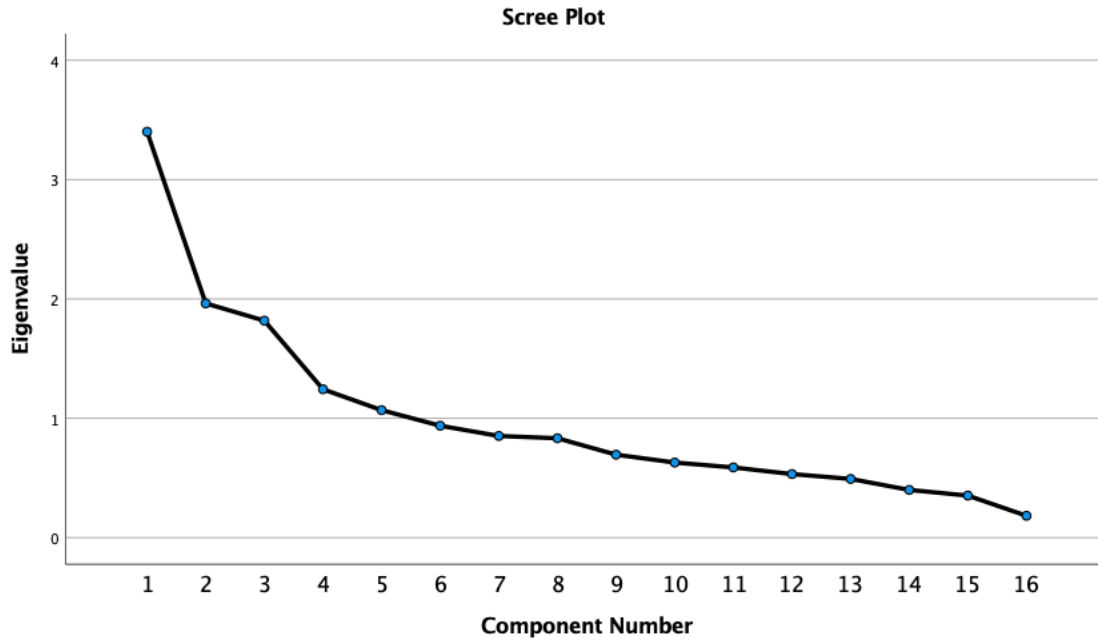
PCA gives us five factors and nearly 60% of the variance in the data is explained through these five factors.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.402	21.262	21.262	3.402	21.262	21.262	2.668	16.677	16.677
2	1.963	12.272	33.534	1.963	12.272	33.534	1.862	11.637	28.315
3	1.819	11.366	44.900	1.819	11.366	44.900	1.715	10.720	39.035
4	1.244	7.776	52.676	1.244	7.776	52.676	1.699	10.616	49.651
5	1.069	6.681	59.356	1.069	6.681	59.356	1.553	9.705	59.356
6	.938	5.865	65.221						
7	.853	5.329	70.550						
8	.833	5.209	75.759						
9	.696	4.349	80.108						
10	.630	3.937	84.045						
11	.589	3.681	87.726						
12	.533	3.333	91.059						
13	.493	3.080	94.139						
14	.401	2.505	96.644						
15	.353	2.207	98.851						
16	.184	1.149	100.000						

Extraction Method: Principal Component Analysis.

Scree plot gives us the visual representation of the eigenvalue loadings of the five factors.



I used Varimax rotation which is an orthogonal rotation method that minimizes the number of variables that have high loadings on each factor. This method simplifies the interpretation of the factors. I named these five factors as Task Compliance, Service Tolerance, Service Awareness, Citizenship Behavior, Communicating Service Needs with the following definitions:

- *Task Compliance*: Undertaking mandatory customer participation activities (e.g., display of boarding pass at the time of boarding the aircraft), voluntary customer participation (e.g., boarding the aircraft in zones as per seating arrangement) (Santos & Eisenhardt, 2005).
- *Service Tolerance*: The extent to which customers recognize and are willing to accept heterogeneity we call the zone of tolerance. This zone, representing the difference between desired service and the level of service considered adequate, can expand and contract. In other words, customers' service expectations are characterized by a range of levels (bounded by desired and adequate service) rather than a single level (Zeithaml et al., 1993).
- *Service Awareness*: Customer awareness of their role as contributors to the market value increases while co-creating and gaining increasing levels of empowerment (Galvagno et al., 2014)
- *Citizenship Behavior*: Citizenship Behavior is defined as “helpful, constructive gestures exhibited by [customers] that are valued or appreciated by the [firm], but

not related directly to enforceable or explicit requirements of the individuals. These helpful and voluntary behaviors, enacted toward firms, service employees, or other customers, generally are not required for the core service delivery; instead, they go beyond basic requirements to contribute to the overall success of service organizations (Bove et al., 2009; Chan et al., 2022; Groth, 2005).

- *Communicating Service Needs*: Sharing information which could be replaceable (e.g., pre-booking of meals), or voluntary (e.g., web check-in and seat selection); making suggestions (e.g., frequent flyer number) is largely voluntary to enhance service experience, and decision making could be replaceable (Dong & Sivakumar, 2017).

I used these five factors in running a regression analysis and deriving value co-creation behaviors from the larger customer satisfaction survey. This process is novel use of the available primary data and leads to rich insights as we can further see.

Rotated Component Matrix^a

	Component				
	Task Compliance	Service Tolerance	Service Awareness	Citizenship Behavior	Communicating Service Needs
Complete_Behaviours_Expected	.865	-.008	.065	.122	.176
Follow_Employee_Directives	.857	.012	.006	.107	.159
Perform_Voluntary_Tasks	.798	-.012	.073	-.050	.117
Tolerant_Service	.005	.783	.017	-.160	-.073
Adapt_Service	-.080	.781	.059	.152	.066
Patient_Service	.082	.708	-.054	.116	.154
Pay_Attention_Service	.136	.075	.709	.051	-.124
Ask_Info_Others	-.098	.055	.701	.022	.247
Search_Service_Information	.345	.046	.526	.127	-.140
Attention_To_Service	-.028	-.196	.488	.262	.143
Assist_Other_Customers	.192	.030	-.041	.712	.154
Advice_Other_Customers	-.083	.006	.239	.692	-.121
Patient_Letting_Other_Customers	.351	.266	.082	.565	-.143
Feedback_Service_Improvement	-.098	-.057	.341	.456	.266
Communicate_Needs_Service	.164	.104	.095	-.016	.850
Provide_Necessary_Information_Service	.430	.060	-.008	.083	.693

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 a. Rotation converged in 7 iterations.

Table 16 - Principal Component Analysis for Value Co-Creation Behaviours

Regression Analysis Using Value Co-Creation Behaviors

Having reduced the dimensions down to five I then ran the regression analysis between NPS, Level 1 parameters and Value Co-Creation Behaviors. I chose to run Ordinary Least Squares (OLS) Regression Linear regression as the next step up after correlation. Simply put,

OLS is used to predict a variable's value based on another variable's value. The variable we want to predict is called the dependent variable (or sometimes, the outcome variable). The variable we use to predict the other variable's value is the independent variable (or sometimes, the predictor variable). If there are two or more independent variables, rather than just one, one needs to use multiple regression.

Descriptive Statistics

	Mean	Std. Deviation	N
NPS_Scale	4.23	.782	213
Task_Compliance	.0114453	.99673542	213
Service_Tolerance	.0074529	1.00171212	213
Service_Awareness	.0020541	1.00075504	213
Citizenship_Behavior	.0012575	1.00158997	213
Communicating_Service_Needs	-.0025498	1.00409126	213

Correlations

		NPS_Scale	Task_Compliance	Service_Tolerance	Service_Awareness	Citizenship_Behavior	Communicating_Service_Needs
Pearson Correlation	NPS_Scale	1.000	.120	.067	.088	.258	-.021
	Task_Compliance	.120	1.000	-.009	-.006	.002	.002
	Service_Tolerance	.067	-.009	1.000	-.001	-.001	.002
	Service_Awareness	.088	-.006	-.001	1.000	.006	-.001
	Citizenship_Behavior	.258	.002	-.001	.006	1.000	.002
	Communicating_Service_Needs	-.021	.002	.002	-.001	.002	1.000
Sig. (1-tailed)	NPS_Scale	.	.041	.164	.101	.000	.380
	Task_Compliance	.041	.	.447	.464	.490	.487
	Service_Tolerance	.164	.447	.	.492	.493	.488
	Service_Awareness	.101	.464	.492	.	.463	.492
	Citizenship_Behavior	.000	.490	.493	.463	.	.488
	Communicating_Service_Needs	.380	.487	.488	.492	.488	.
N	NPS_Scale	213	213	213	213	213	213
	Task_Compliance	213	213	213	213	213	213
	Service_Tolerance	213	213	213	213	213	213
	Service_Awareness	213	213	213	213	213	213
	Citizenship_Behavior	213	213	213	213	213	213
	Communicating_Service_Needs	213	213	213	213	213	213

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.306 ^a	.093	.071	.754	.093	4.264	5	207	.001

a. Predictors: (Constant), Communicating_Service_Needs, Service_Awareness, Service_Tolerance, Citizenship_Behavior, Task_Compliance

Table 17 - Regression Model NPS vs. Value Co-Creation Behaviours

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.114	5	2.423	4.264	.001 ^b
	Residual	117.614	207	.568		
	Total	129.728	212			

a. Dependent Variable: NPS_Scale

b. Predictors: (Constant), Communicating_Service_Needs, Service_Awareness, Service_Tolerance, Citizenship_Behavior, Task_Compliance

Coefficients ^a											
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	4.228	.052		81.856	.000	4.126	4.330			
	Task_Compliance	.094	.052	.120	1.819	.070	-.008	.197	.120	.125	.120
	Service_Tolerance	.054	.052	.069	1.042	.299	-.048	.156	.067	.072	.069
	Service_Awareness	.068	.052	.087	1.315	.190	-.034	.170	.088	.091	.087
	Citizenship_Behavior	.201	.052	.257	3.883	.000	.099	.303	.258	.261	.257
	Communicating_Service_Needs	-.017	.052	-.022	-3.32	.740	-.119	.085	-.021	-.023	-.022

a. Dependent Variable: NPS_Scale

Table 18 - Regression Model NPS vs. Value Co-Creation Behaviours

Combing the PCA inference of 60% of variance being explained by the five factors and a R-square value of .093 I got the regression equation as below:

$$\text{NPS} = 4.228 + .094 (\text{Task_Compliance}) + .054 (\text{Service_Tolerance}) + .068 (\text{Service_Awareness}) + .201 (\text{Citizenship_Behavior}) - .017 (\text{Communicating_Service_Needs})$$

Analyzing this regression model indicates that citizenship behavior has the highest weightage. I have already defined *citizenship behavior* as “helpful, constructive gestures exhibited by [customers] that are valued or appreciated by the [firm], but not related directly to enforceable or explicit requirements of the individuals”. (Bove et al., 2009; Chan et al., 2022; Groth, 2005). Likewise, in communicating the service needs the customer is signaling her/his need for a specific service requirement e.g., a particular type of meal or a specific seat selection. If the service requirements are fulfilled by an organization, then the customer is likely to give positive feedback. However, if there is a degradation in service beyond the “zone of tolerance” then the customer is likely to give negative feedback.

Decision Tree Analysis

As described in the chapter on Research Methods and Research Execution, I performed Decision Tree Analysis¹⁸ using SPSS to arrive at a predictive model based on targeted dependent variable. One of the key options to be considered in running decision tree analysis is the “*growing method*”. There are several options available and some of these such as CHAID and CRT have been covered in the chapter on Research Methods and Research Execution.

Feature	CHAID*	CRT	QUEST
Chi-square-based**	X		
Surrogate independent predictor variables		X	X
Tree pruning		X	X
Multiway node splitting	X		

¹⁸ <https://www.ibm.com/docs/en/spss-statistics/27.0.0?topic=trees-creating-decision>

Feature	CHAID*	CRT	QUEST
Binary node splitting		X	X
Influence variables	X	X	
Prior probabilities		X	X
Misclassification costs	X	X	X
Fast calculation	X		X

Table 19 - Comparison of Decision Tree Growing Methods

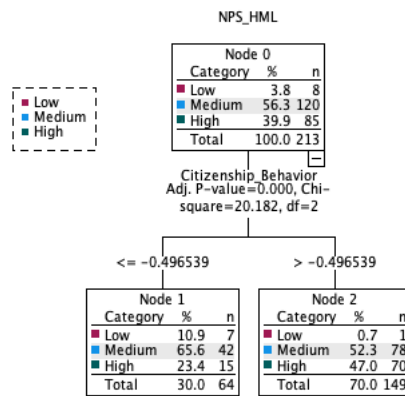
*Includes Exhaustive CHAID.

**QUEST also uses a chi-square measure for nominal independent variables

I gave a target of getting High NPS (High = NPS >4) and ran decision tree using both CHAID and CRT methods and present the results below. I used criteria for parent node at 25 and child node at 10 given the sample size of 215 (I could not find a specific guidance on the criteria for parent and child node). Significance level was kept at .05 and maximum number of iterations were 100.

Model Summary

Specifications	Growing Method	CHAID
	Dependent Variable	NPS_HML
	Independent Variables	Task_Compliance, Service_Tolerance, Service_Awareness, Citizenship_Behavior, Communicating_Service_Needs
	Validation	None
	Maximum Tree Depth	3
	Minimum Cases in Parent Node	25
	Minimum Cases in Child Node	10
Results	Independent Variables Included	Citizenship_Behavior
	Number of Nodes	3
	Number of Terminal Nodes	2
	Depth	1



Tree Table

Node	Low		Medium		High		Total		Predicted Category	Parent Node	Variable	Primary Independent Variable				
	N	Percent	N	Percent	N	Percent	N	Percent				Sig. ^a	Chi-Square	df	Split Values	
0	8	3.8%	120	56.3%	85	39.9%	213	100.0%	Medium							
1	7	10.9%	42	65.6%	15	23.4%	64	30.0%	Medium	0	Citizenship_Behavior	.000	20.182	2	<= -.496539	
2	1	0.7%	78	52.3%	70	47.0%	149	70.0%	Medium	0	Citizenship_Behavior	.000	20.182	2	> -.496539	

Growing Method: CHAID
 Dependent Variable: NPS_HML
 a. Bonferroni adjusted

Gains for Nodes

Node	Node		Gain		Response	Index
	N	Percent	N	Percent		
2	149	70.0%	70	82.4%	47.0%	117.7%
1	64	30.0%	15	17.6%	23.4%	58.7%

Growing Method: CHAID
 Dependent Variable: NPS_HML

Table 20 - Decision Tree Analysis - Value Co-Creation Behaviours (CHAID)

Using the CRT growing method decision tree analysis was run with same set of parameters. In addition, I used Gini Impurity Measure, pruned the tree with a maximum difference in risk (standard error) of 1 and maximum number of surrogates at 1.

Model Summary

Specifications	Growing Method	CRT
	Dependent Variable	NPS_HML
	Independent Variables	Task_Compliance, Service_Tolerance, Service_Awareness, Citizenship_Behavior, Communicating_Service_Needs
	Validation	None
	Maximum Tree Depth	5
	Minimum Cases in Parent Node	25
	Minimum Cases in Child Node	10
Results	Independent Variables Included	Service_Tolerance, Communicating_Service_Needs, Task_Compliance, Citizenship_Behavior, Service_Awareness
	Number of Nodes	11
	Number of Terminal Nodes	6
	Depth	5

Tree Table

Node	Low		Medium		High		Total		Predicted Category	Parent Node	Primary Independent Variable		
	N	Percent	N	Percent	N	Percent	N	Percent			Variable	Improvement	Split Values
0	8	3.8%	120	56.3%	85	39.9%	213	100.0%	Medium				
1	8	4.0%	118	59.3%	73	36.7%	199	93.4%	Medium	0	Service_Tolerance	.027	<= 1.426756
2	0	0.0%	2	14.3%	12	85.7%	14	6.6%	High	0	Service_Tolerance	.027	> 1.426756
3	3	6.7%	35	77.8%	7	15.6%	45	21.1%	Medium	1	Task_Compliance	.022	<= -.351579
4	5	3.2%	83	53.9%	66	42.9%	154	72.3%	Medium	1	Task_Compliance	.022	> -.351579
5	4	10.0%	27	67.5%	9	22.5%	40	18.8%	Medium	4	Citizenship_Behavior	.016	<= -.512709
6	1	0.9%	56	49.1%	57	50.0%	114	53.5%	High	4	Citizenship_Behavior	.016	> -.512709
7	1	1.2%	35	41.7%	48	57.1%	84	39.4%	High	6	Citizenship_Behavior	.016	<= .866353
8	0	0.0%	21	70.0%	9	30.0%	30	14.1%	Medium	6	Citizenship_Behavior	.016	> .866353
9	0	0.0%	23	56.1%	18	43.9%	41	19.2%	Medium	7	Communicating_Service_Needs	.014	<= .148104
10	1	2.3%	12	27.9%	30	69.8%	43	20.2%	High	7	Communicating_Service_Needs	.014	> .148104

Growing Method: CRT
 Dependent Variable: NPS_HML

Gains for Nodes

Node	Node		Gain		Response	Index
	N	Percent	N	Percent		
2	14	6.6%	12	14.1%	85.7%	214.8%
10	43	20.2%	30	35.3%	69.8%	174.8%
9	41	19.2%	18	21.2%	43.9%	110.0%
8	30	14.1%	9	10.6%	30.0%	75.2%
5	40	18.8%	9	10.6%	22.5%	56.4%
3	45	21.1%	7	8.2%	15.6%	39.0%

Growing Method: CRT
 Dependent Variable: NPS_HML

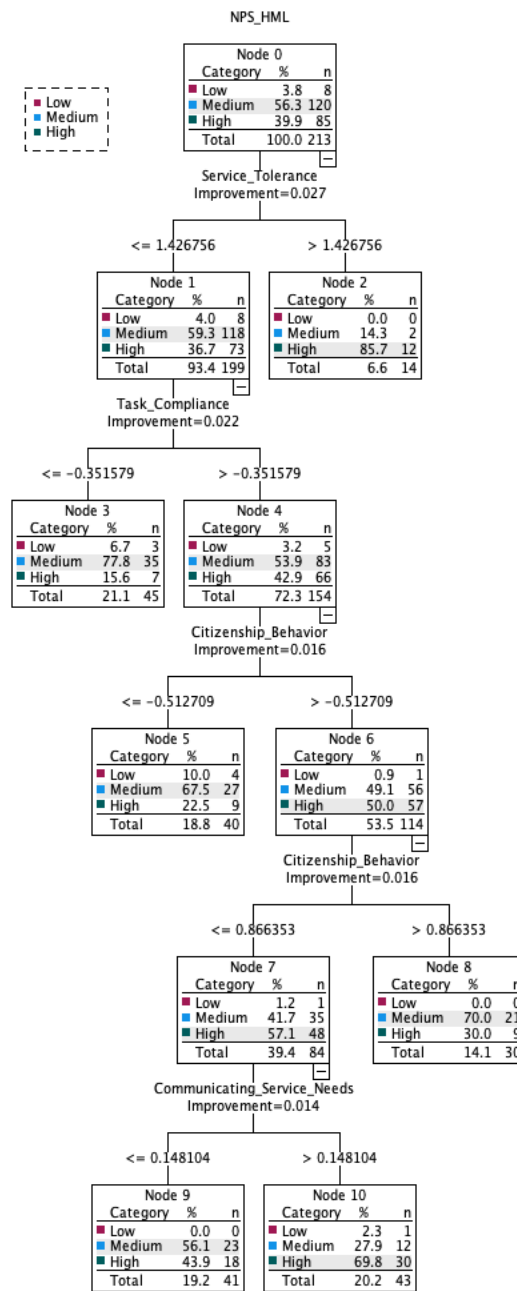


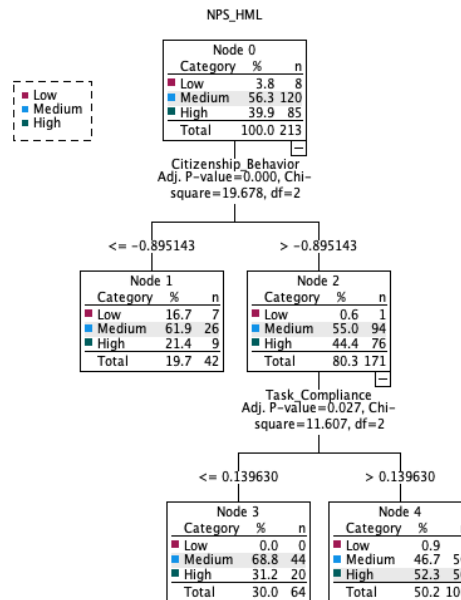
Table 21 - Decision Tree Analysis - Value Co-Creation Behaviours (CRT)

We note that maximum gain occurs for Nodes 2, 10, 9, 8, 5, 3 which have “Communicating Service Needs”, “Service Tolerance”, “Citizenship Behavior”, “Task Compliance” as the value co-creation behavior. This is in line with regression equation derived above.

I also ran several other decision tree models by incorporating different selection variables. For example, when I added “Purpose of Travel” as Selection Variable “Service

"Tolerance" using CRT method and "Citizenship Behavior", "Task Compliance" using CHAID become prominent changes.

Model Summary		
Specifications	Growing Method	CHAID
	Dependent Variable	NPS_HML
	Independent Variables	Task_Compliance, Service_Tolerance, Service_Awareness, Citizenship_Behavior, Communicating_Service_Needs
	Validation	None
	Maximum Tree Depth	3
	Minimum Cases in Parent Node	25
	Minimum Cases in Child Node	10
Results	Independent Variables Included	Citizenship_Behavior, Task_Compliance
	Number of Nodes	5
	Number of Terminal Nodes	3
	Depth	2



Tree Table																
Node	Low		Medium		High		Total		Predicted Category	Parent Node	Variable	Primary Independent Variable				
	N	Percent	N	Percent	N	Percent	N	Percent				Sig. ^a	Chi-Square	df	Split Values	
0	8	3.8%	120	56.3%	85	39.9%	213	100.0%	Medium							
1	7	16.7%	26	61.9%	9	21.4%	42	19.7%	Medium	0	Citizenship_Behavior	.000	19.678	2	≤ -.895143	
2	1	0.6%	94	55.0%	76	44.4%	171	80.3%	Medium	0	Citizenship_Behavior	.000	19.678	2	> -.895143	
3	0	0.0%	44	68.8%	20	31.3%	64	30.0%	Medium	2	Task_Compliance	.027	11.607	2	≤ .139630	
4	1	0.9%	50	46.7%	56	52.3%	107	50.2%	High	2	Task_Compliance	.027	11.607	2	> .139630	

Growing Method: CHAID
 Dependent Variable: NPS_HML
 a. Bonferroni adjusted

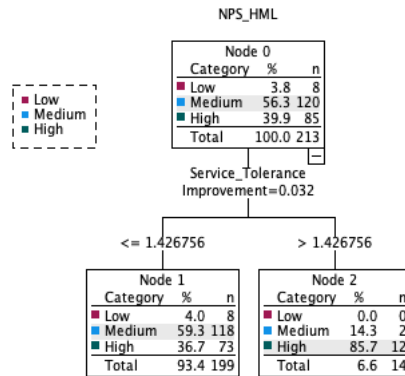
Gains for Nodes						
Node	Node		Gain		Response	Index
	N	Percent	N	Percent		
4	107	50.2%	56	65.9%	52.3%	131.1%
3	64	30.0%	20	23.5%	31.3%	78.3%
1	42	19.7%	9	10.6%	21.4%	53.7%

Growing Method: CHAID
 Dependent Variable: NPS_HML

Table 22 - Decision Tree - Value Co-Creation Behaviours and Selection Variable Purpose of Travel (CHAID)

Model Summary

Specifications	Growing Method	CRT
	Dependent Variable	NPS_HML
	Independent Variables	Task_Compliance, Service_Tolerance, Service_Awareness, Citizenship_Behavior, Communicating_Service_Needs
	Validation	None
	Maximum Tree Depth	5
	Minimum Cases in Parent Node	25
	Minimum Cases in Child Node	10
	Results	Independent Variables Included
	Number of Nodes	3
	Number of Terminal Nodes	2
	Depth	1



Tree Table

Node	Low		Medium		High		Total		Predicted Category	Parent Node	Primary Independent Variable		
	N	Percent	N	Percent	N	Percent	N	Percent			Variable	Improvement	Split Values
0	8	3.8%	120	56.3%	85	39.9%	213	100.0%	Medium				
1	8	4.0%	118	59.3%	73	36.7%	199	93.4%	Medium	0	Service_Tolerance	.032	≤ 1.426756
2	0	0.0%	2	14.3%	12	85.7%	14	6.6%	High	0	Service_Tolerance	.032	> 1.426756

Growing Method: CRT
Dependent Variable: NPS_HML

Gains for Nodes

Node	Node		Gain		Response	Index
	N	Percent	N	Percent		
2	14	6.6%	12	14.1%	85.7%	214.8%
1	199	93.4%	73	85.9%	36.7%	91.9%

Growing Method: CRT
Dependent Variable: NPS_HML

Table 23 - Decision Tree - Value Co-Creation Behaviours and Selection Variable Purpose of Travel (CRT)

Conceptual Model and Hypothesis

After reviewing the above analysis, I put forward the following conceptual model and set of hypotheses to be tested using the much larger dataset of customer satisfaction data. Further, value co-creation behaviors are moderated by several factors which we will look at when analyzing the airline's customer satisfaction data.

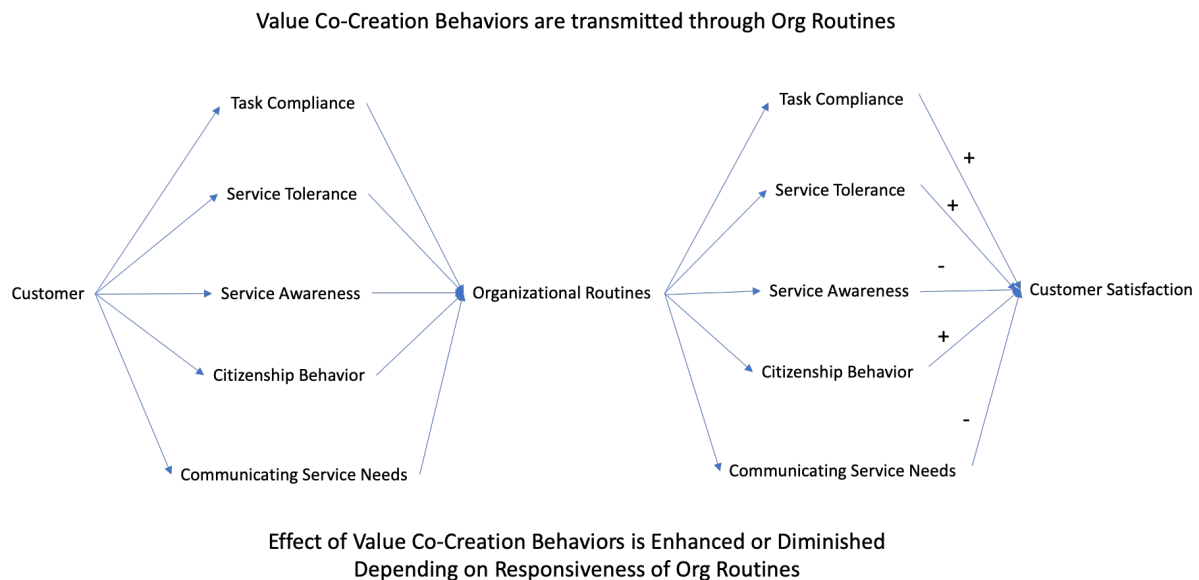


Table 24 - Conceptual Model of Interaction between Value Co-Creation Behaviours and Org Routines

Hypothesis:

- H1: Greater the task compliance greater the customer satisfaction.
- H2: Greater the service tolerance greater the customer satisfaction.
- H3: Greater the service awareness lesser the customer satisfaction.
- H4: Greater the citizenship behavior greater the customer satisfaction.
- H5: Greater the communication of service needs lesser the customer satisfaction.

Whilst there is ample research in the service domain which covers service expectations and customer satisfaction (Barger & Grandey, 2006; Hunt et al., 2012; Johnson et al., 2006; Morgan et al., 2005; Otto et al., 2019; Szymanski & Henard, 2001; Vega-Vazquez et al., 2013; Zeithaml et al., 1993); the novelty in this research is analyzing these from the perspective of organizational routines (Baldessarelli et al., 2022; Geiger et al., 2020; Goh & Pentland, 2019; Howard-Grenville & Rerup, 2016; Makowski, 2021a, 2021b; Wenzel et al., 2021). This study also gives us a path and indicates the most important value co-creation behaviors that affect customer satisfaction.

Hypothesis Testing Using Customer Satisfaction Data

The next key step in data analysis and interpretation was the airline’s Customer Satisfaction Data. This rich data set allowed me to test my hypothesis and derive customer value co-creation behaviors from data on organizational routines. Thus, I was able to maintain a continuum of the data analysis from the previous value co-creation behaviors survey and do a full cycle inductive-deductive study.

This survey data is from July 2022 to December 2022 and contains a large sample size of N = 601,922 with overall NPS, feedback on Level 1 org routines, Level 2 org routines and several demographic identifiers which would serve as moderators.

I began by inspecting descriptive statistics and performing correlation analysis between NPS and various Level 1 / Level 2 Organizational Routines. I then moved to conducting independent samples t-tests using a variety of demographic factors through sub-group analysis. I then conducted factor analysis to reduce the dimensions of Level 2 org routines. Linear regression was conducted between NPS and the reduced factors to arrive at a predictive model for NPS. I derived several value co-creation behaviors using the demographic indicators and other factors in the survey and use them to conduct hypothesis testing and regression analysis. Finally, I ran decision tree analysis to arrive at a path to get high levels of satisfaction and identifying which factors lead to that. I used the derived value co-creation behaviors as selection variables in the process of running these decision trees.

Descriptive Statistics Correlation Analysis

From the above descriptive stats as shown below one can infer that this is normal distribution which is negative skewed with a skewness of -1.318 and kurtosis of .502. Whilst nearly 57% of the NPS scores are distributed across 9 and 10 (on a scale of 10) there are many “fence sitters” i.e., approximately 25% sitting in 6 – 8 (on a scale of 10). One of the aims of this research would be to identify factors which contribute to feedback.

Statistics			NPS		
			N	%	
NPS					
N	Valid	601922	0	43322	7.2%
	Missing	22	1	16802	2.8%
Mean		7.52	2	12618	2.1%
Median		9.00	3	13561	2.3%
Mode		10	4	13914	2.3%
Std. Deviation		3.115	5	26549	4.4%
Variance		9.704	6	26060	4.3%
Skewness		-1.318	7	46926	7.8%
Std. Error of Skewness		.003	8	58395	9.7%
Kurtosis		.502	9	132902	22.1%
Std. Error of Kurtosis		.006	10	210873	35.0%
			Missing System	22	0.0%
			Total	601944	100.0%

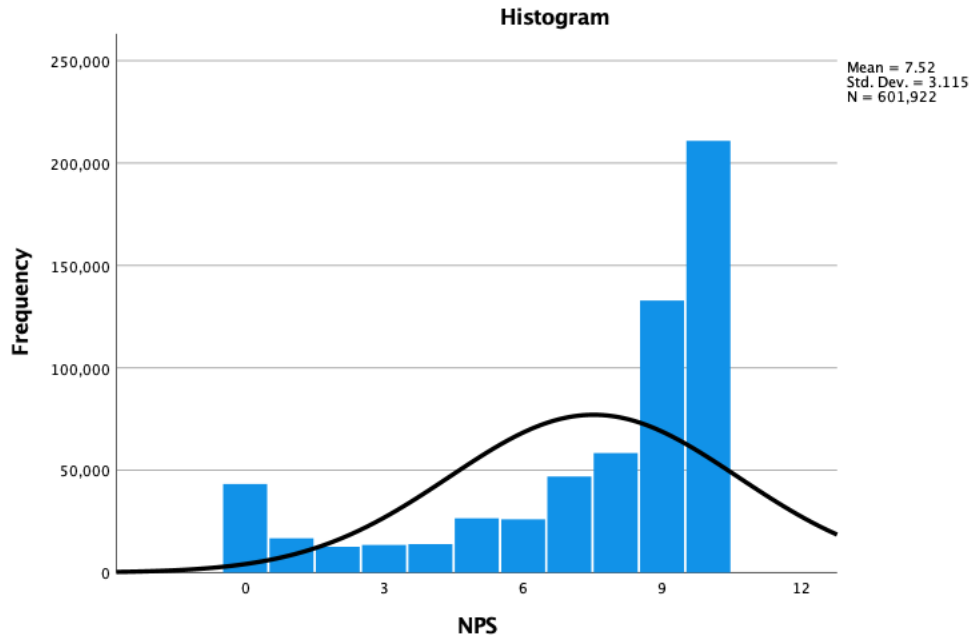


Table 25 - Customer Satisfaction Survey - Descriptive Stats

Table below shows the correlations between overall customer feedback (NPS) and the feedback on Level 1 organizational routines. Strong positive correlations exist between all the factors.

		Correlations							
		1	2	3	4	5	6	7	8
1. NPS	Pearson Correlation	--							
	Sum of Squares and Cross-products	5841075.16							
	Covariance	9.704							
	N	601922							
2. Booking_Experience	Pearson Correlation	.576**	--						
	Sig. (2-tailed)	.000							
	Sum of Squares and Cross-products	1082375.36	692335.275						
	Covariance	2.014	1.288						
3. Pre_Travel_Information_Experience	Pearson Correlation	.625**	.741**	--					
	Sig. (2-tailed)	.000	.000						
	Sum of Squares and Cross-products	1170903.65	491502.374	719350.939					
	Covariance	2.255	.968	1.385					
4. Check_In_Experience	Pearson Correlation	.646**	.615**	.685**	--				
	Sig. (2-tailed)	.000	.000	.000					
	Sum of Squares and Cross-products	1321311.65	440758.781	508939.274	839082.609				
	Covariance	2.508	.859	1.001	1.593				
5. Boarding_Experience	Pearson Correlation	.710**	.571**	.644**	.717**	--			
	Sig. (2-tailed)	.000	.000	.000	.000				
	Sum of Squares and Cross-products	1485709.52	415439.765	491850.622	595115.725	880865.647			
	Covariance	2.837	.818	.968	1.158	1.682			
6. Onboard_Experience	Pearson Correlation	.746**	.551**	.582**	.593**	.709**	--		
	Sig. (2-tailed)	.000	.000	.000	.000	.000			
	Sum of Squares and Cross-products	1605355.81	409249.001	448580.346	502253.716	616132.845	922225.762		
	Covariance	3.060	.805	.891	.976	1.203	1.758		
7. Snacks_Beverage_Experience	Pearson Correlation	.606**	.487**	.505**	.481**	.522**	.659**	--	
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		
	Sum of Squares and Cross-products	1043551.92	287896.158	309402.846	320658.308	359769.968	469546.382	830578.727	
	Covariance	2.855	.818	.884	.903	1.011	1.315	2.273	
8. Arrival_Experience	Pearson Correlation	.714**	.550**	.581**	.575**	.655**	.663**	.550**	--
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	
	Sum of Squares and Cross-products	1507170.71	393763.445	431854.021	468944.575	549922.762	572726.733	382389.250	883353.279
	Covariance	2.869	.779	.863	.920	1.081	1.121	1.069	1.682
N	525300	505517	500449	509486	508622	511110	357584	525302	

** . Correlation is significant at the 0.01 level (2-tailed).

Table 26 - Customer Satisfaction Survey - Correlations

Next, I ran a linear regression model between NPS and feedback on Level 1 Org Routines.

Descriptive Statistics

	Mean	Std. Deviation	N
NPS	7.59	3.090	332807
Booking_Experience	4.24	1.101	332807
Pre_Travel_Information_Experience	4.14	1.157	332807
Check_In_Experience	4.10	1.244	332807
Boarding_Experience	4.03	1.284	332807
Onboard_Experience	3.97	1.321	332807
Snacks_Beverage_Experience	3.55	1.494	332807
Arrival_Experience	4.04	1.284	332807

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.831 ^a	.690	.690	1.721	.690	105705.566	7	332799	.000

a. Predictors: (Constant), Arrival_Experience, Snacks_Beverage_Experience, Booking_Experience, Check_In_Experience, Onboard_Experience, Pre_Travel_Information_Experience, Boarding_Experience

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2192136.90	7	313162.414	105705.566	.000 ^b
	Residual	985947.501	332799	2.963		
	Total	3178084.40	332806			

a. Dependent Variable: NPS

b. Predictors: (Constant), Arrival_Experience, Snacks_Beverage_Experience, Booking_Experience, Check_In_Experience, Onboard_Experience, Pre_Travel_Information_Experience, Boarding_Experience

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.875	.013		-147.908	.000
	Booking_Experience	.067	.004	.024	15.541	.000
	Pre_Travel_Information_Experience	.213	.004	.080	47.327	.000
	Check_In_Experience	.266	.004	.107	67.695	.000
	Boarding_Experience	.336	.004	.140	82.251	.000
	Onboard_Experience	.705	.004	.302	183.272	.000
	Snacks_Beverage_Experience	.192	.003	.093	70.206	.000
	Arrival_Experience	.587	.003	.244	170.212	.000

a. Dependent Variable: NPS

Table 27 - Customer Satisfaction Survey – NPS vs. Level 1 Org Routines Linear Regression Model

We get the linear regression model as follows:

$$\text{NPS} = -1.875 + \text{Booking_Experience} (.067) + \text{Pre_Travel_Information_Experience} (.213) + \text{Check_In_Experience} (.266) + \text{Boarding_Experience} (.336) + \text{Onboard_Experience} (.705) + \text{Snacks_Beverage_Experience} (.192) + \text{Arrival_Experience} (.587)$$

It is evident from the above equation that *On Board Experience*, *Arrival Experience* and *Boarding Experience* carry the most weightage in determining NPS. However, there is a need to deep dive further into this as there are several other demographic factors.

Factor Analysis of Level 2 Organizational Routines

Next, I ran factor analysis with the Level 2 Organizational Routines. This is key to identifying the combination of factors that contributes most towards the NPS feedback. Like in the case of factor analysis for Value Co-Creation Behavior Survey, I chose to run Principal Component Analysis.

I started by inspecting the results of the KMO and Bartlett's test to see the sufficiency of the sample size. Given KMO measure of adequacy is .976 and $p < .05$ we can safely proceed with PCA.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.976
Bartlett's Test of Sphericity	Approx. Chi-Square	245071.454
	df	325
	Sig.	.000

From this data, we get only two factors which explain nearly 75% of the variance in the data. Looking at the rotated component matrix, one can classify these into two factors – *staff_efficiency_politness* and *quality_snacks_beverages*. However, we need to dig deeper into this considering the demographic factors.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	18.332	70.508	70.508	18.332	70.508	70.508	10.099	38.843	38.843
2	1.098	4.221	74.729	1.098	4.221	74.729	9.331	35.887	74.729
3	.781	3.005	77.734						
4	.669	2.572	80.306						
5	.651	2.503	82.809						
6	.543	2.089	84.898						
7	.476	1.831	86.729						
8	.357	1.372	88.102						
9	.313	1.205	89.307						
10	.278	1.069	90.375						
11	.261	1.004	91.379						
12	.243	.936	92.315						
13	.236	.909	93.224						
14	.195	.751	93.974						
15	.194	.746	94.721						
16	.187	.718	95.439						
17	.168	.645	96.084						
18	.154	.591	96.675						
19	.142	.546	97.221						
20	.133	.510	97.731						
21	.128	.491	98.222						
22	.109	.420	98.642						
23	.102	.393	99.035						
24	.090	.347	99.382						
25	.085	.327	99.709						
26	.076	.291	100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix^a

	Component	
	1	2
Staff_Efficiency_Check_In_Counter	.840	.342
Staff_Efficiency_Baggage_Drop	.834	.332
Staff_Politeness_Check_in_Counter	.817	.372
Web_Check_In_Kiosk_Experience	.759	.402
Relevant_Info_Before_Travel_SMS_Email	.727	.465
Clarity_Flight_Info_Screens	.724	.494
Call_Centre_Before_Travel	.716	.475
Website_App_Experience	.693	.492
Gate_Manager_Announcements	.690	.510
Gate_Change_Handling	.683	.540
Call_Centre_After_Travel	.672	.532
Staff_Politeness_Boarding	.656	.574
Staff_Politeness_Arrivals	.654	.557
Indigo_Bus_Experience	.635	.553
Baggage_Delivery_Arrivals	.631	.429
Ease_Of_Booking_Experience	.608	.527
Quality_Snacks_On_Board	.329	.797
Quality_Pre_Booked_Snacks	.319	.794
Crew_Announcements	.463	.774
Crew_Attentiveness_Needs	.446	.750
Ease_Payment	.470	.741
Cabin_Cleanliness	.492	.738
Upkeep_Aircraft_Seats	.473	.735
Crew_Politeness	.484	.732
Toilet_Cleanliness	.481	.729
Pilot_Announcements	.458	.712

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

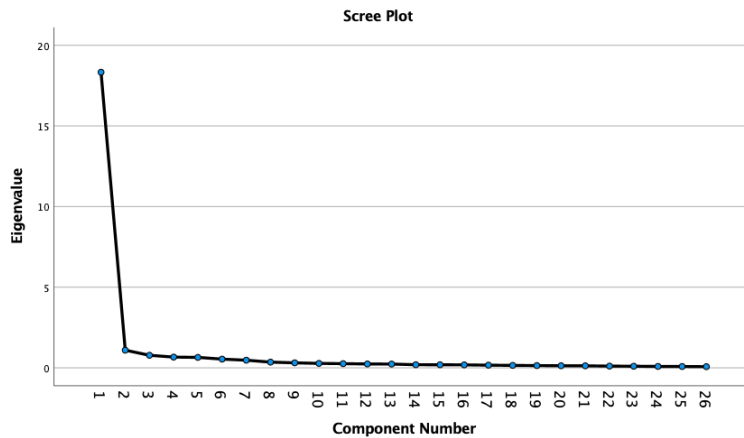


Table 28 - Customer Satisfaction Survey - Level 2 Org Factor Analysis

Upon including the various demographic factors as the selection variables one gets a very different set of elements, as explained below.

The inclusion of demographic code for “First Time Flyer” gives us five factors as below:

- Staff Communication Experience (Communication)
- Arrivals Experience (Psychological Safety)
- Information Pre-Travel Experience (Information)
- Onboard Food and Beverage Experience (Jobs to be done)
- Web Kiosk Check-In Experience (Ease)

KMO and Bartlett's Test^a

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.705
Bartlett's Test of Sphericity	Approx. Chi-Square	1425.839
	df	325
	Sig.	.000

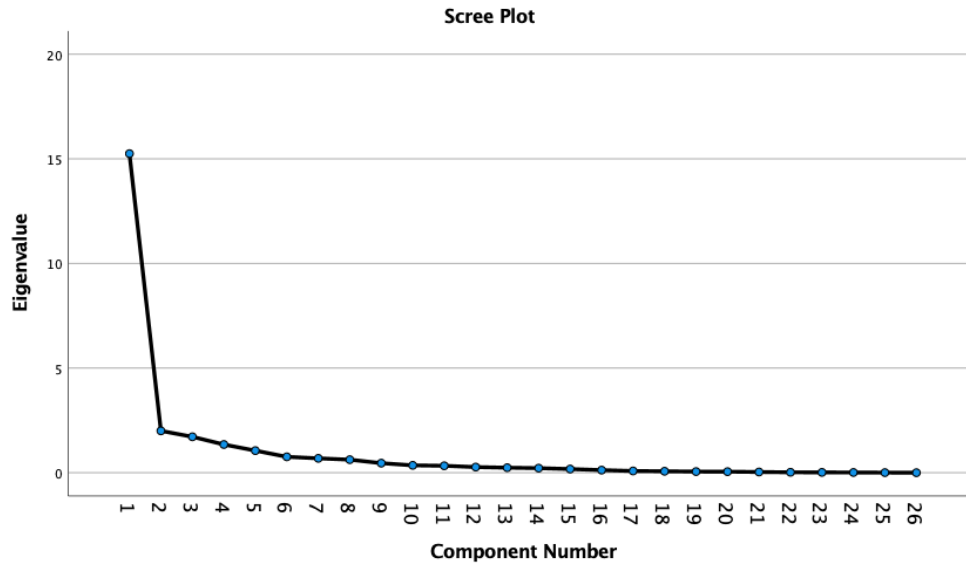
a. Only cases for which First_Time_Flyer = YES are used in the analysis phase.

Total Variance Explained^a

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	15.252	58.661	58.661	15.252	58.661	58.661	7.850	30.191	30.191
2	2.003	7.703	66.364	2.003	7.703	66.364	6.129	23.574	53.765
3	1.719	6.611	72.974	1.719	6.611	72.974	3.408	13.106	66.871
4	1.350	5.193	78.167	1.350	5.193	78.167	2.538	9.763	76.635
5	1.058	4.068	82.235	1.058	4.068	82.235	1.456	5.600	82.235
6	.761	2.927	85.162						
7	.689	2.648	87.810						
8	.625	2.406	90.216						
9	.459	1.764	91.980						
10	.354	1.362	93.342						
11	.333	1.279	94.621						
12	.272	1.046	95.667						
13	.242	.932	96.599						
14	.220	.847	97.446						
15	.178	.684	98.129						
16	.126	.484	98.613						
17	.085	.327	98.940						
18	.071	.272	99.213						
19	.055	.213	99.426						
20	.052	.201	99.627						
21	.036	.139	99.766						
22	.022	.084	99.850						
23	.017	.065	99.915						
24	.013	.049	99.965						
25	.007	.026	99.990						
26	.003	.010	100.000						

Extraction Method: Principal Component Analysis.

a. Only cases for which First_Time_Flyer = YES are used in the analysis phase.



Rotated Component Matrix^{a,b}

	Component				
	Staff_Communication_At_Airport_Experience	Arrivals_Experience	Information_Before_Travel_Experience	Onboard_Food_Beverage_Experience	WebKiosk_CheckIn_Experience
Upkeep_Aircraft_Seats	.830	.289	.180	.132	.209
Crew_Announcements	.821	.340	.288	.066	.006
Clarity_Flight_Info_Screens	.784	.293	.185	.275	.106
Gate_Change_Handling	.779	.328	.191	.198	.074
Toilet_Cleanliness	.775	.210	.129	.234	.118
Staff_Politeness_Boarding	.761	.408	.227	.288	.213
Cabin_Cleanliness	.728	.257	.101	.119	.424
Gate_Manager_Announcements	.710	.163	.050	.232	-.027
Pilot_Announcements	.705	.477	.151	-.074	.069
Indigo_Bus_Experience	.678	.268	.372	.334	.014
Crew_Politeness	.632	.426	.412	.221	.003
Crew_Attentiveness_Needs	.582	.403	.491	.225	-.019
Call_Centre_After_Travel	.378	.839	.255	.098	-.019
Staff_Politeness_Arrivals	.430	.831	.212	.111	.007
Staff_Efficiency_Baggage_Drop	.226	.813	.236	.224	.292
Staff_Efficiency_Check_In_Counter	.332	.802	.099	.269	.255
Staff_Politeness_Check_In_Counter	.283	.780	.058	.098	.176
Baggage_Delivery_Arrivals	.394	.775	.117	.155	-.071
Call_Centre_Before_Travel	.178	.753	.442	.070	-.177
Website_App_Experience	.135	.175	.847	.055	.269
Relevant_Info_Before_Travel_SMS_Email	.173	.203	.757	.334	-.128
Ease_Of_Booking_Experience	.332	.192	.711	.037	.320
Ease_Payment	.441	.348	.533	.406	-.006
Quality_Pre_Booked_Snacks	.283	.196	.206	.881	.077
Quality_Snacks_On_Board	.373	.198	.173	.859	.034
Web_Check_In_Kiosk_Experience	.176	.078	.168	.043	.857

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 a. Rotation converged in 7 iterations.
 b. Only cases for which First_Time_Flyer = YES are used in the analysis phase.

Table 29 - Customer Satisfaction Survey - Level 2 Org Factor Analysis with First-Time Flyer

Running a linear regression model against NPS as the dependent variable and the five factors gives us the following results:

Descriptive Statistics

	Mean	Std. Deviation	N
NPS	8.05	2.845	7285
REGR factor score 1 for analysis 1	-.4363041	1.42434103	7285
REGR factor score 2 for analysis 1	.1344783	.65425076	7285
REGR factor score 3 for analysis 1	.0766093	1.20353126	7285
REGR factor score 4 for analysis 1	-.1997424	1.02880841	7285
REGR factor score 5 for analysis 1	-.0580215	1.01591189	7285

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.784 ^a	.614	.614	1.768	.614	2315.800	5	7279	.000

a. Predictors: (Constant), REGR factor score 5 for analysis 1, REGR factor score 4 for analysis 1, REGR factor score 2 for analysis 1, REGR factor score 1 for analysis 1, REGR factor score 3 for analysis 1

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36188.939	5	7237.788	2315.800	.000 ^b
	Residual	22749.748	7279	3.125		
	Total	58938.687	7284			

a. Dependent Variable: NPS

b. Predictors: (Constant), REGR factor score 5 for analysis 1, REGR factor score 4 for analysis 1, REGR factor score 2 for analysis 1, REGR factor score 1 for analysis 1, REGR factor score 3 for analysis 1

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.287	.023		359.418	.000
	REGR factor score 1 for analysis 1	.755	.018	.378	42.085	.000
	REGR factor score 2 for analysis 1	1.091	.036	.251	30.328	.000
	REGR factor score 3 for analysis 1	.720	.022	.305	32.807	.000
	REGR factor score 4 for analysis 1	.530	.022	.192	24.158	.000
	REGR factor score 5 for analysis 1	.136	.028	.049	4.871	.000

a. Dependent Variable: NPS

Figure 20 - Linear Regression Model for First-Time Flyers

$$\text{NPS} = 8.287 + .755 (\text{Staff_Communication}) + 1.091 (\text{Arrivals_Experience}) + .720 (\text{Pre_Travel_Information}) + .530 (\text{Onboard_Food_Beverage}) + .136 (\text{Web_Check_In})$$

If we map this to a typical service journey, then the maximum weightage is to that of end of service encounter.



Figure 21 - Factors Determining Service Experience During Air Travel - First-Time Flyers

I summarize below the various other demographic codes and factors identified when PCA is run with these. I make observations in each case and provide empirical evidence supporting the hypothesis. Results are included in the Appendix section.

Demographic	Key Differentiating Factors	Value Co-Creation Behavior
Gender	Female – Pre-Travel Information Males – Flight Information Screens, Use of Website and App	Information Seeking
Super Special Request	Super Special Request – Quality of pre-booked snacks (free snack combo is one of the perks), crew politeness and crew attentiveness to needs, staff politeness at various touchpoints and expect to be recognized as having communicated about their service needs	Service Awareness Communication of Service Needs
Corporate Customers	Corporate Customers - Information sharing by the organization before they undertake	Information Seeking Service Awareness

Demographic	Key Differentiating Factors	Value Co-Creation Behavior
	the service and when onboard quality of pre-booked snacks is important.	
Fast Forward Customers	<p>Fast Forward Customers indeed seem to care a lot about being recognized as such and their needs understood by the organizational employees. Likewise, they pay attention to staff efficiency at various touchpoints. This is because they have communicated the need for a service they are expecting.</p> <p>Fast Forward Customers also seem to interact more with call center (perhaps to get their queries answered)</p>	Service Awareness Communication of Service Needs
Senior Citizens	<p>Senior citizens pay attention to ease of payments, ease of booking and seem to buy additional services through websites and app.</p> <p>Senior citizens also pay attention to services like baggage delivery upon arrival, indicating the need for physical assistance.</p> <p>Senior citizens pay attention to staff politeness at various touchpoints and web kiosk check-in experience.</p>	Communication of Service Needs Information Seeking
Wheelchair Passengers	Wheelchair passengers seem to book services through website and app hence the likely attention to ease of booking, call center interactions and ease of payments.	Communication of Service Needs Information Seeking

Demographic	Key Differentiating Factors	Value Co-Creation Behavior
	Senior citizens also pay attention to services like staff efficiency and politeness at various touchpoints as they are dependent on others helping them out.	
Students	<p>Students seem to pay attention to announcements by crew, pilot.</p> <p>Students also seem to be paying attention to information shared by organization before service is undertaken.</p> <p>Students seem to pay attention to information shared at the airport, on display screens.</p> <p>Students (like others) also pay attention to the quality of snacks bought onboard and pre-booked snacks.</p>	Information Seeking

I used these behaviors when analyzing the data empirically to present my hypothesis as well as test it.

Deriving Value Co-Creation Behaviors from Organizational Routines

One of the novel contributions of this research from a methodological standpoint is the derivation of customer value co-creation behaviors from feedback on organisational routines. There are assumptions made during the process and triangulated with qualitative research data and prior research.

I computed these variables using Compute function in SPSS and logic as described in table below. I then used these computed variables to run ANOVA and independent samples t-tests for hypothesis testing. Note – these are the five value co-creation behaviors I have identified from the value co-creation behavior survey.

Survey Item	Computed Variable	Logic
CheckInType	Comfortable_with_Technology	If WEBCheckIn OR OTA OR KIOSK
CheckInType	Org_Routine_Type	If WEBCheckIn OR OTA – Technology Touchpoint If KIOSK – Assisted Touchpoint If Counter – Human Touchpoint
CheckInType	Self_Service_Preference	If WEBCheckIn OR OTA OR KIOSK
PreBookedMeal, CheckInType, Super6E, Fast_Forward_Selected, Quick_Board	Service_Awareness Communicating_Needs Voluntary_Participation	If any of the Survey Items are 1 or YES
Call_Centre_Before_Travel, Call_Centre_After_Travel	Ask Information of Others	If any of the survey items are >0 then 1
Website_App_Experience	Information_Seeking	If any of the survey items are >0 then 1
Crew_Announcements, Pilot_Announcements	Citizenship_Behavior	If any of the survey items are >4 then 1

Arrival Experience Delay_In_Flight	Service_Tolerance	If survey item <4 and Delay_In_Flight “On time” and NPS <8 and all other Level 1 feedback < 4 then Low else High
Boarding_Experience	Task_Compliance	If boarding_experience >4 then 1

Table 30 - Computed Variables for Value Co-creation Behaviours

Correlation and Regression Between NPS and Derived Value Co-Creation Behaviors

To start with, I ran descriptive statistics and correlation studies between NPS and value co-creation behaviors.

		Statistics						
		Comfortable_With_Technology	Communicating_Needs	Ask_Info_Others	Information_Seeking	Citizenship_Behavior	Service_Tolerance	Task_Compliance
N	Valid	601944	601944	601944	601944	601944	601944	601944
	Missing	0	0	0	0	0	0	0
Mean		.6326	.1828	.5795	.7458	.3413	.0023	.4343
Median		1.0000	.0000	1.0000	1.0000	.0000	.0000	.0000
Std. Deviation		.48211	.38650	.49363	.43542	.47416	.04779	.49566
Skewness		-.550	1.641	-.322	-1.129	.669	20.829	.265
Std. Error of Skewness		.003	.003	.003	.003	.003	.003	.003
Kurtosis		-1.698	.694	-1.896	-.725	-1.552	431.830	-1.930
Std. Error of Kurtosis		.006	.006	.006	.006	.006	.006	.006

Comfortable_With_Technology

	N	%
Not Comfortable With Technology	221177	36.7%
Comfortable With Technology	380767	63.3%

Communicating_Needs

	N	%
Does Not Communicate Needs	491914	81.7%
Communicate Needs	110030	18.3%

Ask_Info_Others

	N	%
Does not ask Info of Others	253096	42.0%
Ask Info of Others	348848	58.0%

Information_Seeking

	N	%
Does Not Seek Information	153025	25.4%
Seeks Information	448919	74.6%

Citizenship_Behavior

	N	%
Does Not Demonstrate Citizenship Behavior	396475	65.9%
Demonstrates Citizenship Behavior	205469	34.1%

Service_Tolerance

	N	%
Does Not Display Service Tolerance	600566	99.8%
Displays Service Tolerance	1378	0.2%

Task_Compliance

	N	%
Does not Comply with Tasks	340538	56.6%
Demonstrates Task Compliance	261406	43.4%

Table 31- Customer Satisfaction Survey Derived Value Co-Creation Behaviours Descriptive Stats

		Correlations							
		NPS	Comfortable_With_Technology	Communicating_Needs	Ask_Info_Others	Information_Seeking	Citizenship_Behavior	Service_Tolerance	Task_Compliance
NPS	Pearson Correlation	--							
	Sum of Squares and Cross-products	5841075.16							
	Covariance	9.704							
	N	601922							
Comfortable_With_Technology	Pearson Correlation	.050**	--						
	Sig. (2-tailed)	.000							
	Sum of Squares and Cross-products	45630.902	139908.202						
	Covariance	.076	.232						
Communicating_Needs	Pearson Correlation	.005**	.098**	--					
	Sig. (2-tailed)	.000	.000						
	Sum of Squares and Cross-products	3930.423	10941.185	89917.496					
	Covariance	.007	.018	.149					
Ask_Info_Others	Pearson Correlation	.028**	.047**	.017**	--				
	Sig. (2-tailed)	.000	.000	.000					
	Sum of Squares and Cross-products	25580.516	6695.954	1898.694	146678.152				
	Covariance	.042	.011	.003	.244				
Information_Seeking	Pearson Correlation	.063**	.049**	.039**	.552**	--			
	Sig. (2-tailed)	.000	.000	.000	.000				
	Sum of Squares and Cross-products	51400.654	6149.825	3919.607	71401.441	114123.290			
	Covariance	.085	.010	.007	.119	.190			
Citizenship_Behavior	Pearson Correlation	.308**	.049**	.019**	.331**	.333**	--		
	Sig. (2-tailed)	.000	.000	.000	.000	.000			
	Sum of Squares and Cross-products	273793.275	6739.084	2082.097	46647.392	41440.918	135333.722		
	Covariance	.455	.011	.003	.077	.069	.225		
Service_Tolerance	Pearson Correlation	-.080**	-.006**	.005**	.006**	.009**	-.030**	--	
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		
	Sum of Squares and Cross-products	-7182.036	-87.671	60.114	90.400	116.312	-414.370	1374.845	
	Covariance	-.012	.000	.000	.000	.000	-.001	.002	
Task_Compliance	Pearson Correlation	.469**	.033**	.003*	.141**	.213**	.465**	-.042**	--
	Sig. (2-tailed)	.000	.000	.046	.000	.000	.000	.000	
	Sum of Squares and Cross-products	436102.914	4798.455	296.312	20727.907	27631.111	65761.053	-598.424	147885.312
	Covariance	.725	.008	.000	.034	.046	.109	-.001	.246
N		601922	601944	601944	601944	601944	601944	601944	601944

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 32- Customer Satisfaction Survey Derived Value Co-Creation Behaviours Correlation with NPS

Above correlation indicates that although statistically significant correlation exists in all the cases it is weak in most of the value co-creation behaviors and get stronger only when we get to Citizenship Behavior and Task Compliance. A negative correlation exists between Service Tolerance and NPS which is in line with the expectations and a positive correlation exists when *information-seeking* and asking *information behaviors* are demonstrated.

Regression model indicates R-squared of .240 at p<.05 and is well within the acceptable range of R-squared for social sciences.

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.490 ^a	.240	.240	2.715	.240	31753.394	6	601915	.000

a. Predictors: (Constant), Task_Compliance, Communicating_Needs, Service_Tolerance, Ask_Info_Others, Citizenship_Behavior, Information_Seeking

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1404333.79	6	234055.632	31753.394	.000 ^b
	Residual	4436741.37	601915	7.371		
	Total	5841075.16	601921			

a. Dependent Variable: NPS

b. Predictors: (Constant), Task_Compliance, Communicating_Needs, Service_Tolerance, Ask_Info_Others, Citizenship_Behavior, Information_Seeking

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	6.495	.007		878.351	.000	6.480	6.509
	Communicating_Needs	.036	.009	.005	4.011	.000	.019	.054
	Ask_Info_Others	-.346	.009	-.055	-39.880	.000	-.363	-.329
	Information_Seeking	-.310	.010	-.043	-31.472	.000	-.330	-.291
	Citizenship_Behavior	.954	.009	.145	108.082	.000	.937	.972
	Service_Tolerance	-3.750	.073	-.058	-51.154	.000	-3.894	-3.607
	Task_Compliance	2.616	.008	.416	326.538	.000	2.600	2.632

a. Dependent Variable: NPS

Table 33- Customer Satisfaction Survey Derived Value Co-Creation Behaviours Regression with NPS

The regression equation can be depicted in the following format:

$$\text{NPS} = 6.495 + .036 (\text{Communicating_Needs}) - .346 (\text{Asking_Info_Others}) - .310 (\text{Information_Seeking}) + .954 (\text{Citizenship_Behavior}) - 3.750 (\text{Service_Tolerance}) + 2.616 (\text{Task_Compliance}).$$

Based on this regression model, the biggest drag for NPS is Service Tolerance and in line with our previous findings on value co-creation behaviors asking information about a service and seeking information about a service contributes negatively to NPS. This is likely because the organization needs to differentiate between its customers who are interacting to seek clarity on service either through means of technology or through a human channel.

Hypothesis on Value Co-Creation Behaviors

To take this study further and based on the factor analysis findings, various demographics I put forward the following hypothesis.

Corporate Customers vs. Non-Corporate Customers – Practice Matters

My hypothesis is that business travellers (Corporate Customers) demonstrate greater value co-creation behaviors in comparison to non-business travelers.

Group Statistics

COMPUTE
Corporate_Customer=c
har_index(SSRCode,
"CPTR") > 0

		N	Mean	Std. Deviation	Std. Error Mean
Communicating_Needs	Not a Corporate Customer	509914	.1733	.37852	.00053
	Corporate Customer	92030	.2353	.42418	.00140
Ask_Info_Others	Not a Corporate Customer	509914	.5720	.49479	.00069
	Corporate Customer	92030	.6214	.48505	.00160
Information_Seeking	Not a Corporate Customer	509914	.7396	.43886	.00061
	Corporate Customer	92030	.7801	.41415	.00137
Citizenship_Behavior	Not a Corporate Customer	509914	.3367	.47258	.00066
	Corporate Customer	92030	.3671	.48203	.00159
Service_Tolerance	Not a Corporate Customer	509914	.0023	.04764	.00007
	Corporate Customer	92030	.0024	.04861	.00016
Task_Compliance	Not a Corporate Customer	509914	.4365	.49595	.00069
	Corporate Customer	92030	.4220	.49389	.00163

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Communicating_Needs	Equal variances assumed	7038.200	.000	-44.848	601942	.000	-.06198	.00138	-.06469	-.05927
	Equal variances not assumed			-41.446	119934.581	.000	-.06198	.00150	-.06491	-.05905
Ask_Info_Others	Equal variances assumed	4428.377	.000	-27.946	601942	.000	-.04938	.00177	-.05284	-.04591
	Equal variances not assumed			-28.335	129020.285	.000	-.04938	.00174	-.05279	-.04596
Information_Seeking	Equal variances assumed	3033.994	.000	-26.029	601942	.000	-.04057	.00156	-.04362	-.03751
	Equal variances not assumed			-27.097	132131.758	.000	-.04057	.00150	-.04350	-.03763
Citizenship_Behavior	Equal variances assumed	1118.082	.000	-17.938	601942	.000	-.03045	.00170	-.03378	-.02713
	Equal variances not assumed			-17.694	126043.047	.000	-.03045	.00172	-.03383	-.02708
Service_Tolerance	Equal variances assumed	1.204	.273	-.549	601942	.583	-.00009	.00017	-.00043	.00024
	Equal variances not assumed			-.541	126015.813	.589	-.00009	.00017	-.00043	.00025
Task_Compliance	Equal variances assumed	304.329	.000	8.128	601942	.000	.01443	.00178	.01095	.01791
	Equal variances not assumed			8.152	127809.794	.000	.01443	.00177	.01096	.01790

Independent Samples Effect Sizes

		Standardizera	Point Estimate	95% Confidence Interval	
				Lower	Upper
Communicating_Needs	Cohen's d	.38585	-.161	-.168	-.154
	Hedges' correction	.38585	-.161	-.168	-.154
	Glass's delta	.42418	-.146	-.153	-.139
Ask_Info_Others	Cohen's d	.49331	-.100	-.107	-.093
	Hedges' correction	.49332	-.100	-.107	-.093
	Glass's delta	.48505	-.102	-.109	-.095
Information_Seeking	Cohen's d	.43518	-.093	-.100	-.086
	Hedges' correction	.43518	-.093	-.100	-.086
	Glass's delta	.41415	-.098	-.105	-.091
Citizenship_Behavior	Cohen's d	.47403	-.064	-.071	-.057
	Hedges' correction	.47403	-.064	-.071	-.057
	Glass's delta	.48203	-.063	-.070	-.056
Service_Tolerance	Cohen's d	.04779	-.002	-.009	.005
	Hedges' correction	.04779	-.002	-.009	.005
	Glass's delta	.04861	-.002	-.009	.005
Task_Compliance	Cohen's d	.49563	.029	.022	.036
	Hedges' correction	.49563	.029	.022	.036
	Glass's delta	.49389	.029	.022	.036

a. The denominator used in estimating the effect sizes.
Cohen's d uses the pooled standard deviation.
Hedges' correction uses the pooled standard deviation, plus a correction factor.
Glass's delta uses the sample standard deviation of the control group.

Table 34 - Hypothesis Testing - Value Co-Creation Behaviours vs. Corporate Customers (Regular Customers)

Basis the above, \ considering $p < .05$, hypothesis is supported except for service tolerance. All other value co-creation behaviors are greater for corporate customers as opposed

to non-corporate customers. This is likely because these customers are aware of the service, communicate well with the service provide and know what to expect of a service. Service tolerance level is indicated the same as non-corporate customer and that statistical significance is not supported (expectation would be it is lesser in corporate customers as opposed to non-corporate customers).

First-time Travelers vs. Non-First Time Travelers – Inexperience Helps

My hypothesis is that first time travelers (first time customers) demonstrate greater value co-creation behaviors in comparison to non-first time travelers (regular customers)

Group Statistics

	First_Time_Flyer	N	Mean	Std. Deviation	Std. Error Mean
Communicating_Needs	First Time Traveller	2764	.3560	.47890	.00911
	Not a First Time Traveller	599180	.1820	.38584	.00050
Ask_Info_Others	First Time Traveller	2764	.6418	.47955	.00912
	Not a First Time Traveller	599180	.5792	.49368	.00064
Information_Seeking	First Time Traveller	2764	.7978	.40175	.00764
	Not a First Time Traveller	599180	.7455	.43556	.00056
Citizenship_Behavior	First Time Traveller	2764	.3763	.48454	.00922
	Not a First Time Traveller	599180	.3412	.47411	.00061
Service_Tolerance	First Time Traveller	2764	.0040	.06297	.00120
	Not a First Time Traveller	599180	.0023	.04771	.00006
Task_Compliance	First Time Traveller	2764	.4403	.49651	.00944
	Not a First Time Traveller	599180	.4342	.49566	.00064

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Communicating_Needs	Equal variances assumed	1184.878	.000	23.627	601942	.000	.17401	.00737	.15958	.18845
	Equal variances not assumed			19.075	2779.571	.000	.17401	.00912	.15613	.19190
Ask_Info_Others	Equal variances assumed	340.821	.000	6.649	601942	.000	.06258	.00941	.04413	.08102
	Equal variances not assumed			6.843	2790.081	.000	.06258	.00914	.04465	.08050
Information_Seeking	Equal variances assumed	193.357	.000	6.290	601942	.000	.05221	.00830	.03595	.06848
	Equal variances not assumed			6.815	2793.043	.000	.05221	.00766	.03719	.06724
Citizenship_Behavior	Equal variances assumed	47.770	.000	3.881	601942	.000	.03508	.00904	.01737	.05280
	Equal variances not assumed			3.798	2787.459	.000	.03508	.00924	.01697	.05320
Service_Tolerance	Equal variances assumed	13.851	.000	1.864	601942	.062	.00170	.00091	-.00009	.00348
	Equal variances not assumed			1.416	2777.652	.157	.00170	.00120	-.00065	.00405
Task_Compliance	Equal variances assumed	1.499	.221	.642	601942	.521	.00606	.00945	-.01246	.02458
	Equal variances not assumed			.640	2788.462	.522	.00606	.00947	-.01250	.02462

Independent Samples Effect Sizes

		Standardizera	Point Estimate	95% Confidence Interval	
				Lower	Upper
Communicating_Needs	Cohen's d	.38632	.450	.413	.488
	Hedges' correction	.38632	.450	.413	.488
	Glass's delta	.38584	.451	.414	.488
Ask_Info_Others	Cohen's d	.49362	.127	.089	.164
	Hedges' correction	.49362	.127	.089	.164
	Glass's delta	.49368	.127	.089	.164
Information_Seeking	Cohen's d	.43541	.120	.083	.157
	Hedges' correction	.43541	.120	.083	.157
	Glass's delta	.43556	.120	.083	.157
Citizenship_Behavior	Cohen's d	.47415	.074	.037	.111
	Hedges' correction	.47416	.074	.037	.111
	Glass's delta	.47411	.074	.037	.111
Service_Tolerance	Cohen's d	.04779	.036	-.002	.073
	Hedges' correction	.04779	.036	-.002	.073
	Glass's delta	.04771	.036	-.002	.073
Task_Compliance	Cohen's d	.49566	.012	-.025	.050
	Hedges' correction	.49566	.012	-.025	.050
	Glass's delta	.49566	.012	-.025	.050

a. The denominator used in estimating the effect sizes.
 Cohen's d uses the pooled standard deviation.
 Hedges' correction uses the pooled standard deviation, plus a correction factor.
 Glass's delta uses the sample standard deviation of the control group.

Table 35 - Hypothesis Testing - Value Co-Creation Behaviours vs. First Time Travelers

Basis the above, considering $p < .05$, hypothesis is supported except for task compliance. All other value co-creation behaviors are greater for first time travelers as opposed to non-first time travelers. This is likely because these customers are unaware of the service hence ask for information, communicate often and well with the service provider. There is an element of “awe” and therefore customers are likely to be tolerant to degradation in service. Task compliance level is higher than non-first-time travellers and that statistical significance is not supported (expectation would be it is lesser in first time travellers as opposed to non-first time travellers).

Solo Travelers vs. Group – Does Group Behaviour Matter?

My hypothesis is that solo travelers demonstrate greater value co-creation behaviours in comparison to group travelers (group behaviour matters!)

Group Statistics

	Solo_Group_Traveller	N	Mean	Std. Deviation	Std. Error Mean
Communicating_Needs	Group	202684	.2129	.40933	.00091
	Solo	399260	.1675	.37345	.00059
Ask_Info_Others	Group	202684	.5607	.49630	.00110
	Solo	399260	.5891	.49200	.00078
Information_Seeking	Group	202684	.7431	.43691	.00097
	Solo	399260	.7471	.43466	.00069
Citizenship_Behavior	Group	202684	.3325	.47112	.00105
	Solo	399260	.3458	.47564	.00075
Service_Tolerance	Group	202684	.0021	.04553	.00010
	Solo	399260	.0024	.04890	.00008
Task_Compliance	Group	202684	.4436	.49681	.00110
	Solo	399260	.4295	.49501	.00078

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Communicating_Needs	Equal variances assumed	7129.283	.000	43.070	601942	.000	.04533	.00105	.04327	.04739
	Equal variances not assumed			41.802	376070.815	.000	.04533	.00108	.04321	.04746
Ask_Info_Others	Equal variances assumed	1535.808	.000	-21.073	601942	.000	-.02836	.00135	-.03100	-.02572
	Equal variances not assumed			-21.013	404282.052	.000	-.02836	.00135	-.03101	-.02571
Information_Seeking	Equal variances assumed	45.030	.000	-3.364	601942	.001	-.00400	.00119	-.00632	-.00167
	Equal variances not assumed			-3.358	405548.717	.001	-.00400	.00119	-.00633	-.00166
Citizenship_Behavior	Equal variances assumed	434.274	.000	-10.283	601942	.000	-.01330	.00129	-.01583	-.01076
	Equal variances not assumed			-10.315	410855.634	.000	-.01330	.00129	-.01582	-.01077
Service_Tolerance	Equal variances assumed	24.087	.000	-2.454	601942	.014	-.00032	.00013	-.00058	-.00006
	Equal variances not assumed			-2.511	434021.816	.012	-.00032	.00013	-.00057	-.00007
Task_Compliance	Equal variances assumed	397.365	.000	10.376	601942	.000	.01403	.00135	.01138	.01667
	Equal variances not assumed			10.363	406100.376	.000	.01403	.00135	.01137	.01668

Independent Samples Effect Sizes

		Standardized ^a	Point Estimate	95% Confidence Interval	
				Lower	Upper
Communicating_Needs	Cohen's d	.38590	.117	.112	.123
	Hedges' correction	.38590	.117	.112	.123
	Glass's delta	.37345	.121	.116	.127
Ask_Info_Others	Cohen's d	.49345	-.057	-.063	-.052
	Hedges' correction	.49345	-.057	-.063	-.052
	Glass's delta	.49200	-.058	-.063	-.052
Information_Seeking	Cohen's d	.43542	-.009	-.015	-.004
	Hedges' correction	.43542	-.009	-.015	-.004
	Glass's delta	.43466	-.009	-.015	-.004
Citizenship_Behavior	Cohen's d	.47412	-.028	-.033	-.023
	Hedges' correction	.47412	-.028	-.033	-.023
	Glass's delta	.47564	-.028	-.033	-.023
Service_Tolerance	Cohen's d	.04779	-.007	-.012	-.001
	Hedges' correction	.04779	-.007	-.012	-.001
	Glass's delta	.04890	-.007	-.012	-.001
Task_Compliance	Cohen's d	.49562	.028	.023	.034
	Hedges' correction	.49562	.028	.023	.034
	Glass's delta	.49501	.028	.023	.034

a. The denominator used in estimating the effect sizes.
 Cohen's d uses the pooled standard deviation.
 Hedges' correction uses the pooled standard deviation, plus a correction factor.
 Glass's delta uses the sample standard deviation of the control group.

Table 36 - Hypothesis Testing - Value Co-Creation Behaviours vs. Solo & Group

Basis the above, the considering $p < .05$, hypothesis is supported in all the value co-creation behaviors. There is an interesting mix of value co-creation behaviours demonstrated. For example, groups seem to be communicating needs more than individuals perhaps to get enhanced level of service and task compliance appears to be higher in groups as opposed to individuals likely because group dynamics is at play. All other behaviours are greater in solo travellers in comparison to groups.

Technology or Humans or Assisted – What do customers prefer?

My hypothesis is that those who prefer human touchpoints compared to technology demonstrate greater value co-creation behaviours.

Group Statistics

	Comfortable_With_Technology	N	Mean	Std. Deviation	Std. Error Mean
Communicating_Needs	Not Comfortable With Technology	221177	.1333	.33992	.00072
	Comfortable With Technology	380767	.2115	.40839	.00066
Ask_Info_Others	Not Comfortable With Technology	221177	.5493	.49757	.00106
	Comfortable With Technology	380767	.5971	.49048	.00079
Information_Seeking	Not Comfortable With Technology	221177	.7180	.44999	.00096
	Comfortable With Technology	380767	.7619	.42590	.00069
Citizenship_Behavior	Not Comfortable With Technology	221177	.3109	.46285	.00098
	Comfortable With Technology	380767	.3590	.47972	.00078
Service_Tolerance	Not Comfortable With Technology	221177	.0027	.05175	.00011
	Comfortable With Technology	380767	.0021	.04533	.00007
Task_Compliance	Not Comfortable With Technology	221177	.4126	.49230	.00105
	Comfortable With Technology	380767	.4469	.49717	.00081

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Communicating_Needs	Equal variances assumed	25349.131	.000	-76.046	601942	.000	-.07820	.00103	-.08022	-.07619
	Equal variances not assumed			-79.797	530795.832	.000	-.07820	.00098	-.08012	-.07628
Ask_Info_Others	Equal variances assumed	4146.331	.000	-36.304	601942	.000	-.04786	.00132	-.05044	-.04528
	Equal variances not assumed			-36.167	456786.297	.000	-.04786	.00132	-.05045	-.04527
Information_Seeking	Equal variances assumed	5457.777	.000	-37.805	601942	.000	-.04396	.00116	-.04624	-.04168
	Equal variances not assumed			-37.258	441762.783	.000	-.04396	.00118	-.04627	-.04164
Citizenship_Behavior	Equal variances assumed	6196.176	.000	-38.043	601942	.000	-.04817	.00127	-.05065	-.04569
	Equal variances not assumed			-38.406	475720.266	.000	-.04817	.00125	-.05063	-.04571
Service_Tolerance	Equal variances assumed	96.198	.000	4.904	601942	.000	.00063	.00013	.00038	.00088
	Equal variances not assumed			4.736	414414.812	.000	.00063	.00013	.00037	.00089
Task_Compliance	Equal variances assumed	2897.766	.000	-25.896	601942	.000	-.03430	.00132	-.03689	-.03170
	Equal variances not assumed			-25.964	465883.707	.000	-.03430	.00132	-.03689	-.03171

Independent Samples Effect Sizes

		Standardizera	Point Estimate	95% Confidence Interval	
				Lower	Upper
Communicating_Needs	Cohen's d	.38465	-.203	-.209	-.198
	Hedges' correction	.38465	-.203	-.209	-.198
	Glass's delta	.40839	-.191	-.197	-.186
Ask_Info_Others	Cohen's d	.49309	-.097	-.102	-.092
	Hedges' correction	.49310	-.097	-.102	-.092
	Glass's delta	.49048	-.098	-.103	-.092
Information_Seeking	Cohen's d	.43491	-.101	-.106	-.096
	Hedges' correction	.43491	-.101	-.106	-.096
	Glass's delta	.42590	-.103	-.108	-.098
Citizenship_Behavior	Cohen's d	.47359	-.102	-.107	-.096
	Hedges' correction	.47359	-.102	-.107	-.096
	Glass's delta	.47972	-.100	-.106	-.095
Service_Tolerance	Cohen's d	.04779	.013	.008	.018
	Hedges' correction	.04779	.013	.008	.018
	Glass's delta	.04533	.014	.009	.019
Task_Compliance	Cohen's d	.49539	-.069	-.074	-.064
	Hedges' correction	.49539	-.069	-.074	-.064
	Glass's delta	.49717	-.069	-.074	-.064

a. The denominator used in estimating the effect sizes.
 Cohen's d uses the pooled standard deviation.
 Hedges' correction uses the pooled standard deviation, plus a correction factor.
 Glass's delta uses the sample standard deviation of the control group.

Table 37 - Hypothesis Testing - Value Co-Creation Behaviours vs. Technology vs. Human Touchpoint

Basis the above, considering $p < .05$, hypothesis is supported in all the value co-creation behaviors. Those who are comfortable with technology demonstrate greater value co-creation behaviors than those who are not comfortable with technology. This is except in Service Tolerance where its likely because of greater of awareness of the service.

Decision Tree Models for Predicting NPS vs. Value Co-Creation Behaviors

Like the Decision Tree Analysis in Value Co-Creation Behaviors Survey, I performed Decision Tree Analysis¹⁹ using SPSS to arrive at a predictive model based on targeted dependent variables in this case derived Value Co-Creation Behaviors.

I gave a target of High NPS (H – 9, 10; M – 6 – 8; L – 0 – 5) and identify the paths which lead to this NPS level. The following results are obtained using the CHAID model and criteria of 1000 for the parent node and 250 for the child node. No selection variable was included in the model. One can see from the below tables that maximum gain happens for Node 13 wherein customer does not communicate needs (explicitly), demonstrates citizenship behavior and task compliance behavior.

¹⁹ <https://www.ibm.com/docs/en/spss-statistics/27.0.0?topic=trees-creating-decision>



Tree Table

Node	Low		Medium		High		Total		Predicted Category	Parent Node	Variable	Primary Independent Variable			Split Values
	N	Percent	N	Percent	N	Percent	N	Percent				Sig. ^a	Chi-Square	df	
0	126766	21.1%	131381	21.8%	343775	57.1%	601922	100.0%	High						
1	115652	34.0%	103518	30.4%	121347	35.6%	340517	56.6%	High	0	Task_Compliance	.000	151717.157	2	Does not Comply with Tasks
2	11114	4.3%	27863	10.7%	222428	85.1%	261405	43.4%	High	0	Task_Compliance	.000	151717.157	2	Demonstrate s Task Compliance
3	104596	36.1%	89078	30.7%	96365	33.2%	290039	48.2%	Low	1	Citizenship_Behavior	.000	5793.219	2	Does Not Demonstrate Citizenship Behavior
4	11056	21.9%	14440	28.6%	24982	49.5%	50478	8.4%	High	1	Citizenship_Behavior	.000	5793.219	2	Demonstrate s Citizenship Behavior
5	6374	6.0%	15232	14.3%	84809	79.7%	106415	17.7%	High	2	Citizenship_Behavior	.000	4138.003	2	Does Not Demonstrate Citizenship Behavior
6	4740	3.1%	12631	8.1%	137619	88.8%	154990	25.7%	High	2	Citizenship_Behavior	.000	4138.003	2	Demonstrate s Citizenship Behavior
7	34282	31.1%	30968	28.1%	44878	40.8%	110128	18.3%	High	3	Information_Seeing	.000	4613.339	2	Does Not Seek Information
8	70314	39.1%	58110	32.3%	51487	28.6%	179911	29.9%	Low	3	Information_Seeing	.000	4613.339	2	Seeks Information
9	903	22.3%	881	21.7%	2272	56.0%	4056	0.7%	High	4	Information_Seeing	.000	111.299	2	Does Not Seek Information
10	10153	21.9%	13559	29.2%	22710	48.9%	46422	7.7%	High	4	Information_Seeing	.000	111.299	2	Seeks Information
11	3324	5.5%	8003	13.3%	48662	81.1%	59989	10.0%	High	5	Ask_Info_Others	.000	172.047	2	Does not ask Info of Others
12	3050	6.6%	7229	15.6%	36147	77.9%	46426	7.7%	High	5	Ask_Info_Others	.000	172.047	2	Ask Info of Others
13	3745	3.0%	9932	7.9%	111699	89.1%	125376	20.8%	High	6	Communicating_Needs	.000	59.277	2	Does Not Communicate Needs
14	995	3.4%	2699	9.1%	25920	87.5%	29614	4.9%	High	6	Communicating_Needs	.000	59.277	2	Communicate Needs

Growing Method: CHAID
 Dependent Variable: NPS_HML
 a. Bonferroni adjusted

Gains for Nodes

Node	Node		Node-by-Node Gain				Node		Cumulative Gain			
	N	Percent	N	Percent	Response	Index	N	Percent	N	Percent	Response	Index
13	125376	20.8%	111699	32.5%	89.1%	156.0%	125376	20.8%	111699	32.5%	89.1%	156.0%
14	29614	4.9%	25920	7.5%	87.5%	153.3%	154990	25.7%	137619	40.0%	88.8%	155.5%
11	59989	10.0%	48662	14.2%	81.1%	142.0%	214979	35.7%	186281	54.2%	86.7%	151.7%
12	46426	7.7%	36147	10.5%	77.9%	136.3%	261405	43.4%	222428	64.7%	85.1%	149.0%
9	4056	0.7%	2272	0.7%	56.0%	98.1%	265461	44.1%	224700	65.4%	84.6%	148.2%
10	46422	7.7%	22710	6.6%	48.9%	85.7%	311883	51.8%	247410	72.0%	79.3%	138.9%
7	110128	18.3%	44878	13.1%	40.8%	71.4%	422011	70.1%	292288	85.0%	69.3%	121.3%
8	179911	29.9%	51487	15.0%	28.6%	50.1%	601922	100.0%	343775	100.0%	57.1%	100.0%

Growing Method: CHAID
 Dependent Variable: NPS_HML

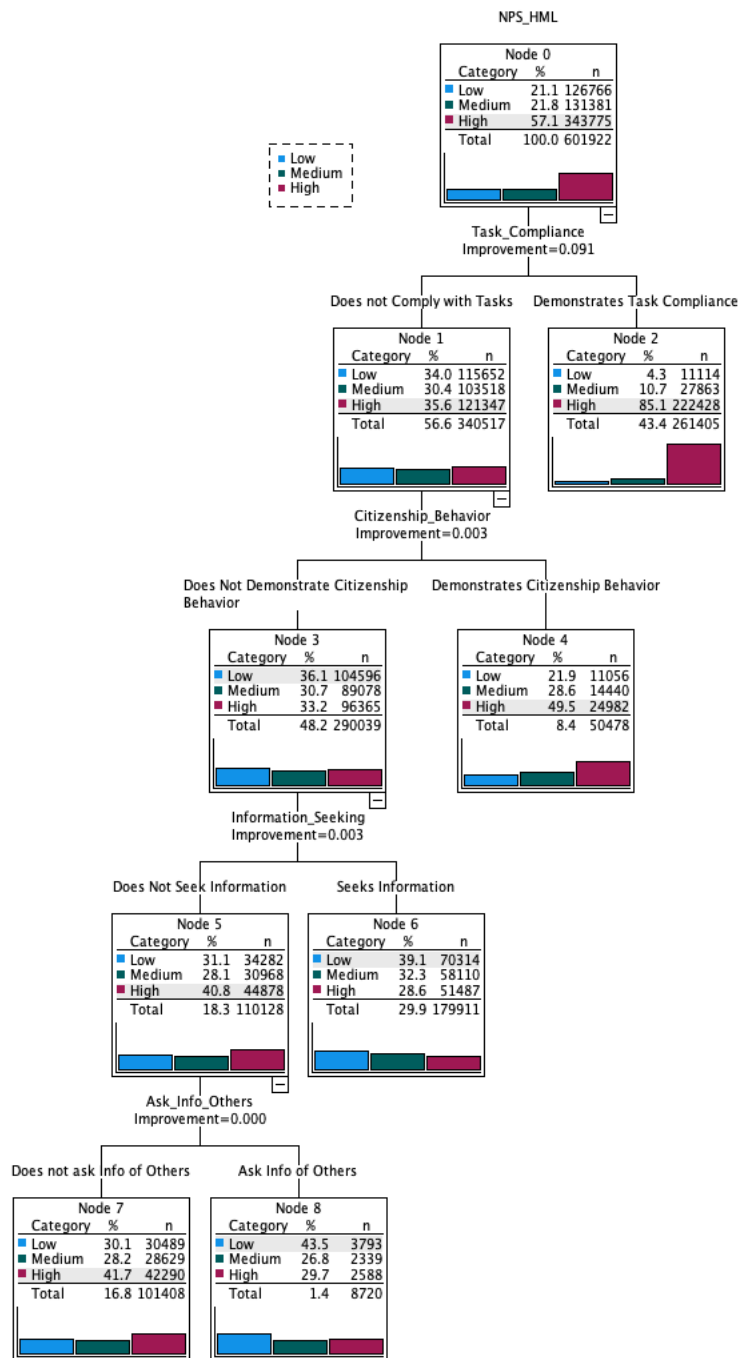
Classification

Observed	Predicted			Percent Correct
	Low	Medium	High	
Low	70314	0	56452	55.5%
Medium	58110	0	73271	0.0%
High	51487	0	292288	85.0%
Overall Percentage	29.9%	0.0%	70.1%	60.2%

Growing Method: CHAID
 Dependent Variable: NPS_HML

Table 38 – Decision Tree Analysis – Customer Satisfaction Survey - NPS vs. Value Co-Creation Behaviours (CHAID Model)

Running the decision tree using CRT growth model, with a target of High NPS (H – 9, 10; M – 6 – 8; L – 0 – 5) gets the following results. No selection variable was included in the model. One can see from the below tables that maximum gain happens for Node 2 wherein the customer demonstrates task compliance behavior.



Tree Table

Node	Low		Medium		High		Total		Predicted Category	Parent Node	Primary Independent Variable		
	N	Percent	N	Percent	N	Percent	N	Percent			Variable	Improvement	Split Values
0	126766	21.1%	131381	21.8%	343775	57.1%	601922	100.0%	High				
1	115652	34.0%	103518	30.4%	121347	35.6%	340517	56.6%	High	0	Task_Compliance	.091	Does not Comply with Tasks
2	11114	4.3%	27863	10.7%	222428	85.1%	261405	43.4%	High	0	Task_Compliance	.091	Demonstrates Task Compliance
3	104596	36.1%	89078	30.7%	96365	33.2%	290039	48.2%	Low	1	Citizenship_Behavior	.003	Does Not Demonstrate Citizenship Behavior
4	11056	21.9%	14440	28.6%	24982	49.5%	50478	8.4%	High	1	Citizenship_Behavior	.003	Demonstrates Citizenship Behavior
5	34282	31.1%	30968	28.1%	44878	40.8%	110128	18.3%	High	3	Information_Seeking	.003	Does Not Seek Information
6	70314	39.1%	58110	32.3%	51487	28.6%	179911	29.9%	Low	3	Information_Seeking	.003	Seeks Information
7	30489	30.1%	28629	28.2%	42290	41.7%	101408	16.8%	High	5	Ask_Info_Others	.000	Does not ask Info of Others
8	3793	43.5%	2339	26.8%	2588	29.7%	8720	1.4%	Low	5	Ask_Info_Others	.000	Ask Info of Others

Growing Method: CRT
Dependent Variable: NPS_HML

Gains for Nodes

Node	Node-by-Node						Cumulative					
	Node		Gain		Response	Index	Node		Gain		Response	Index
N	Percent	N	Percent	N			Percent	N	Percent	N		
2	261405	43.4%	222428	64.7%	85.1%	149.0%	261405	43.4%	222428	64.7%	85.1%	149.0%
4	50478	8.4%	24982	7.3%	49.5%	86.7%	311883	51.8%	247410	72.0%	79.3%	138.9%
7	101408	16.8%	42290	12.3%	41.7%	73.0%	413291	68.7%	289700	84.3%	70.1%	122.7%
8	8720	1.4%	2588	0.8%	29.7%	52.0%	422011	70.1%	292288	85.0%	69.3%	121.3%
6	179911	29.9%	51487	15.0%	28.6%	50.1%	601922	100.0%	343775	100.0%	57.1%	100.0%

Growing Method: CRT
Dependent Variable: NPS_HML

Classification

Observed	Predicted			Percent Correct
	Low	Medium	High	
Low	74107	0	52659	58.5%
Medium	60449	0	70932	0.0%
High	54075	0	289700	84.3%
Overall Percentage	31.3%	0.0%	68.7%	60.4%

Growing Method: CRT
Dependent Variable: NPS_HML

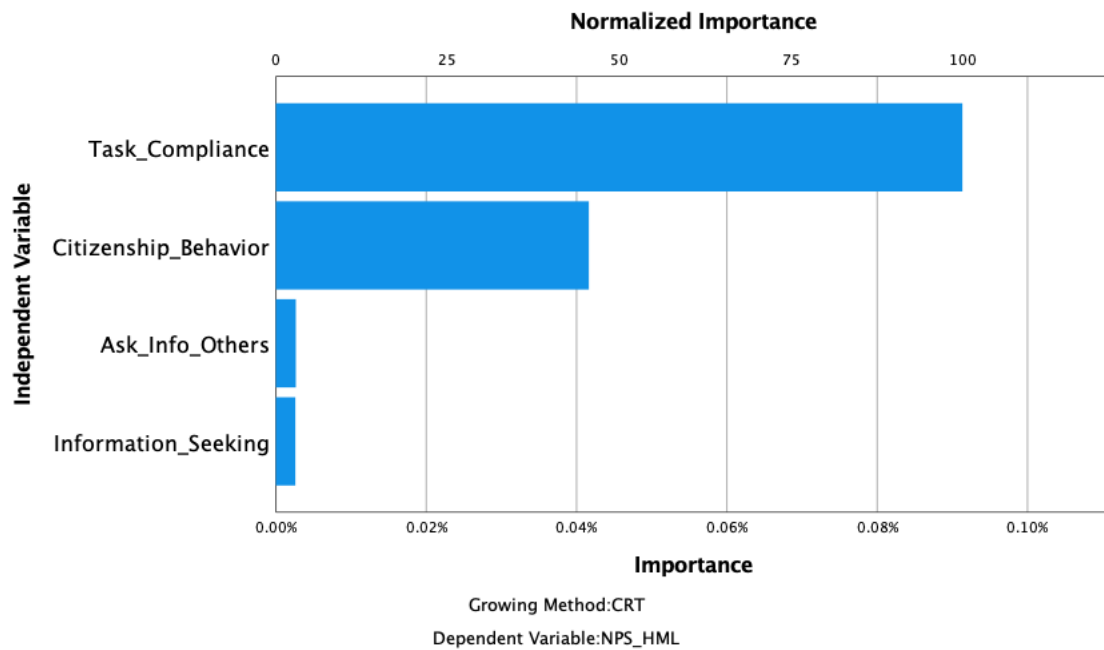


Table 39 – Decision Tree Analysis – Customer Satisfaction Survey - NPS vs. Value Co-Creation Behaviours (CRT Model)

Running the decision tree using CRT growth model, with a target of High NPS (H – 9, 10; M – 6 – 8; L – 0 – 5) gets the following results and various selection variables gives us the same result (see appendix for details).

These findings corroborate the observations of the decision tree run in the value co-creation behavior survey. In summary, Task Compliance and Citizenship Behaviors are the most critical factors which lead to high customer satisfaction.

I present my updated conceptual model after analyzing Customer Satisfaction Survey data and the derived Value Co-Creation Behaviors.

Qualitative Data Analysis

The final part of triangulation for my study is the qualitative data analysis of the interviews of organizational employees. As described in the Chapter on “*Research Execution*”, I conducted semi-structured interviews of employees engaged in airport operations and cabin crew members as these are customer-facing roles. Theoretical sampling was done by identifying employees from various demographic locations (Tier 1, Tier 2 stations, or airports). This allowed gathering a range of narrations in so far as the organizational view of customer behaviors was concerned.

Open Coding of Interviews

I conducted 12 interviews (six cabin crew members and six airport operations staff). I used Atlas.ti Generative AI coding on transcription of the interviews (transcribed using Otter.ai). The Generative AI engine identified a total of 648 codes. These were split across 11 code categories as follows:

Code Category	Codes
Human Qualities	204
Work responsibilities	170
Administration	165
Customer satisfaction	153
Communication issues	145
Challenges	78
Aviation	64
Safety	52
Boarding	8

Table 40 - Code Categories - Qualitative Interview Data Analysis

Analyzing each of these further, I got the following highly occurring codes in each of the code categories.

Code Category	Codes (Greater than 5 occurrences)
Human Qualities	Curiosity Attention to detail Gratitude Efficiency

Code Category	Codes (Greater than 5 occurrences)
	Politeness Expectations Empathy Anger Anxiety Appreciation Patience Perception Satisfaction
Work Responsibilities	Problem-solving Responsibility Observation Inquiry Teamwork Seeking clarification Seeking information
Administration	Communication Travel Behaviour Feedback Comfort Understanding Accessibility
Customer Satisfaction	Customer service Customer satisfaction Customer behavior Customer experience Customer interaction Customer feedback
Communication Issues	Uncertainty Confusion Frustration

Code Category	Codes (Greater than 5 occurrences)
	Questioning Impatience Inefficiency Lack of awareness Miscommunication
Challenges	Time management Challenges Confidentiality
Aviation	Passenger assistance Air travel Passenger behaviour Transportation
Safety	Safety Assistance

Table 41 – Code Categories vs. Codes - Qualitative Interview Data Analysis

Focusing on the one's which are related to customer behavior I analyze in detail each of the code categories and most occurring codes.

Human Qualities

Human Qualities – Curiosity (24 occurrences) relates to the curiosity and anxiety experienced by a *first-time flyer*, a demographic I covered in the quantitative customer satisfaction survey analysis. An airport operations personnel described their experience as:

“First of all, they come to the reservation counter, and they ask for the flight numbers where I'm wanting to travel to this destination and what is the fare for that destination. So, the major part we faced that once we told them about the fare, they always say all this is a lot of money we are investing and is there any other options that you have with the cheaper price of something, what kind of ID cards required our will happen if I don't have any ID card? So, these are the major issues we face with the reservation counters.”

Human Qualities – Gratitude (13 occurrences) relates to *citizenship behavior* where customers help each other, acknowledge the work done by the service provider's employees. Gratitude is key to building a trust-based relationship between the service provider and the customer. From the service provider's perspective, it makes the employee's feel valued and satisfied when customer's express gratitude's (Palmatier et al., 2009).

One cabin crew member described their experience as:

“The most satisfying is when a senior citizen people when we reach your passengers, when very needy people come will always come for us to help. We feel very happy. We feel very blessed to serve them. Because they are genuinely helpless, and we are there to help them. And we have that talent or service that we may help them, which made me feel so blessed. Exactly. And enjoyable in the sense that when most of the profile passenger (regular flyers) meet they greet us they are appreciate our work, our grooming everything. So it makes me feel so good. Every day 1000 people met with us. So it's very good. So houses completely boring and offices very enjoyable. Two or three arguments every day. Otherwise, everything is perfect. Oh, many friends, so many managers. So, it's very enjoyable.”

Human Qualities – Efficiency (12 occurrences) again relates to citizenship behavior expectations from the customers. As an example, an airport operations personnel recounts how passengers not turning up on time results in operational issues including likely flight departure delays:

“So, when a passenger purchased a ticket with India, there is a message sent out to them that please do arrive two hours prior to your departure or even internationally, three and a half hours prior. The only thing that I would expect from a customer is that they come prior to your flight, like at least two hours earlier, because then it makes it easier for them. And for us, we

don't like you know calling them on the phone when the flight is leaving. For them also, it becomes much easier”

Patience when receiving a service becomes an important attribute. However, having a “*service awareness*” such as on pre-booking a meal gives an advantage to the customer. As another cabin crew member recalls:

“As per the procedure laid down somebody will be served food and beverage last. I think this is the best thing to serve the pre-booked meals first and then the regular customers. And it is the fact that somebody was served last week; you cannot do something about that. But all we can do is try to expedite our service so that somebody else we can cover somebody else's part.”

Human Qualities – Politeness (10 occurrences) – This one relates to “*Service Tolerance*” covered in the quantitative analysis of the customer satisfaction survey. It is key that for customers to demonstrate “*Service Tolerance*” behavior organizations need to also demonstrate empathy. As one airport operations staff narrates a critical incident:

“If the flight is delayed it is very natural for the passenger to be annoyed. If in case the staff is well mannered or polite with passengers, they will always say that, you know, the so and so's staff was there, she was assisting other passengers also, they had a lot of work to do. And they were always, you know, they were available with passengers. I think so they will not say anything, and they won't complain it, you know, for the flight for the delayed flight.”

Human Qualities – Expectations (9 occurrences): Having covered “*Service Awareness*” in the quantitative survey result, the qualitative analysis again indicates a strong presence of the quality of expectation. This also links with regular users of a service vs. those who are using it for the first time. As such, creating service awareness is key for customer satisfaction. However, once service expectation / awareness is created then the organization needs to fulfill the promises through enactment of the organizational routines.

“Post COVID, flying has become like, it's everyone can fly. And people are getting the knowledge that you know, what is a low-cost airline, that you need to purchase each and everything, I mean, whatever service you want, you need to purchase that. But there are a majority of people who have not taken the flights, I mean, probably that could be the only flight of their life. So then they expect you know, when you come on board, being a low cost carrier, they expect everything is taken care by the airline, if you're not providing food, then they become angry. But for the those fly regularly, like, people keep on flying, they know what they want, they know this is to be paid for they know what is not to be paid for. These are usually the two challenges that we face. And especially I do not know why it happens. But in the

forward and after segregated, like forward, you usually have all the frequent flyer, and if the frequent flyer then lot of corporate customers.”

Consistency of information sharing by the organization is another very important factor which determines customer satisfaction. Customers often tend to escalate matters to seniors in the organization. However, in such instances, if the manager(s) override the subordinate's words on policy matters then it makes decision-making easier for the subordinates and customers get used to escalating matters and getting their way around the organization through exceptions. An airport operations staff member recall:

“If a manager gives the same information as the subordinate, the customer is ready to listen, and they will understand that it's a policy matter. Often when they want to talk to the manager, they are expecting something more from the manager. The manager remains consistent, and the customer realizes there is no other option.”

Human Qualities – Empathy (7 occurrences): Another great example of how customer behaviour can complement effective execution of organizational routines is empathy. Whilst, in one of the previous qualities we've referenced empathy as expressed by the organizational employees here the empathy being expressed that by the customer. For example, an airport operations person says there are those type of customers who are very polite and another who are very angry:

“There are some passengers who are, like, always lively, they just come to counter start the conversation. And they may they even Passengers also make our day sometimes, like it's not always we who can do that. There are some passengers who are very polite, who are very respectable towards staffs. It will be like, they just understand that we are there sitting in check-in counter doing check-in since the past couple of hours and all like sometimes we have to stay late because the flights are getting delayed. That's when he also feels that yes, this passenger make my day this passenger understands. That's how we feel there are that type of passengers as well when we deal encounters. And then not only that, there are some passengers who just bring every kind of anger in the counters. They just don't want to to understand.”

Customer empathy behaviour also depends on whether they are seasoned flyer or a first-time flyer.

“Some of them are some of them don't. Totally, totally depends. People who are frequent fliers they obviously understand. But people who are not frequent fliers who fly with their families for the first time and if they want something they can often be adamant.”

Human Qualities – Satisfaction (6 occurrences): Satisfaction although self-explanatory and being the dependent variable is already dealt with in detail. Qualitatively this is about the difference between customer’s service expectations and service delivery. Greater the service awareness, the greater the expectation and the lesser the satisfaction.

An airport operations staff recalls: “Passengers feel annoyed when ignored so, but it depends on the situation. It totally depends on the gate manager. If she is engaging, as you know, she's always available with passengers. I don't think somebody will complain.”

Human Qualities – Apology (5 occurrences): I noted awareness amongst the organizational employees around service recovery. One of the techniques they used is service recovery; to that extent, it helps improve customer satisfaction, particularly when there has been a degradation of service.

For example, a cabin crew member recalls how they deal with passengers who have opted for certain food options but weren’t able to be provided with one: “So we just apologize, we give them options of whatever is available with us. And we also make a note of such customers and while filling up the flight report, we also noted down in the flight report saying that the customer was upset due to so and so reasons airline also has a very good thing about the priority service help desk. So, we make a call to the priority service help desk and we tell them about the whole scenario that whatever has happened. So they in turn, call up the customers to pacify them.”

Thus, codes within *Human Qualities* code category relate to several customer value co-creation behaviors. Figure below succinctly shows the relationship between qualitative and quantitative factors:

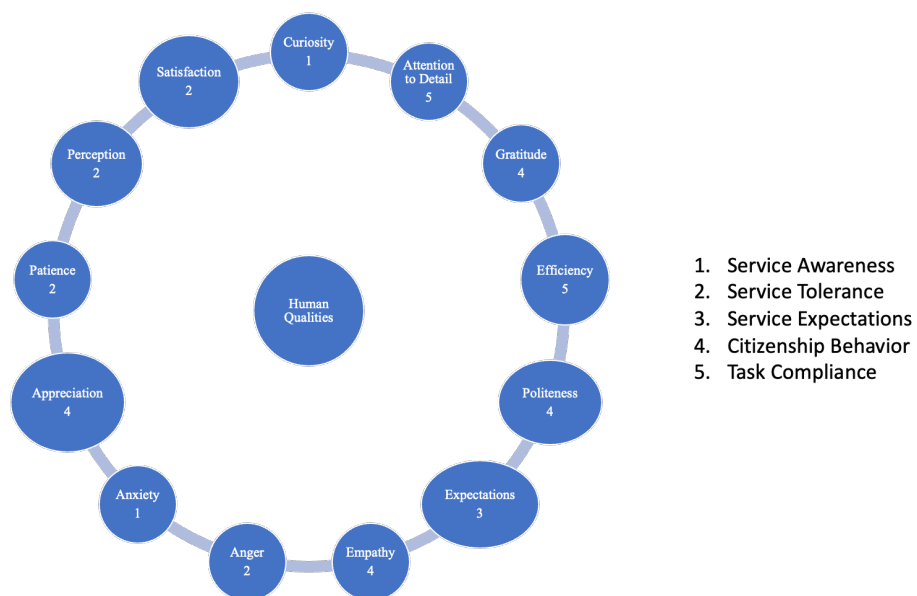


Figure 22 - Human Qualities Codes - Value Co-Creation Behaviours

Work Responsibilities

When studying the work responsibilities of organisational employees many customer value co-creation behaviours came up. These behaviours are important in understanding how customers (can) participate in enabling (enacting) routines through which the organisation provides the service.

Work Responsibilities – Problem-Solving (24 occurrences) and Responsibility (17 occurrences): Organizational employees must solve problems of varying complexities throughout their workday. However, to successfully resolve this, participation from customers is required firstly in articulating the correct problem statement and then helping arrive at solution options. I'd equate this to citizenship behaviours and service tolerance. It'd let the organisational employees do their job patiently and provide opportunities to customers in case of service degradation.

As an airport operations staff narrates:

“Whenever a flight is delayed a boarding gate staff's responsibility is to make an announcement and to alert the passenger that the flight is getting delayed and the reasons and all these things so for that even the staff has to be quickly equipped with whatever we are supposed to do or whatever like in case of misconnections from different stations or different stations, we have to give a passenger the next option the next alternatives which we can offer where we can allow them to travel or where we can accommodate them so that they reach their final destination without any disturbance. In the next thing. You have to be always with the system you have to have very powerful system knowledge at the time of delays because that's when you have to make changes in no time for like minimum 100 people in one flight when there is a delay and there is misconnection so you have to stick with what you are doing and then whenever it comes to the boarding gate and flight delays, it's like passengers started shouting there because they don't understand why the flight is delayed. So, in that case, the staff must keep their patience and themselves low and humble.”

Customers need to demonstrate empathy, as that's key for organizational employees to undertake their duties successfully. Often the full picture of organizational routines is not visible to the customers and that has been brought out in many research studies. For example, in regulated industries like airlines there are certain routines which are non-negotiable, and employees must undertake those before they can start serving their customers. This could lead to what's termed as “*operational delays*”. This is a black box for the customer and organizational reasons cannot necessarily be explained in detail. There is also inherent inertia in organizational routines which could bring monotonous experience but equally when tapped

in the right way can become a source of variation (Deken et al., 2016; Howard-Grenville & Rerup, 2016; Kremser & Schreyögg, 2016; Yi et al., 2016).

This experience is captured in this narration by a cabin crew member:

“The most difficult part is being a Lead Crew member. So, you need to take care of your customers, you need to take care of your flight deck crew, you need to take care of your cabin crew, whatever they are facing or their challenges, then we need to take care of the on ground staff also, because on time departure is a key requirement over and above that we need to take care of our management team. So, the challenging thing is the managing time. I do not have the entire day to think and figure it out. Okay, if this is the situation, I can do it at the end of the day. I need to take a decision instantly in the time that is there. Because I mean, I wouldn't blame anybody for this because this is a flying professional environment, I need to take decisions as quickly as possible, because even a slight delay in my taking a decision can lead to a delay on flight.”

Work Responsibilities – Observation (12 occurrences): I found organizational employees that were interviewed to be highly observant. All the roles being customer-facing roles require a sound understanding of customer behavior, observational skills to respond to customer's requests, nuances of personalities and more. Flipping this around from a customer's standpoint and I was myself travelling during this period, I could observe the customers behaviors demonstrated. For example, expressing gratitude was a key missing piece and often customers were oblivious to the effort put in by the employees and just the sheer aspect of hundreds and thousands of routines coming together to provide service to the customers. The simple act of smiling and greeting an employee goes a long way in building trust between the customers and its organization.

“Whenever anybody's entering the aircraft, we always smile and greet them good morning or the greeting the response back that we get is 30% otherwise, we are ignored, but it's okay. We are ignored, but then like you know, we always still we reciprocate and we do the same we feel very happy when a customer is reciprocating to us or acknowledges us. Suppose a kid is travelling with some bags and fancy bags we engulf ourselves in the conversation, we get to know a bit about the personality at the time of boarding. So, that is very crucial, it is very important to be with the presence of mind at the boarding station, to understand and you know identify customers who may need assistance for any situations.”

Work Responsibilities – Team (6 occurrences): In any service setting, customer experience delivery is a team effort. Whilst the traditional way of looking at this is the team of employees delivering the experience, value co-creation logic could be extended to argue that

customers are equally part of the extended team (often called family). As such, this too relates to customer citizenship behaviors.

“How do we handle it, because then we become, we act like a team, all four and six of us. So, we all act as a team. Ultimately, our goal is to you know, take off and land safely without any disruptions going on. And without harming anybody. So, after that, after service, we also have a lot of add-on requests. It's purely customer dealing. So, to make our passengers also feel at home, to make them feel welcomed to make them feel, you know, to come back again, basically. So, to give to provide them with that thing is a real challenge. So, it's about all about the human scale. Then after that, when we land also, it is all mainly about safety and how we should be landing safely as well, it is not just the takeoff that you take it is also about the landing. So, at landing, again, our safety role comes in mode. Again, we must switch our roles as in from the, you know, being the softer side to the form side if anybody creates any disruptions in between. So again, and so it's basically the switch-off roles that we do every second.”

In summary, I found support for a number of customer value co-creation behaviors when analyzed from the “*Work Responsibilities*” of organizational employee perspective. Figure shows visual depiction of these relationships:

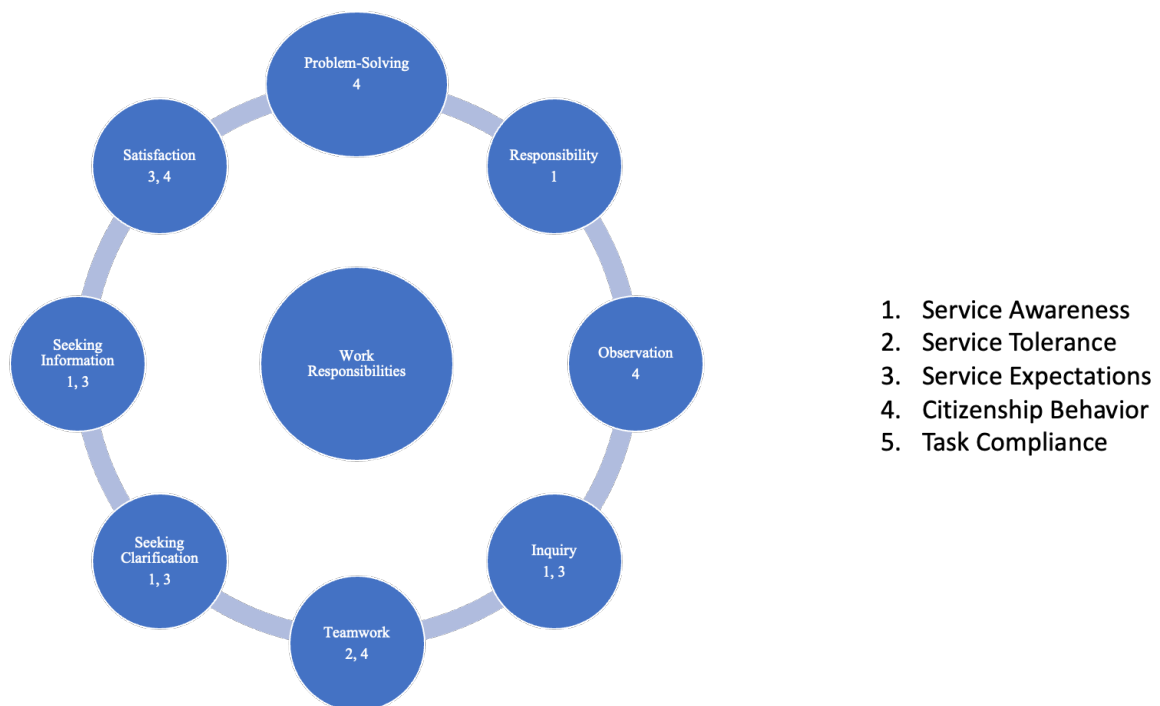


Figure 23 – Work Responsibilities - Value Co-Creation Behaviours

Administration & Communication Issues

Arguably, one of the most important behaviors in service delivery is effective administration of the organizational routines. However, in an environment where personalised communication, feedback isn't always possible qualitative analysis shows that organizations need to rely on customers participating in these processes by seeking, receiving, and acting on information (including visual, verbal, and written cues of all kinds) and organizations acting on feedback provided by the customers. I now present the analysis of the administration code category.

Administration – Communication (60 occurrences), Behavior (7 occurrences): One of the highest occurring codes, communication between customers and organization is key to not just effective service delivery but in cases like the airline industry is directly related to the safety of customers and employees. Organizations use various artefacts to communicate with their customers and undertake changes in routines or execute them (Glaser, 2017; Pentland & Feldman, 2008).

Narrations by organizational employees show different situations in which communication is key: “Passengers are more concerned about settling their bags in the overhead bins. However, we continuously make announcements to encourage them to them keep their smaller bags under the seat in front. But not everybody wants to sit comfortably, and they want to keep the bag up. So, we need to make them understand to keep the bags under the seat the smaller bags so that we have more space above. So they are more concerned about settling the bags and if they change their seat, they are trying to you know exchange the seat with other passengers so that they can sit together all these things happen when they are trying to settle that bags and the seats and everything.”

The above narration is related to customers having an awareness of the constraints faced by organizations in serving all customers equitably and in the most comfortable manner.

Knowing organizational policies is another aspect of communication and lack of which is a factor which likely contributes to reduced customer satisfaction. For example, for first-time flyers (or even regular one's), not knowing the baggage policy leads to arguments at the check-in counter and subsequent escalation of the situation.

“Sometimes the passengers are very calm. So, wherein we solve the queries if they have queries example in case, they are carrying excess baggage or they are carrying multiple handbags or they are exceeding their check-in baggage limit. So, it is tough for the staff to brief them that you know, according to this policy, you should be carrying this much baggage in check-in. For me to make passengers comfortable, I need to guide them and need to explain to

them that these are the policies which we need to follow. However, you are a guest, and we are always there to help you.”

In this case, “service awareness”, “information seeking”, and “asking others about information” behavior become key value co-creation behaviors.

“Service tolerance” behaviour is evident when employees are making best efforts to service special requests but face constraints. As an example a boarding gate manager explains:

“As a boarding gate manager it is the gate manager’s duty that you need to inform the passengers who have requested special assistance before boarding that they have to remain seated and somebody will come and they take them along. However, in case there are no helpers they always tell the staff or passenger that the staff will come little later.”

“Task Compliance” is a key behaviour and nowhere is this more evident in this study when asking customer to board in a sequence. In following the instructions of the employees boarding time can be reduced significantly and as such both organizations and employees need to continuously find ways to understand each other through better means of communication.

Often a visual cue may help in comparison to a verbal one ... “So, it depends on the gate manager if the voice is audible to all the passengers in the mic. So, most of the passengers they always listen the announcements and they join the queue accordingly. So, if in case the voice is not audible and it is not clear, the message is not clear to passengers. So, the boarding will be very hotchpotch and passengers will be stuck in the cabin, they will be searching for space in the cabin. So whole boarding process will be hampered.”

In a physical service setting, “Task Compliance” can also be essential for ensuring safety of the customers, as explained by a cabin crew member:

“So as a cabin crew, I really want customers to remain seated on their original seats.

When the boarding is on there are some wheelchair passengers who also boarded. So my crew, they have to brief the wheelchair passengers, they need to know what and why. We as a cabin crew are primarily there for their safety and security. So let's say, God forbid, in case of an evacuation, we need to know how can we evacuate the customers who are on wheelchairs, that is why we must brief them. Also, there are parents with infants traveling. So, we need to brief them as well, we need to see where they are seated. Because at times, passengers who want to change their seats or who want to sit together, thereby mistakenly sit on an emergency exit with the kid or an infant. So that is also not allowed. So there are a lot many things that are going on in this boarding process that crew needs to do and should be aware of and the passengers, as in the customers they are not aware of.”

One can easily extrapolate the above narration to the safety precautions to be taken in any public service setting e.g., healthcare, hospitality industry, movie hall etc.

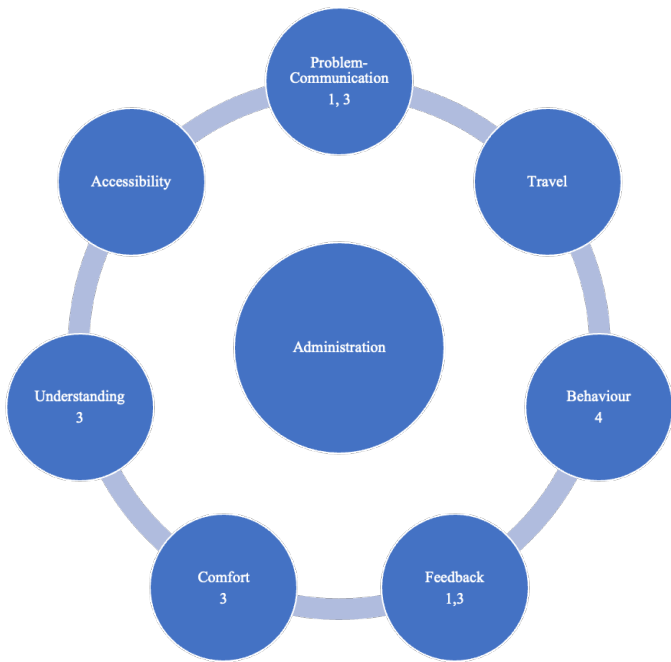
Administration – Feedback (7 occurrences): Feedback plays a key role in identifying opportunities to improve the service experience for customers. Equally, organizations need to find continuous ways of making use of the feedback and communicating with customers that actions have been taken. However and equally important in past few years is the relevance of social media in emotions as expressed by customers of any organization (Sorensen, 2021). Dichotomous behavior is equally concerning as explained in a narration by a cabin crew member:

“When we go layovers and all if they're staying in the same hotel, you somehow there are so many people who come up and they're like ma'am, optimally fight back. So that time they're very sweet. They are very nice on board when they step in or something strikes on them and they become absolutely rude. They think you know whether they are here to serve us or not service they start treating like you are a slaver. So then their personality, their behavior change. And it's very difficult for us also to you know, make them understand technically like you know, we are also humans, we can also feel bad about the same thing. If you explain it to them later that is totally fine. But then at that point of time, they'll shout they'll make a scene out of it. And social media too has been a key factor in all this because whatever happens if you try to explain them the next move will be the takeout their friends will start making a video that you know staff is doing this and that. So I think people are becoming very insensitive”

In summary, relationships between the administration and communication code categories and customer value co-creation behaviors of task compliance, service awareness, service expectation and citizenship behavior are key. Figures below shows us these relationships in a visual format.

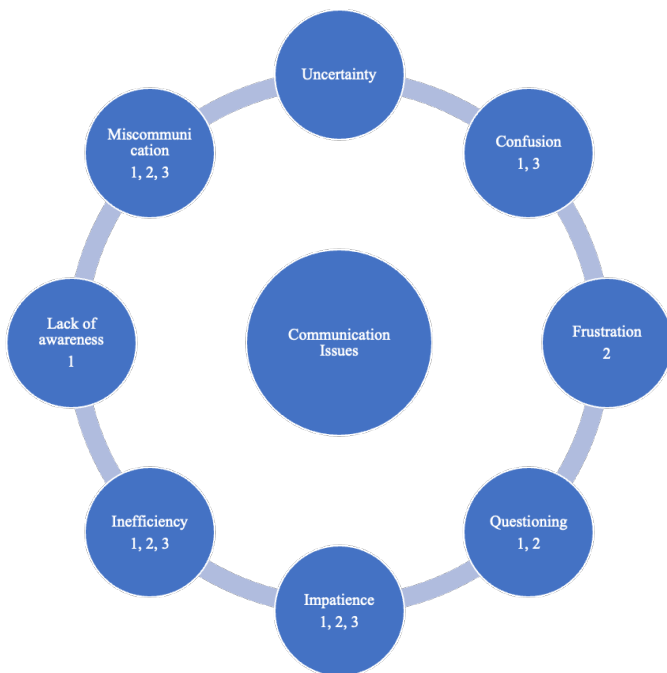
The intention of this qualitative analysis present an inside-out view of the organization in terms of the value co-creation behaviors. These are some of the expectations that the employees have with respect of how customers could participate in the efficient enactment of the routines (after all customer is the primary co-creator of value).

By gaining a deeper understanding of this phenomenon and from a different dimension I have been able to provide quantitative as well as qualitative support for my arguments and hypothesis that “*service awareness, citizenship behaviour and task compliance*” are key factors that contribute to greater customer satisfaction. Further, this also contributes to the external validity and generalizability of this research.



1. Service Awareness
2. Service Tolerance
3. Service Expectations
4. Citizenship Behavior
5. Task Compliance

Figure 24 – Administration - Value Co-Creation Behaviours



1. Service Awareness
2. Service Tolerance
3. Service Expectations
4. Citizenship Behavior
5. Task Compliance

Figure 25 – Communication Issues - Value Co-Creation Behaviours

I was able to generate AI summaries on the data gathered. These are included in the Appendix for further reference. Full interview transcripts and details of the codes are available for reference as required.

Chapter 6 - Theoretical Contributions

What Theory is Not?

The next step after having explained the Results and Analysis is the development of a Theory and summarizing the Theoretical contributions. The Academy of Management Journal (AMJ) publication guideline provides with a clear set of guidelines for publication in AMJ. One of those guidelines cites “theory development by citation” as likely the most common reason for rejection in this category. Researchers often state an explicit goal of developing theory, and therefore heavily cite existing literature, but are unaware of what constitutes theory development (George, 2012). Grounding explanatory logic behind hypotheses using citations is different from simply citing articles. As described in the literature review section, I used the integrative review approach to change, challenge, and fundamentally advance knowledge of the concepts, relationships, models, or theories embedded in the relevant literature. This is key for stimulating organizational phenomenon in a way that would not normally be anticipated from extrapolations of existing work, thereby advancing future work in an important and useful way (Cooper & Koenka, 2012; Cooper, 1982; Cronin & George, 2020; Elsbach & Knippenberg, 2020; Torraco, 2005; Torraco, 2016a, 2016b).

The other important aspect to pass the threshold for publication, a manuscript needs to have a research design that matches a compelling research question. I have elaborately described my research design, data collection, sampling methodologies. This is to address other prevalent reasons for rejection of publications in Tier 1 journals like AMJ. In my research, I have used both primary and secondary data which makes the research rich.

Having built the ground above, it is equally important to understand what constitutes or rather does not constitute a theory. Simply describing references, data, variables, diagrams, and hypotheses are not theory (Sutton & Staw, 1995). Rich literature exists on describing the process of theorizing itself and the distinctions between strong and weak theory in the social sciences (Dubin, 1976; Freese, 1980; Kaplan, 1964; Merton, 1967; Weick, 1989). The process of building theory is itself full of internal conflicts and contradictions. Writing strong theory is time consuming and fraught with trial and error for even the most skilled organizational scholars and few like James March, Jeffrey Pfeffer and Karl Weick were able to do it consistently (Sutton & Staw, 1995).

So, what is a good theory? A good theory emphasizes the nature of causal relationships, identifying what comes first as well as the timing of events. A strong theory delves into underlying processes to understand the systematic reasons for a particular occurrence or nonoccurrence (here, abduction is another technique to be considered). Often a good theory

goes deeply into the micro-processes and sideways into concepts from other theories, or even into a broader social phenomenon. A strong theory usually has a set of convincing and logically interconnected arguments. It can have implications that we have not seen with our naked (or theoretically unassisted) eye. It may have an impact that runs counter to our common sense (anomalies). A good theory explains, predicts, and delights (Sutton & Staw, 1995).

Considering, I have not undertaken a causal experiment in this research I present my contributions on the methodological, theoretical level in starting a new discourse, offering a set of models which could lead to further work towards theory formation. It would be naive for me to claim a fully tested theory.

Methodological Contributions

As described in the Chapters on Introduction, Literature Review, and Research Methods the methodological contributions that I make stem from bringing together the distinct value co-creation and organizational routines research.

The first methodological contribution that I have made is to have not only established the gaps that exist due to the so far independent nature of research in these two streams I have also put forward arguments for looking at value co-creation and organizational routines from each other's lenses. For example, I have established that one cannot simply ignore the "*institutional arrangements*" through which customer co-create value. Instead, organizations must take customer feedback as a rich source of data to analyze how customers interact with each of the routines (or proxies for routines) and make consistent efforts to change the routines to improvise the overall customer experience.

This argument is also well supported in the practice theoretical view of organizational routines (Feldman & Orlikowski, 2011; Labatut et al., 2012; Parmigiani & Howard-Grenville, 2011; Phipps et al., 2017; Wenzel et al., 2021).

Thus, and extending this further, the second methodological contribution that I have made is to take a practice theoretical view of how customer value co-creation behaviours change as routines change (e.g., technology, human, technology-assisted touchpoints). One of the core principles in practice theory is that of the linkages between materials, meaning and competencies. The qualitative data analysis that I have detailed in the research presents an opportunity to apply a practice theoretical lens to value co-creation behaviors. This can be further expanded by taking an agency theoretical perspective of whether the agency is with technology, human being or assisted (Murray et al., 2021).

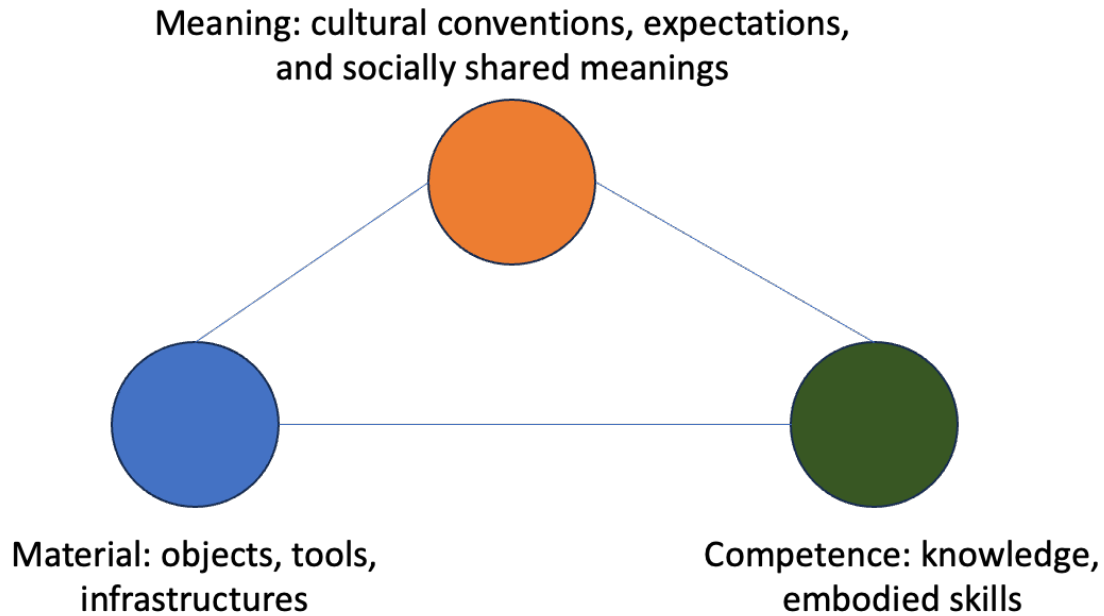


Figure 26 - Elements and linkages of sustaining practices - Adapted from Elizabeth Shove 2012

The third methodological contribution I have made is in deriving value co-creation behaviors from feedback on individual routines. In doing so, I have shown a novel way of utilizing customer satisfaction data to gain understanding of customer’s behaviors specific to various routines. This provides another way for conducting process studies on organizational routines, moving away from long held view that organizational routines are black boxes (Felin et al., 2012; Howard-Grenville & Rerup, 2016). The qualitative data analysis gives a set of insights into *performative* vs. *ostensive* aspects of routines including giving us clues on what actions organizations could take to keep the routines as close to their performative norm vs. the ostensive actual (e.g., customers are expected to board in sequence but, it’s a hotchpotch).

The fourth methodological contribution that I make is in effectively utilizing mixed-method research and triangulation. Using primary, and secondary quantitative data gives a solid empirical grounding to the hypothesis I present and their subsequent testing. By using qualitative data, I provide supporting solid arguments for key value co-creation behaviors identified for the successful enactment of organizational routines for getting greater customer satisfaction.

The final methodological contribution is in giving a new direction to discourse on value co-creation and organizational routines research. A glance at recent literature shows there is a growing interest AI-enabled services (Liu & Yang, 2023; Nunan & Di Domenico, 2022; Tuunanen et al., 2023). It is difficult to think of these topics in isolation and without interaction with various routines.

A New Model for Integrating Value Co-Creation Behaviors and Organizational Routines

In Chapter on Results and Analysis, I present a conceptual model for the interaction between value co-creation behaviors and organizational routines. Further to detailed results and the qualitative data analysis I propose a more nuanced model focusing on the key behaviors supported by the data.

I propose an *ACT model* which focuses on the “Awareness Citizenship Task” with the following linkages and explanations.

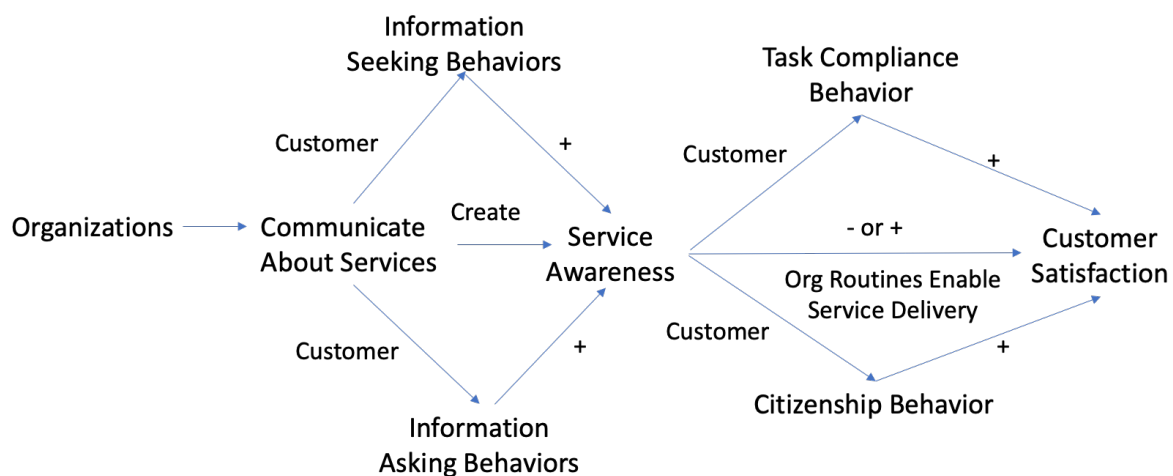


Figure 27 - ACT Model for Value Co-Creation, Org Routines and Customer Satisfaction

Organizations communicate about their services, service offerings. As I’ve evidenced through the qualitative data analysis communication is one of the key organizational routines and one that can create or destroy awareness about a service offering. However, simply creating service awareness isn’t sufficient as it’s a “push” mechanism and customers may not necessarily be receiving the intended messages. This is where the role of the customer value co-creation behaviors comes in whereby “*information seeking*” and “*information asking*” behaviors can positively influence “*service awareness*”.

Once “*service awareness*” is created it is incumbent upon organizations to devise routines which would enable the delivery of services promised. This is where the gap between service expectations and service experience could start to come in and unless the gap is within the zone of tolerance of a customer it could lead to drop in customer satisfaction (Anderson & Sullivan, 1993).

Digging a bit deeper into each of these areas, the first part of the ACT model is citizenship behaviors. The idea of customers as the “good soldiers” of a company and the

concept of customer citizenship behaviour (CCB) has been studied for 15 years (Groth, 2005). This behavior in the context of service industries is described as a set of voluntary and discretionary behavior that are not required for the successful production and/or delivery of the service but that, overall, help the service organization. Both my quantitative and qualitative data analysis proves that organizational routines that support the citizenship behaviors are adopted better in comparison to those that do not. For example, performing web check-in even though voluntary activity is adopted easily in comparison to pre booking of meals as customers do not necessarily see greater value in doing the latter i.e., don't get differentiated service (even though service awareness exists).

One of the key contributions of this research has been to start addressing the concerns raised regarding our conceptual understanding of CCBs (Gong & Yi, 2021). For example, I considered demographic characteristics and employee characteristics in my study on how citizenship behaviour could be affected. For example, I presented differences in citizenship behaviours between a first-time flyer vs. corporate customer vs. solo vs. group. Likewise, employee characteristics such as whether the employee was polite or not could affect citizenship behaviours.

Further to the gaps identified in the recent review on CCBs, the contribution of this research is also in enabling a detailed study of antecedents of CCB and key value co-creation concepts such as company resources and customer resources. In this case, one form of company resources is organizational routines and as such this study allows us to conceptualize and empirically test the links of CCB with the customer perception of value derived from the use of company resources on the one hand and interactions with company resources on the other hand (Assiouras et al., 2019; Yen et al., 2011).

The second part of ACT model is “service awareness”. Taxonomically there are a few other terms for this behavior e.g., service knowledge, service education. For example, service knowledge is one and studies indicate that investments in enhancing customers' service knowledge strengthen customer trust in an organization and thus can act as an important service differentiator. Customer education initiatives, however, also affect the impact of perceived service quality on the customer trust (Eisingerich & Bell, 2008). If organizations do not change their routines in line with the service expectations, then this negatively affects customer satisfaction as I have demonstrated.

As such, creating “service awareness” through a variety of ways e.g., artefacts (Glaser, 2017; Pentland & Feldman, 2008) can itself act as a valuable augmentation to the *service process* (read – organizational routines) through which firms may increase perceived value and

ultimately achieve deeper, more trusting relationships with their customers. Customers also face uncertainty as I've established through qualitative data analysis with regards what exactly a service is going to or supposed to offer. A firm's efforts in providing customers with critical information and explaining important service concepts to them can reduce this uncertainty (Eisingerich & Bell, 2008). This should be done irrespective of customer's familiarity with the service.

The third and final part of the ACT model is "*Task Compliance*." Marketing research has a term for this i.e., "consumers on the job" or "working consumers" (Azzari et al., 2021; Cova & Dalli, 2009). Theory on "working consumers" identifies the following research streams: 1 consumption experience 2 co-production in the service encounter 3 consumer resistance 4 service-dominant logic of marketing 5 collaborative innovation 6 consumer empowerment 7 consumer agency 8 consumer tribes (Cova & Dalli, 2009). Further, the nature of consumer's work is identified as follows.

First, consumers work whether or not they are aware of being 'workers', they do work. They contribute to the pleasure they feel when consuming in such a way that the value of that experience depends on their contribution. ACT model supports this in the way that the greater the service awareness, task compliance, the greater the customer satisfaction.

Second, when producing value, consumers interact with one another and (often) with company members (in my research there is direct interaction with the employees and/or supporting technology). From a practice theoretical perspective, communities are formed in which individuals work in collaboration with one another and contribute to the social and cultural capital of the community (Nicolini et al., 2022; Sorensen, 2021; Yen et al., 2011).

Third, consumers pursue personal purposes, such as satisfaction, pleasure, commitment, social interaction, etc. In general, consumers work in order to feel satisfied, gratified (on a personal level) and, sometimes, socially recognized. Examples of this could be frequently flying with the same airline (frequent flyer status), staying at the same hotel (reward club) (Cova & Dalli, 2009).

Fourth, companies participate in the performance of these activities. Sometimes, they are forced to when consumers (critically) ask for it, while other times they have to in order to increase their competitiveness. Sometimes they can choose not to participate, in which case they reject the value produced by consumers. The ACT model supports this theory by looking at behaviours when customers ask for specific service and the organization is obliged to provide for it. However, when it doesn't customer satisfaction dips.

Full Cycle of Research

My aim in doing this research was to do a full cycle research to the extent possible. The scientific process is described as involving five principal information components whose transformations into one another are controlled by six principal sets of methods (Wallace, 2017). Figure below depicts these principal components and the methods.

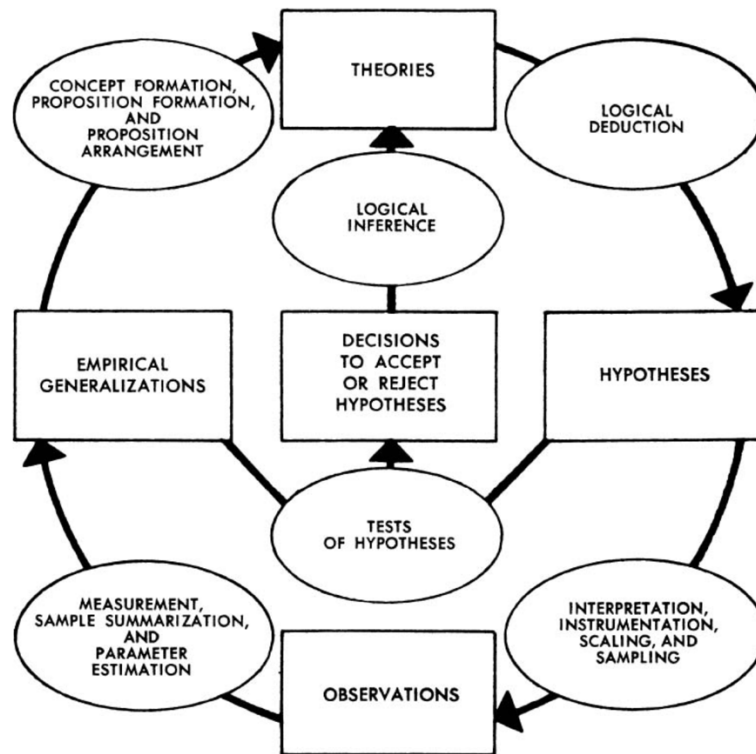


Figure 28 - Principal Components and Methods for Scientific Research (*The Logic of Science in Sociology*, Walter Wallace)

I started my research by drawing my ideas from current theories of value co-creation and organizational routines. I then logically deduce my hypothesis which involved the process of qualitatively interviewing organizational employees to help build my hypothesis. I adapted an existing measurement scale to run my own surveys (primary data). By performing quantitative analysis on this data I was able to identify key factors in value co-creation behaviours (independent variables) which contribute to customer satisfaction (dependent variable). Once these observations were available, to conduct an empirical generalization, I took a much larger dataset, put forward propositions and a refined set of hypotheses for testing. I complete the research cycle by reflecting on theories which could be used to explain the observed phenomenon and / or be extended to cover gaps in unexplained phenomenon. As an example, antecedents and micro foundations of value co-creation behaviours need to be studied in context of how changes in organizational routines are taking place.

Chapter 7 - Managerial and Policy Implications

There are three questions that any scientific research needs to address. These questions are vital ones to ask because their answers can inform us if the article is useful to the scientific record.

1. So what?
2. Is it rigorous?
3. Will it make a difference?

The answer to the “so what” question informs us if the contribution is original and / or even if not original is one that would contribute to cumulative research efforts? The “is it rigorous” answer informs us about the robustness, accuracy, and reliability of the research, and if it reflects the actual description, process, or causal relation uncovered. Finally, the “will it make a difference” answer gives an indication of the extent to which the findings can inform basic research in the fields of study. This would further our understanding of the building blocks of the phenomenon being studied. In the case of my research given the research is more applied in scope, the research should inform policy or practice (Antonakis, 2017).

Research in value co-creation and organizational routines indeed provides us with several avenues for managerial and policy implications. Practitioner journals (such as California Management Review, Harvard Business Review and MIT Sloan Review) have been focusing on particularly the former for nearly two decades. Managerial interest in value co-creation has received increasing attention primarily due to the prominence of the service economy, platforms, and adoption of digital technologies. Despite their importance, organizational routines have received scant coverage in practitioner literature with a few exceptions (Gopaldas & Siebert, 2022; N Lane et al., 2023; Nooyi & Govindarajan, 2020).

Managerial implications can be thought of in terms of the following matrix:

	How?	What?
When?		
Why?		

Table 42 - Conceptualizing Managerial Implications

In the context of my research following are some questions that can be asked as managerial implications:

- How can organizations benefit from increased transparency of organizational routines?
- How can organizations use Social Media Based Communication (SMBCs) to promote customer citizenship behavior?
- How does conjoined agency (technology + humans) affect customer satisfaction?
- When does service awareness go against customer satisfaction?
- What tasks (jobs) should organizations outsource to customers?
- What is the relationship between organizational identify and value co-creation?
- Why do organizations treat everyone the same?
- Why do social norms affect task compliance?

From a domain standpoint, my research has managerial and policy implications in many different areas but I focus on the following two:

- eCommerce and Digital Platforms
- Public Policy Formulation for Population Scale Platforms

I present my thoughts on each of these to lay the foundation for practical application of my research.

eCommerce and Digital Platforms

In today's age of "everything" digital - creation of value through actor engagement (often consumers and their associated social networks) interacting with organizing actors (often firms and their associated organizational ecosystem) has shifted from a physical space to a joint space of interactive system-environments. Prevalence of digital platforms (Amazon, Uber) over the past several years has led to development of a novel conceptualization of an offering as an evolving digitalized networked arrangement of artifacts, persons, processes, and interfaces. This is referred to as a digitalized interactive platform (DIP).

To that extent there has not been a more important time for practically using our knowledge of customer value co-creation behaviors and organizational routines. As far as customers are concerned, organizations must move from keeping routines as a black box for customers to a more transparent view which allows customers to actively feedback on the routines, understand the complexities involved and even help organizations in resolving problems faced during the execution of routines.

Effective use of SMBCs could also help managers engage customer's better to increase citizenship behaviours. For example, Instagram communities can be used to run campaigns

targeted at increasing service awareness, YouTube videos and WhatsApp messaging for creating service awareness amongst first-time service users.

There are many streams of research within the realm of platforms itself and a full-fledged literature review of integrating media, value co-creation and organisational routines would help in identifying the opportunities there.

Public Policy Formulation for Population Scale Platforms

Last few years have seen the launch of a slew of digital initiatives from governments across the world. The pandemic of 2020-2021 accelerated the pace of digitization and government's foray into areas such as healthcare, e-commerce, payments. However, whilst the government is doing its role in creation of these ecosystems, there is another equally important imperative for us as citizens and users of these platforms and that is one of "value co-creation". A key factor affecting adoption of platforms and citizen participation in the "value co-creation" activities is "trust" in these platforms.

A Marketplace for Public Services: The OECD Digital Governance Framework²⁰ lays down six pillars of a fully digital government a) Digital by design b) Data-driven public sector c) Government as a platform d) Open by default e) User-driven f) Proactiveness. In particular, the pillar on "Government as a Platform" focuses on achieving transformation at scale. Instead of undertaking transformation on a service-by-service basis, the model allows creation of an ecosystem that lets service teams focus on unique needs of their users, fostering different models of service delivery with those outside government and rethinking the relationship between citizen and state.

Further the Digital Government Policy Framework (DGPG), identifies a mature digital government platform as one that:

- is digital by design when govern and leverage digital technologies to rethink and re-engineer public processes, simplify procedures, and create new channels of communication and engagement with stakeholders.
- is data-driven when values data as a strategic asset and establishes the governance, access, sharing and re-use mechanisms for improved decision-making and service delivery.
- acts as platform when deploys platforms, standards and services to help teams focus on user needs in public service design and delivery.

²⁰ <https://www.oecd.org/governance/the-oecd-digital-government-policy-framework-f64fed2a-en.htm>

- is open by default when makes government data and policy-making processes available to the public, within the limits of existing legislation and in balance with national and public interest.
- is user-driven when accords a central role to people’s needs and convenience in the shaping of processes, services and policies; and by adopting inclusive mechanisms that enable this to happen.
- is proactive when anticipates people’s needs and respond to them rapidly, avoiding the need for cumbersome data and service delivery processes.

In this context, focus is on solving underlying challenges in public facing government service through use of digital technologies. The platform in effect becomes a marketplace for public, private and third sector delivery of services enabled by a strategic approach to data sharing, a trusted consent model for handling citizen data, open standards for interoperability and mechanisms for quality assurance. Such a foundation also enables multiple actors to contribute to provision of public services, taking different approaches to solve a given problem and provides citizens with the freedom to choose an approach which best works for them. None of this can be successful without active involvement of citizens of the country.

The Value Co-Creation Imperative in Public Digital Platforms: Building on the above and taking the view that platforms facilitate delivery of services the context here is in digital platforms assisting everyday practices in various domains (e.g., traveling, healthcare, agriculture). This means that a service activity should support some activities or processes of a customer, regardless of whether this customer is an individual, a household or a business organization. The role of government in this case is that of a co-creative enterprise wherein instead of taking an approach of “build it and they (citizens) will come,” but much more about “build it with them, and they (citizens) are already there.”

The Trust Imperative Trust in Public Digital Platforms: Trust in public digital platforms is a key factor affecting value co-creation. This is particularly important when the platform owner is the government and various participants are citizens of the country itself. Referring to the DGP principles, having an open by default approach provides a strong foundation for trust.

The Citizenship Behavior Imperative in Public Digital Platforms: The last principle of DGP refers to being user-driven and gives a central role to people’s needs and convenience in the shaping of processes, services and policies; and by adopting inclusive mechanisms that enable this to happen. This puts a lot of onuses on the citizens themselves to be “good soldiers”

as I have explained in previous chapters. Citizens should therefore be willing to participate in giving constructive feedback, being task compliant in so far as the public digital platforms are concerned.

Therefore, the findings of my research have widespread implications in making public digital platforms as effective vehicles of service delivery as far as the government is concerned. Equally, this research provides a strong way to measure the effectiveness of the citizen's participation behaviors and government processes (routines) that enable the service delivery.

Chapter 8 – Limitations and Directions for Future Research

Limitations

A commonly used phrase in academia in the context of doctoral research is that “a good dissertation is a complete one”. As such, this dissertation is no different and this final chapter highlights the limitations of the research as well as gives directions for future research.

The first and most important limitation of this research is that it needs to provide a causal relationship between the dependent and independent variables. During the course my research design, I proposed to conduct quasi-experiments (a form of randomized control trials) (Goldfarb et al., 2022; Shadish, 2002).

A quasi-experiment is a study that takes place in a field setting and involves a change in a key independent variable of interest but relaxes one or both defining criteria of laboratory and field experiments: random assignment to treatment conditions and controlled manipulation of the independent variable.

My key interest in running these quasi-experiments is to study the effect of changes in organizational routines knowing the value of co-creation behaviors of customers. For example, using interventions such as targeted communication from the organization pre-service, during service and after the service would give us insights into changes in customer behaviors when interacting with the various organizational routines. Use of a combination of visual cues targeted for first-time service users indicating them to understand the expected behaviors can get rich insights.



Figure 29 - Use of visual cues for changing customer behaviours

Considering the variety of demographics, quasi-experiments would give us rich insights into identifying which “changes” in organizational routines affect value co-creation behaviors and in what way (enhance/diminish). Socio-cultural differences, identity would likely serve as a key mediating variable.

The second limitation of this research is that it has been conducted for a physical service setting. The service itself is unique in that there are many human touchpoints, use of technology is increasing but has constraints given the industry is highly regulated and there are inherent limitations on bringing significant changes to organizational routines. A further set of studies involving a wider variety of industries / domains and particularly those involving heavier usage of technology could be conducted to gain diverse and even more generalizable set of insights. For example, a study of public digital platforms could give us rich insights into how effective policy implementations can be done using citizen engagement and changing the underlying processes (organizational routines) that enable the citizen service delivery.

The third limitation of this research has been in conducting moderation and mediation testing using advanced research methods such as Partial Least Squares – Structural Equation Modeling (PLS-SEM) (Babin et al., 2014; Breitsohl, 2018; Hall, 2007). SEM is not a single technique, but “a collection of statistical techniques that allow a set of relations between one or more independent variables (IVs), either continuous or discrete, and one or more dependent variables (DVs), either continuous or discrete, to be examined” (Henseler et al., 2014; Sarstedt et al., 2022).

In addressing these limitations, I hope I would be able to further enrich this research and gain an opportunity to publish the findings in top tier social science (marketing and organizational behaviour) journals.

Directions for Future Research

The first opportunity for future research that I find is conducting a refresher study of the micro-foundations of organizational routines and value co-creation in a modern setting. The last such study was conducted nearly 15 years ago and since then advances in technology; increased use of self-service has changed the very nature of organizational routines in most cases. A micro-foundations approach will allow us to focus on collective phenomena that need explanation, specifically the creation and development, and the reproduction and management of collective constructs such as routines (Barney & Felin, 2013; Felin & Foss, 2009; Felin et al., 2012).

The second opportunity for future research is to study the antecedents of the key value co-creation behaviours (service awareness, citizenship behaviour and task compliance). A

deeper study of antecedents such as customer characteristics, service characteristics, employee characteristics, organizational characteristics would provide deeper understanding of how each of these affect customer's contribution to value co-creation (Gong & Yi, 2021).

The third opportunity is to apply a service design lens to perform an integrated study of value co-creation and organizational routines. The design of a service refers to "a collection of elements or components that are organized for a common purpose as a system". Research on customer journeys, and job crafting could provide greater insights into (Azzari et al., 2021)the same (Gopaldas & Siebert, 2022).

The fourth opportunity is in terms of using a variety of research methods itself example further use of natural language processing to understand the performative and ostensive part of organizational routines using archival data on organizational processes, artefacts.

Overall, I believe and hope that my research has generated interest in a multi-disciplinary field of research at the intersection of marketing and organizational behaviour. By bringing together existing theories in both fields and advancing them with a new one or adapting them to each other one can look to further understanding of customer participation in creating value across organizational boundaries.

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Appendix

This appendix contains the following sections:

- Value Co-Creation Behaviors Survey - All Alumni v1.0
- Consent Form for Long Interview of Organizational Employee
- Semi-Structured Interview Guide
- Factor Analysis of Customer Satisfaction Survey
- AI Summaries of Qualitative Data

Value Co-Creation Behaviors Survey - All Alumni v1.0

Q21 Do you agree to proceed further and fill the survey?

Yes (1)

No (2)

Q2 What is primary purpose of your travel?

Leisure (1)

Business (2)

Q3 What's your age?

18 to 24 (2)

25 to 34 (4)

35 to 44 (5)

45 to 54 (6)

55 to 64 (7)

65 or over (8)

Q4 Gender

Male (2)

Female (4)

Other (5)

Do not wish to respond (9)

Q5 Which is your most preferred domestic airline in India?

- Indigo (1)
- Air Asia (2)
- Vistara (3)
- Goair (5)
- Alliance Air (6)
- Air India (7)
- Other (8)

Q6 When was the last time you undertook air travel?

- Less than 3 months (1)
- Between 3 and 6 months (2)
- More than 6 months (3)

Q7 Section 1 - Please respond to following statements with reference to your travel preferences.

	Never (1)	Rarely (2)	Sometimes (3)	Very Often (4)	Always (5)
I plan my travel in ADVANCE (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am FLEXIBLE about my choice of airline (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I PAY for my own travel (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am SENSITIVE to airfare fluctuations (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I pay ATTENTION to the service I receive from the airline (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I undertake INTERNATIONAL travel (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q8 Section 2 - Please respond to following statements with reference to your preferred airline. Service refers to services offered by the airline e.g., priority boarding, pre-booking of meals. Recall the various services you'd have availed and / or intended to avail.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
If service is NOT delivered as expected, I am TOLERANT (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If an employee makes a mistake during service delivery, I am PATIENT (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I have to WAIT longer than I normally expected to receive the service, I would be willing to ADAPT (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I have a useful idea on HOW to improve service, I let the airline know (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q9 Section 3 - Please respond to following statements with reference to various services offered by the airline e.g., priority boarding, pre-booking of meals. Recall the various services you'd have availed and / or intended to avail during your overall flying experience incl. other than preferred airline.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Whenever required, I ASKED others for information on service(s) offered (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Whenever required, I SEARCHED the information myself on HOW service(s) can be availed (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I paid ATTENTION to HOW others behaved in order to use the service(s) well (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q10 Section 4 - Employee here refers to airline employee (example - cabin crew member, airport operations staff at check-in counter, gate). Recall the last time you had to interact with an airline employee regarding a information or service request.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Whenever required, I was able to COMMUNICATE my needs clearly with the employee (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Whenever required, I PROVIDED the necessary information so that an employee can perform his or her duties (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I PERFORMED voluntary tasks (e.g., web check-in, declaring frequent flyer) to avail services (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I ADEQUATELY completed all behaviors expected of me e.g., boarding in sequence (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I FOLLOWED the employee's directives or orders (e.g., awaiting instructions to deplane, keeping seat upright) (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q11 Section 5 - Customers here refers to fellow passengers of the airline. Services here refers to the services offered by airline e.g., priority boarding, pre-booking of meals. Recall the last set of interactions you've had with fellow customers, friends, family regarding availing various services offered by the airline

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I ASSIST other customers if I observe they need help e.g., elderly passengers, pregnant women (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I give ADVICE to other customers on how to use various services correctly e.g., priority boarding (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am PATIENT in letting other customers avail services e.g., priority boarding, pre-booked meal service (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q12 Section 6 - Please respond to the following statement with reference to your preferred airline.

	Very Unlikely (1)	Unlikely (2)	Neither Likely nor Unlikely (3)	Likely (4)	Very Likely (5)
How likely are you to RECOMMEND the airline to your family and friends? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q13 Section 7 - Please respond to the following statements with reference to your preferred airline. Provide a satisfaction rating for each of the service experiences. Recall the last set of experiences that you had.

	Extremely dissatisfied (11)	Somewhat dissatisfied (12)	Neither satisfied nor dissatisfied (13)	Somewhat satisfied (14)	Extremely satisfied (15)
Ticket booking experience (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pre-travel information experience (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Check-in experience (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Boarding experience (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In-flight food experience (in case consumed) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Arrivals experience (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Baggage handling experience (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Customer service (call centre/website/chatbot) experience (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q14 Section 8 - Technology preferences

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (6)
I am COMFORTABLE using TECHNOLOGY to interact with the service provider (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I prefer using SELF-SERVICE (e.g., kiosk, web check-in) to HUMAN-ASSISTED (counter) service offerings (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I prefer using SOCIAL MEDIA to SHARE my experiences with the airline (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I prefer filling in the CUSTOMER SATISFACTION SURVEY to SHARE my experiences with the airline (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q20 Please respond to these questions to help fine tune this survey.

	Strongly disagree (6)	Somewhat disagree (7)	Neither agree nor disagree (8)	Somewhat agree (9)	Strongly agree (10)
Survey covers most aspects of my air travel experience (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had no difficulty in understanding the survey (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was able to stay focussed throughout the process of filling the survey (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Consent Form for Long Interview of Organizational Employee

Dear <<Employee>>

As part of its continuous efforts to improve customer experience at this airline it has undertaken a research project in partnership with Indian School of Business, Hyderabad, India. The purpose of this study is to establish ways in which the airline can engage with its customers to create service offerings of value to the customers. This study would be conducted through a large scale “anonymous” survey which is being administered separately to ISB alumni who may be flying with various airlines. The research also involves interviewing organizational employees like yourself engaged in undertaking various customer facing routines (practices and processes). The outcomes of this study will be used to design and develop new services that the airline may offer to its customers. All data collected as part of this research will be anonymous and used only for the purposes of this research study.

If you choose to participate, please listen carefully to the consent form below and verbally acknowledge your consent if you choose to participate in this research.

Methodology: This research would involve the researcher conducting a semi-structured interview in relation to the research question. Interview will be recorded purely for research purposes, subsequently transcribed and coded for further analysis by the researcher.

Timing: This interview will require approximately 1 hour of your time.

Confidentiality: All answers will be kept confidential by separating the information you provide from your personal information. Nobody other than the researcher and thesis committee members will know what you answered. We request you to provide us with honest responses to all questions.

Voluntary Participation: Your participation is voluntary which means you can choose whether or not to participate. You may choose not to participate in this research at any point. If you do so, responses that have already been provided will be retained only until the data collection phase of the study is complete.

Compensation: There is no compensation being offered to take part in this study

Risks: There are no known risks associated with your participation in this research beyond those of everyday life. Your participation will help the research since your views are important.

IRB: The results of this study will be used solely for research purposes. The research team will make every effort to keep all the information you tell us during the study strictly confidential.

If there is anything about the study or your participation that is unclear or have questions or wish to report a research-related problem, you may contact the Principal Investigator: Prof. S. Ramnarayan email s.ramnarayan@isb.edu at the Indian School of Business, Hyderabad, India.

For questions about your rights as a research participant, you may contact the Chair of the Institutional Review Board (IRB) at ISB: Professor Ashwini Chhatre at 040-2318-7134 or email ashwini_chhatre@isb.edu at the Indian School of Business, Hyderabad, India.

Semi Structured Interview Guide

- Respondents for long interviews would be identified using stratified and theoretical sampling techniques^{21,22}.
- Respondents will be selected based on customer facing organizational routines that appear in the text analysis of customer satisfaction survey. For example, typical set of respondents would be from airport operations, cabin crew, airport customer service (check-in, baggage handling), customer service & complaints, ticketing etc.
- Researcher must send the consent form to the respondent with the help of the respondents manager, research liaison from the organization ahead of the interview being setup
- Researcher must setup appointments with respondents before arriving on the site or setup a formal meeting in case interview is being conducted via remote communication means (Zoom, Microsoft Teams).
- Researcher must ensure that managers of the respondents are aware of the process, start and end time of the interviews and may take assistance in setting up the interviews, greatly simplifying the process.
- Approximately 1 hour is budgeted to conduct the interview. Before that interview questions would be carefully drafted, edited, pretested, and polished, allowing time for several iterations and feedback from colleagues. If possible, pilot tests with a few intended respondents (or people similar to them) can be the final step in refining the guide.
- Research must start the interview on time and thank the respondent for the meeting. After customary pleasantries, as the actual interview begins, researcher may start with a few extra easy, even throwaway questions to start a comfortable chat before the more serious inquires begin. To break the ice, respondents might be asked how long they have worked in the organization. After establishing some rapport, researcher may then turn next to more directly relevant but still nonthreatening questions.
- Researcher may then proceed to ask several open ended questions in relation to the research question and as per the questionnaire.

²¹ Breckenridge, J., & Jones, D. (2009). Demystifying theoretical sampling in grounded theory research. *Grounded Theory Review*, 8(2).

²² Cochran, W. G. (1977). *Sampling techniques*. John Wiley & Sons.

- Near the end of each session, nothing is wrong with asking for a moment to review the agenda guide to ensure that no key questions were missed. If time is running out, the interviewer will have to make a quick decision about whether to omit some of the remaining questions (and which ones), to ask to extend the visit a bit longer, or to request a short follow-up meeting at a later date. At the conclusion of the interview, the interviewer should thank the respondent cordially and confidently (not apologetically) for helpful comments. Before the day is out, the interviewer should send a short thank-you e-mail; this extra expression of appreciation makes a difference in how respondents remember the experience and the people involved
- Other important tasks should also be completed daily. Interview notes should be cleaned and clarified so they will make sense to other members of the research team (and to the original interviewer a few weeks later). If notes were handwritten, they should be entered into a computer right away, and even if a small computer was used to take raw notes, these notes still have to be reviewed and edited while fresh. Maintain a master list of any abbreviations used in the interview summaries. Even if the session was recorded, some additional documentation (date, time, site codes, and so forth) should be filed.

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Factor Analysis of Customer Satisfaction Survey

Rotated Component Matrix ^{a,b}			Rotated Component Matrix ^{a,b}		
	Component			Component	
	1	2		1	2
Staff_Efficiency_CheckIn	.835	.345	Staff_Efficiency_CheckIn	.853	.339
Staff_Efficiency_Baggage_Drop	.830	.335	Staff_Efficiency_Baggage_Drop	.847	.328
Staff_Politeness_CheckIn	.810	.374	Staff_Politeness_CheckIn	.837	.372
Web_Kiosk_CheckIn	.761	.399	Flight_Information_Screen_Boards	.753	.459
Relevant_Info_Before_Airport	.735	.454	Web_Kiosk_CheckIn	.748	.420
Call_Centre	.721	.467	Gate_Manager_Announcements	.734	.457
Flight_Information_Screen_Boards	.716	.503	Gate_Change_Handling	.715	.496
Website_App	.704	.480	Call_Centre	.700	.503
Gate_Manager_Announcements	.681	.522	Relevant_Info_Before_Airport	.698	.509
Query_Handling_Call_Center	.680	.526	Staff_Politeness_Boarding	.661	.557
Gate_Change_Handling	.676	.550	Website_App	.651	.539
Staff_Politeness_Arrival_Helpdesk	.658	.551	Bus_Experience	.646	.544
Staff_Politeness_Boarding	.656	.577	Query_Handling_Call_Center	.639	.559
Baggage_delivery	.637	.421	Staff_Politeness_Arrival_Helpdesk	.638	.584
Bus_Experience	.634	.554	Baggage_delivery	.608	.463
Ease_Booking	.609	.520	Ease_Booking	.603	.560
Quality_Snacks_Bought_On_Board	.326	.802	Announcements_Crew	.445	.798
Quality_Pre_Booked_Snacks	.318	.795	Quality_Pre_Booked_Snacks	.323	.784
Announcements_Crew	.466	.769	Crew_Attentiveness_Needs	.414	.779
Crew_Attentiveness_Needs	.453	.744	Quality_Snacks_Bought_On_Board	.343	.775
Ease_of_payment	.466	.741	Cabin_Cleanliness	.460	.760
Cabin_Cleanliness	.499	.733	Crew_Politeness	.464	.755
Upkeep_aircraft_seats	.471	.732	Upkeep_aircraft_seats	.476	.753
Toilet_cleanliness	.483	.730	Ease_of_payment	.483	.743
Crew_Politeness	.488	.726	Announcements_pilot	.446	.736
Announcements_pilot	.461	.707	Toilet_cleanliness	.466	.725

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.
b. Only cases for which Gender Select = Male are used in the analysis phase

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.
b. Only cases for which Gender Select = Female are used in the analysis phase

Table 43 - Customer Satisfaction Survey - Level 2 Org Factor Analysis with Male vs. Females

Rotated Component Matrix ^{a,b}			Rotated Component Matrix ^{a,b}		
	Component		Component		
	1	2	1	2	
Quality_Pre_Booked_Snacks	.908	.255	Staff_Efficiency_CheckIn	.839	.342
Toilet_cleanliness	.873	.427	Staff_Efficiency_Baggage_Drop	.834	.333
Quality_Snacks_Bought_On_Board	.860	.332	Staff_Politeness_CheckIn	.817	.372
Crew_Politeness	.802	.549	Web_Kiosk_CheckIn	.758	.401
Bus_Experience	.800	.509	Relevant_Info_Before_Airport	.728	.462
Upkeep_aircraft_seats	.800	.529	Flight_Information_Screen_Boards	.724	.492
Crew_Attentiveness_Needs	.793	.493	Call_Centre	.717	.474
Cabin_Cleanliness	.785	.560	Website_App	.695	.489
Ease_Booking	.752	.545	Gate_Manager_Announcements	.688	.511
Announcements_pilot	.751	.581	Gate_Change_Handling	.682	.539
Announcements_Crew	.746	.598	Query_Handling_Call_Center	.671	.533
Ease_of_payment	.738	.450	Staff_Politeness_Boarding	.653	.575
Flight_Information_Screen_Boards	.729	.627	Staff_Politeness_Arrival_Helpdesk	.652	.558
Website_App	.696	.547	Bus_Experience	.636	.551
Relevant_Info_Before_Airport	.680	.605	Baggage_delivery	.628	.430
Gate_Manager_Announcements	.454	.855	Ease_Booking	.610	.524
Staff_Politeness_Boarding	.470	.855	Quality_Snacks_Bought_On_Board	.330	.796
Staff_Efficiency_CheckIn	.390	.851	Quality_Pre_Booked_Snacks	.320	.792
Web_Kiosk_CheckIn	.451	.850	Announcements_Crew	.460	.775
Staff_Efficiency_Baggage_Drop	.304	.837	Crew_Attentiveness_Needs	.444	.751
Baggage_delivery	.416	.825	Ease_of_payment	.470	.740
Staff_Politeness_Arrival_Helpdesk	.556	.781	Cabin_Cleanliness	.490	.738
Staff_Politeness_CheckIn	.447	.774	Upkeep_aircraft_seats	.471	.735
Query_Handling_Call_Center	.527	.723	Crew_Politeness	.482	.732
Gate_Change_Handling	.655	.722	Toilet_cleanliness	.479	.728
Call_Centre	.557	.651	Announcements_pilot	.456	.713

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.
b. Only cases for which SUPR_Super_6E = YES are used in the analysis phase.

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.
b. Only cases for which SUPR_Super_6E = NO are used in the analysis phase.

Table 44 - Customer Satisfaction Survey - Level 2 Org Factor Analysis with Super Special Request vs. Normal

Rotated Component Matrix ^{a,b}			Rotated Component Matrix ^{a,b}		
	Component			Component	
	1	2		1	2
Staff_Efficiency_CheckIn	.832	.337	Staff_Efficiency_CheckIn	.841	.344
Staff_Efficiency_Baggage_Drop	.814	.332	Staff_Efficiency_Baggage_Drop	.839	.333
Staff_Politeness_CheckIn	.789	.405	Staff_Politeness_CheckIn	.824	.364
Relevant_Info_Before_Airport	.767	.401	Web_Kiosk_CheckIn	.760	.408
Web_Kiosk_CheckIn	.752	.382	Flight_Information_Screen_Boards	.721	.505
Flight_Information_Screen_Boards	.740	.445	Relevant_Info_Before_Airport	.716	.481
Call_Centre	.737	.455	Call_Centre	.710	.481
Gate_Change_Handling	.735	.467	Website_App	.687	.503
Gate_Manager_Announcements	.717	.456	Gate_Manager_Announcements	.686	.521
Website_App	.707	.456	Gate_Change_Handling	.670	.557
Query_Handling_Call_Center	.701	.488	Query_Handling_Call_Center	.664	.543
Bus_Experience	.683	.487	Staff_Politeness_Arrival_Helpdesk	.653	.567
Staff_Politeness_Boarding	.677	.544	Staff_Politeness_Boarding	.653	.579
Staff_Politeness_Arrival_Helpdesk	.661	.517	Baggage_delivery	.641	.441
Baggage_delivery	.601	.386	Bus_Experience	.625	.567
Ease_Booking	.600	.519	Ease_Booking	.607	.534
Quality_Pre_Booked_Snacks	.279	.805	Quality_Snacks_Bought_On_Board	.335	.800
Quality_Snacks_Bought_On_Board	.310	.805	Quality_Pre_Booked_Snacks	.331	.797
Crew_Attentiveness_Needs	.431	.753	Announcements_Crew	.456	.781
Announcements_Crew	.501	.734	Ease_of_payment	.460	.750
Crew_Politeness	.477	.721	Upkeep_aircraft_seats	.460	.750
Ease_of_payment	.506	.703	Crew_Attentiveness_Needs	.452	.749
Cabin_Cleanliness	.529	.686	Cabin_Cleanliness	.486	.748
Toilet_cleanliness	.538	.676	Toilet_cleanliness	.468	.739
Upkeep_aircraft_seats	.530	.666	Crew_Politeness	.487	.734
Announcements_pilot	.505	.645	Announcements_pilot	.449	.726

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.
b. Only cases for which CPTR_Corporate_Customer = YES are used in the analysis phase.

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.
b. Only cases for which CPTR_Corporate_Customer = NO are used in the analysis phase.

Table 45 - Customer Satisfaction Survey - Level 2 Org Factor Analysis with Corporate Customer vs. Non Corporate Customer

Rotated Component Matrix^{a,b}

	Component		
	1	2	3
Crew_Attentiveness_Needs	.814	.294	.289
Announcements_Crew	.807	.286	.316
Crew_Politeness	.802	.282	.342
Quality_Snacks_Bought_On_Board	.779	.380	.138
Announcements_pilot	.773	.225	.256
Quality_Pre_Booked_Snacks	.772	.356	.135
Cabin_Cleanliness	.748	.287	.366
Upkeep_aircraft_seats	.735	.334	.349
Toilet_cleanliness	.735	.324	.271
Ease_of_payment	.723	.438	.134
Gate_Change_Handling	.572	.559	.364
Query_Handling_Call_Center	.283	.817	.247
Call_Centre	.323	.781	.280
Staff_Politeness_Arrival_Helpdesk	.359	.675	.411
Gate_Manager_Announcements	.488	.633	.348
Staff_Politeness_Boarding	.519	.601	.366
Flight_Information_Screen_Boards	.497	.600	.387
Relevant_Info_Before_Airport	.497	.589	.382
Ease_Booking	.540	.585	.300
Website_App	.453	.572	.419
Bus_Experience	.477	.548	.286
Staff_Efficiency_CheckIn	.294	.276	.874
Staff_Efficiency_Baggage_Drop	.262	.282	.861
Staff_Politeness_CheckIn	.297	.320	.837
Web_Kiosk_CheckIn	.446	.449	.600
Baggage_delivery	.173	.475	.549

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

- a. Rotation converged in 5 iterations.
- b. Only cases for which FFWD_Fast_Forward = YES are used in the analysis phase.

Rotated Component Matrix^{a,b}

	Component	
	1	2
Staff_Efficiency_CheckIn	.837	.347
Staff_Efficiency_Baggage_Drop	.832	.337
Staff_Politeness_CheckIn	.814	.377
Web_Kiosk_CheckIn	.761	.398
Relevant_Info_Before_Airport	.733	.458
Flight_Information_Screen_Boards	.729	.488
Call_Centre	.718	.474
Website_App	.696	.488
Gate_Manager_Announcements	.694	.506
Gate_Change_Handling	.687	.534
Query_Handling_Call_Center	.671	.537
Staff_Politeness_Boarding	.657	.572
Staff_Politeness_Arrival_Helpdesk	.650	.562
Bus_Experience	.640	.551
Baggage_delivery	.625	.439
Ease_Booking	.612	.522
Quality_Snacks_Bought_On_Board	.330	.797
Quality_Pre_Booked_Snacks	.319	.794
Announcements_Crew	.466	.772
Crew_Attentiveness_Needs	.449	.747
Ease_of_payment	.475	.738
Cabin_Cleanliness	.495	.737
Upkeep_aircraft_seats	.475	.734
Crew_Politeness	.487	.728
Toilet_cleanliness	.484	.727
Announcements_pilot	.464	.709

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

- a. Rotation converged in 3 iterations.
- b. Only cases for which FFWD_Fast_Forward = NO are used in the analysis phase.

Table 46 - Customer Satisfaction Survey - Level 2 Org Factor Analysis with Fast Forward vs. Non-Fast Forward

Rotated Component Matrix^{a,b}

	Component		
	1	2	3
Quality_Snacks_Bought_On_Board	.819	.252	.188
Ease_of_payment	.791	.197	.291
Quality_Pre_Booked_Snacks	.787	.302	.188
Ease_Booking	.755	.128	.321
Website_App	.726	.305	.376
Crew_Attentiveness_Needs	.701	.392	.386
Call_Centre	.694	.327	.355
Relevant_Info_Before_Airport	.693	.377	.415
Upkeep_aircraft_seats	.686	.474	.263
Crew_Politeness	.657	.483	.330
Cabin_Cleanliness	.633	.547	.259
Announcements_Crew	.619	.606	.131
Baggage_delivery	.157	.769	.356
Gate_Manager_Announcements	.246	.735	.375
Announcements_pilot	.563	.691	.174
Gate_Change_Handling	.314	.641	.427
Query_Handling_Call_Center	.562	.631	.210
Staff_Politeness_Arrival_Helpdesk	.470	.616	.441
Toilet_cleanliness	.552	.586	.188
Bus_Experience	.433	.567	.479
Staff_Efficiency_CheckIn	.215	.212	.896
Staff_Efficiency_Baggage_Drop	.229	.265	.873
Staff_Politeness_CheckIn	.351	.257	.847
Web_Kiosk_CheckIn	.292	.239	.751
Staff_Politeness_Boarding	.360	.498	.698
Flight_Information_Screen_Boards	.507	.434	.582

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 a. Rotation converged in 7 iterations.
 b. Only cases for which SRCT_Senior_Citizen = YES are used in the analysis phase.

Rotated Component Matrix^{a,b}

	Component	
	1	2
Staff_Efficiency_CheckIn	.838	.345
Staff_Efficiency_Baggage_Drop	.833	.334
Staff_Politeness_CheckIn	.815	.373
Web_Kiosk_CheckIn	.758	.403
Relevant_Info_Before_Airport	.731	.460
Flight_Information_Screen_Boards	.725	.492
Call_Centre	.720	.471
Website_App	.697	.487
Gate_Manager_Announcements	.692	.510
Gate_Change_Handling	.683	.540
Query_Handling_Call_Center	.675	.529
Staff_Politeness_Arrival_Helpdesk	.655	.556
Staff_Politeness_Boarding	.654	.576
Bus_Experience	.635	.552
Baggage_delivery	.631	.429
Ease_Booking	.613	.523
Quality_Snacks_Bought_On_Board	.330	.797
Quality_Pre_Booked_Snacks	.320	.793
Announcements_Crew	.464	.774
Crew_Attentiveness_Needs	.445	.752
Ease_of_payment	.472	.740
Cabin_Cleanliness	.493	.737
Upkeep_aircraft_seats	.474	.734
Crew_Politeness	.483	.732
Toilet_cleanliness	.482	.728
Announcements_pilot	.459	.711

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

- a. Rotation converged in 3 iterations.
- b. Only cases for which SRCT_Senior_Citizen = NO are used in the analysis phase.

Table 47 - Customer Satisfaction Survey - Level 2 Org Factor Analysis with Senior Citizens vs. Non Senior Citizens

Rotated Component Matrix ^{a,b}			Rotated Component Matrix ^{a,b}		
	Component			Component	
	1	2		1	2
Website_App	.834	.299	Staff_Efficiency_CheckIn	.839	.343
Ease_Booking	.824	.303	Staff_Efficiency_Baggage_Drop	.833	.332
Call_Centre	.796	.375	Staff_Politeness_CheckIn	.816	.372
Query_Handling_Call_Center	.792	.415	Web_Kiosk_CheckIn	.760	.398
Ease_of_payment	.789	.501	Relevant_Info_Before_Airport	.730	.460
Gate_Manager_Announcements	.788	.419	Flight_Information_Screen_Boards	.725	.490
Relevant_Info_Before_Airport	.765	.467	Call_Centre	.717	.474
Gate_Change_Handling	.764	.448	Website_App	.694	.490
Flight_Information_Screen_Boards	.756	.551	Gate_Manager_Announcements	.692	.507
Staff_Politeness_Arrival_Helpdesk	.742	.539	Gate_Change_Handling	.684	.538
Cabin_Cleanliness	.728	.551	Query_Handling_Call_Center	.672	.531
Upkeep_aircraft_seats	.710	.572	Staff_Politeness_Boarding	.656	.573
Baggage_delivery	.694	.487	Staff_Politeness_Arrival_Helpdesk	.653	.557
Announcements_pilot	.690	.517	Bus_Experience	.635	.552
Toilet_cleanliness	.688	.521	Baggage_delivery	.629	.428
Crew_Attentiveness_Needs	.654	.595	Ease_Booking	.609	.526
Announcements_Crew	.614	.573	Quality_Snacks_Bought_On_Board	.329	.797
Quality_Snacks_Bought_On_Board	.611	.467	Quality_Pre_Booked_Snacks	.319	.794
Quality_Pre_Booked_Snacks	.560	.529	Announcements_Crew	.463	.775
Staff_Efficiency_CheckIn	.334	.878	Crew_Attentiveness_Needs	.445	.750
Staff_Efficiency_Baggage_Drop	.365	.867	Ease_of_payment	.467	.741
Staff_Politeness_CheckIn	.373	.862	Cabin_Cleanliness	.491	.738
Web_Kiosk_CheckIn	.581	.719	Upkeep_aircraft_seats	.471	.735
Staff_Politeness_Boarding	.529	.718	Crew_Politeness	.484	.731
Bus_Experience	.542	.686	Toilet_cleanliness	.480	.728
Crew_Politeness	.621	.643	Announcements_pilot	.457	.712

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.
b. Only cases for which WCHC_WCHR_Wheelchair = YES are used in the analysis phase.

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.
b. Only cases for which WCHC_WCHR_Wheelchair = NO are used in the analysis phase.

Table 48 - Customer Satisfaction Survey - Level 2 Org Factor Analysis with Senior Citizens vs. Non Senior Citizens

Rotated Component Matrix^{a,b}

	Component			
	1	2	3	4
Announcements_Crew	.867	.292	.248	.173
Upkeep_aircraft_seats	.847	.338	.234	.231
Cabin_Cleanliness	.790	.292	.161	.304
Announcements_pilot	.703	.232	.312	.392
Toilet_cleanliness	.671	.385	.103	.434
Staff_Politeness_Arrival_Helpdesk	.620	.475	.257	.329
Bus_Experience	.614	.568	.194	.085
Baggage_delivery	.499	.435	.260	.368
Website_App	.325	.807	.262	.317
Relevant_Info_Before_Airport	.388	.766	.234	.217
Call_Centre	.306	.761	.216	.439
Query_Handling_Call_Center	.450	.698	.184	.366
Ease_Booking	.317	.669	.386	.400
Gate_Change_Handling	.298	.648	.461	.017
Crew_Politeness	.519	.580	.449	.279
Web_Kiosk_CheckIn	.344	.515	.351	.505
Staff_Politeness_Boarding	.241	.268	.894	.061
Flight_Information_Screen_Boards	.167	.229	.872	.287
Gate_Manager_Announcements	.207	.230	.857	.203
Staff_Politeness_CheckIn	.042	.074	.715	.619
Crew_Attentiveness_Needs	.489	.419	.648	.143
Quality_Pre_Booked_Snacks	.378	.262	.177	.792
Quality_Snacks_Bought_On_Board	.351	.317	.221	.764
Ease_of_payment	.340	.566	.228	.602
Staff_Efficiency_CheckIn	.309	.288	.546	.599
Staff_Efficiency_Baggage_Drop	.372	.416	.459	.480

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

- a. Rotation converged in 7 iterations.
- b. Only cases for which STUD_Student = YES are used in the analysis phase.

Rotated Component Matrix^{a,b}

	Component	
	1	2
Staff_Efficiency_CheckIn	.840	.342
Staff_Efficiency_Baggage_Drop	.835	.331
Staff_Politeness_CheckIn	.817	.373
Web_Kiosk_CheckIn	.759	.401
Relevant_Info_Before_Airport	.729	.464
Flight_Information_Screen_Boards	.723	.496
Call_Centre	.717	.474
Website_App	.694	.491
Gate_Manager_Announcements	.689	.512
Gate_Change_Handling	.683	.541
Query_Handling_Call_Center	.674	.530
Staff_Politeness_Arrival_Helpdesk	.656	.555
Staff_Politeness_Boarding	.655	.577
Bus_Experience	.637	.552
Baggage_delivery	.633	.427
Ease_Booking	.607	.527
Quality_Snacks_Bought_On_Board	.328	.798
Quality_Pre_Booked_Snacks	.319	.794
Announcements_Crew	.464	.774
Crew_Attentiveness_Needs	.443	.753
Ease_of_payment	.469	.742
Cabin_Cleanliness	.494	.736
Upkeep_aircraft_seats	.475	.733
Crew_Politeness	.482	.733
Toilet_cleanliness	.482	.727
Announcements_pilot	.459	.711

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

- a. Rotation converged in 3 iterations.
- b. Only cases for which STUD_Student = NO are used in the analysis phase.

Table 49 - Customer Satisfaction Survey - Level 2 Org Factor Analysis with Students vs. Non Students

AI Summaries of Qualitative Data

Airport Operations Staff – 1

Once the passengers are inside the plane, my duties include ensuring that all safety and security aspects are taken care of. I also work to send the flight on time, while considering the passengers' presence and safety. Additionally, I strive to fulfil any additional needs of the customers in a minimum amount of time.

Researcher Commentary: After passengers aboard the flight, the skipper (one who does the overall safety checks the airplane) ensures the cargo holds are closed and loaded correctly. They wait for the “chocks off” signal from the engineering team, indicating the brakes have been released. Upon arrival, they check the bay for any remaining items and ensure a smooth disembarkation for the passengers. Although not part of their job responsibilities, the skipper strives to provide a positive experience for passengers, especially first-time travellers. They have encountered angry and happy passengers, and aim to resolve any issues that arise. The skipper recounts a difficult incident where a passenger missed their international flight due to a delayed flight, but they were able to calm the passenger and find a solution. Overall, the speaker is happy in their role and has learned how to handle various passenger situations.

Airport Operations Staff – 2:

In the case of a delayed flight, the AOCs (Airport Operations Center) will communicate with the passengers about the delay and provide updates on the new departure time. They will also coordinate with the staff at the boarding gates to manage the boarding process and ensure that the passengers are informed about the delay. The customer behaviors in this situation can vary, with some passengers being understanding and patient, while others may express frustration or dissatisfaction with the delay. It is important for the AOCs and staff to address any concerns or queries from the passengers and provide them with the necessary assistance and support. Yes, the staff monitors the baggage on the belt and if they identify a bag from a connecting flight, they will pick it up and bring it to the baggage makeup area.

Researcher Commentary: The staff at the airport monitors queries, checks packages, and handles terminal changes and connecting flights. However, there was a difficult situation when several passengers arrived late and complained about not being accepted for their flight. The staff handled the situation calmly but suggested that better communication about closing times

and procedures could help avoid such situations in the future. Overall, the interview provided helpful insights for improving airport operations.

Airport Operations Staff – 3:

In summary, the employee describes their work at the check-in counter, reservation counter, and boarding gate. They mention that they mostly work at the boarding gate in a small station with limited infrastructure. They deal with non-profile passengers who often have difficulties understanding and following instructions. They also mention that politicians and VIP passengers often demand preferential treatment without charges. They mention facing challenges such as delayed flights and angry passengers. However, they find satisfaction in helping senior citizens and appreciative profile passengers. They also mention handling requests for wheelchairs and adding infants to bookings. At the check-in counter, they deal with passengers who may have missed their flights and offer alternate options and accommodation. They also handle unaccompanied minors. They mention the challenges of dealing with non-profile passengers who may not understand the policies and procedures. They emphasize the importance of transparency and effective communication in handling passengers. They mention that most passengers understand and cooperate, but there are some who may become threatening, in which case they involve managers to handle the situation. They also mention that passengers mostly communicate in Hindi and may not understand signages at the airport.

The encounter described involves a politician who is traveling with excess baggage and refuses to pay the charges. The airport staff try to handle the situation by following the protocols and making the politician aware of the charges. The politician takes a long time to make phone calls and tries to get special treatment due to their status. Ultimately, the airport staff follow the policy and ask for payment. The encounter highlights the importance of consistency in dealing with passengers and the challenges faced in managing the boarding process. The interviewee also mentions the difficulties faced in handling delayed or cancelled flights and the impact on passengers. Overall, the interviewee expresses their enjoyment of their work and commitment to providing a good customer experience.

Researcher Commentary: Some passengers need help navigating the process using keypad phones, leading to offloading. Volunteers help by using their mobile phones to generate and print the passes. However, if they are busy, they cannot assist and the passengers are offloaded.

Some passengers only know how to use basic phones for calls and need help understanding SMS or messages. The speaker has an idea to address this issue but has yet to share it at the moment.

Airport Operations Staff – 4:

At the checkout counter, the main services provided are check-in, handling of excess baggage, and resolving customer queries. The behavior of customers can vary, with some being polite and understanding, while others may be rude or unhappy due to flight cancellations or changes. In such situations, the customer service team tries to apologize and offer the best possible solutions, such as rebooking or refunds. They also handle inquiries about reservations and provide information on fares, flight status, and required documentation. If customers need to pay for excess baggage, the team informs them of the policies and tries to find alternatives or offer additional services to compensate for the inconvenience. In case of escalations or if customers insist on speaking with managers, supervisors are available to address the situation. The goal is to ensure customer satisfaction and provide a positive experience so that customers choose to fly with the airline again. The typical time spent at the checkout counter can vary depending on factors like crowd size and efficiency of the customer service team.

Researcher Commentary: The speaker mentions that they receive feedback from customers about their experiences with the airlines. They pay attention to negative feedback and take steps to improve their service. The speaker also expresses gratitude for the interview and offers to answer any further questions. The conversation concludes with both parties expressing thanks and saying goodbye.

Airport Operations Staff – 5:

The staff member explains that there are various demographics of passengers at the check-in counters, including business travelers, leisure travelers, elderly passengers, families with children, passengers with special needs, and international passengers. They highlight the importance of understanding these demographics to provide personalized and efficient customer service.

The staff member also discusses the different types of passenger behaviors they encounter, such as lively and engaging passengers, polite and respectful passengers, and angry and non-

compliant passengers. They emphasize the importance of treating all passengers equally and with respect.

The staff member mentions the importance of taking care of passengers with medical conditions or reduced mobility and providing them with necessary assistance. They also highlight the role of staff in handling delays, misconnections, and group behavior effectively.

The staff member explains that passengers in Delhi sometimes resist following security protocols but emphasizes that they are necessary for safety. They also mention that passengers may only sometimes understand the boarding process and the reasons for certain groups being called first, but they try their best to explain.

On the arrival side, the staff member mentions directing passengers to the correct baggage belts, engaging in conversation, and handling any damaged baggage situations. They share an example of a problematic situation where a flight had technical issues but the management handled it well.

Airport Operations Staff – 6:

At the boarding gate, we handle the final steps of the customer journey. We check the passengers' boarding passes, verify their travel documents, and assist with the boarding process. We also handle any last-minute issues or requests from passengers. The behaviour of the customers at the boarding gate varies. Some passengers are friendly, while others may be angry or demanding. We try to handle all situations calmly and professionally to ensure a positive experience for the passengers. We prioritize wheelchair passengers, pregnant ladies, and passengers travelling with infants during the boarding process. In case of flight delays or cancellations, we have to accommodate passengers on alternate flights and communicate the options to them. If passengers are not satisfied or refuse to listen to the available options, we try to convince them and provide the best alternatives within our capabilities. Managers are available at the counters to handle any escalated situations or if passengers want to speak to someone higher in authority. In such cases, the managers provide the same information and try to resolve the issues. The manager's involvement usually helps in calming down passengers and reaching a resolution.

In summary, the boarding process at the airport involves staff members making announcements and guiding passengers to their seats. Passengers from different sectors react differently, with

some being cooperative and others not following social distancing guidelines. Staff members communicate with passengers using microphones, and they have time to engage in small talk and answer questions. Passengers generally comply with boarding instructions and follow the assigned zones. However, there can be difficult situations, such as when passengers need the required identification. In one instance, a group of passengers with a wheelchair had to wait for about two hours before their issue was resolved. Overall, most passengers behave well, and staff members have positive interactions with them.

Cabin Crew Member – 1

The lead cabin attendant describes the daily routine of their work, which includes pre-flight briefings, equipment checks, passenger boarding, in-flight service, and post-flight debriefing. Passengers often do not follow the boarding sequence, and many prefer to store their bags in the overhead bins rather than under the seat. The lead cabin attendant also mentions that passengers generally follow instructions regarding fastening seat belts and opening window shades, but some may ask for the reason behind these instructions. During takeoff, it is common for passengers to try to get up or retrieve items from the overhead bins.

Researcher Commentary: The interviewee states that passengers sometimes get up from their seats when the seatbelt sign is on because they are not aware that they should not do so. Passengers who are ignorant of this are described as needing to be made aware of the airline's standard or instructions. The interviewee believes that if passengers are made aware of the rules through announcements or requests, they would comply. Language barrier is not seen as a significant issue as most passengers understand English or Hindi. In terms of in-flight service, the interviewee mentions that passengers generally want to be served and that there is a prioritization system for serving pre-booked or corporate passengers first. Regular customers who are served later may sometimes feel upset. The interviewee believes that the current procedure of serving pre-booked customers first is the best option and that expediting service is the best way to address customers' impatience. The interviewee also mentions an increasing number of passengers pre-booking their meals and varying dietary preferences. When it comes to collecting trash before landing, the interviewee states that most passengers want to leave the cabin clean for the next set of passengers. Passengers who do not comply with this are not easily explainable as everyone is different. After landing, passengers are anxious to disembark and may try to get up from their seats despite instructions not to do so. The interviewee also mentions that passengers generally respond positively when being wished at the end of the

flight. Passengers have multiple avenues to provide feedback, such as customer satisfaction surveys, email, and thank-you notes. The interviewee has not encountered any difficult situations with passengers recently or throughout their career at this specific airline.

Cabin Crew Member: 2:

The cabin crew described their workday, which includes reporting for briefing, discussing safety and customer service questions, and ensuring customers are comfortable during their *journey*. They mentioned that customers may have different reactions when boarding the aircraft, some respond nicely while others may be grumpy. The cabin crew also mentioned that passengers may not always follow instructions, such as boarding in a specific sequence. They highlighted the importance of customers remaining seated in their original seats during boarding for the safety briefing and to facilitate the boarding of wheelchair passengers and parents with infants. The cabin crew mentioned that some passengers may not pay attention during the safety demonstration, but it is a regulatory requirement and cannot be changed by the crew. Overall, the cabin crew strives to provide excellent customer service and make the journey comfortable for passengers.

In summary, the most important thing the cabin crew expects from customers is to behave in a cooperative and respectful manner throughout the entire flight process. This includes following safety instructions, being patient during boarding and deplaning, and being understanding of any limitations or challenges the crew may face.

Researcher Commentary: The person stays calm and composed in their aviation job by putting on their uniform, which somehow helps them to be patient and calm. They also have flatmates who are also crew members and understand their calmness.

Cabin Crew Member – 3:

The information about technical details is not shared transparently with passengers because they may need help understanding the technical aspects and it is not the responsibility of the crew to educate them on those matters. The crew's focus is on providing customer service and ensuring the passengers' comfort and safety. Sharing technical information may also cause unnecessary panic or confusion among passengers. Instead, the crew assures them that the delay is due to unforeseen circumstances and that they are doing their best to resolve the issue and minimize any inconvenience.

During the in-flight service, the behaviour of passengers varies. Some passengers are cooperative and follow the instructions given by the cabin crew, while others may be demanding or difficult to handle. Passengers may have special requests regarding meal choices or preference for certain seats. The cabin crew needs to be attentive and accommodating to these requests. Additionally, there may be instances where passengers become impatient or frustrated due to delays or any unforeseen circumstances. In such situations, the cabin crew needs to remain calm and handle the situation with professionalism and empathy. Overall, passenger behavior during the in-flight service can range from cooperative and understanding to demanding and impatient, requiring the cabin crew to adapt and handle these behaviors accordingly.

The main points discussed in this conversation are:

- The behavior and service provided by cabin crew during a flight, including attending to passengers' needs and meals.
- The difference in behavior between passengers who have pre-booked meals and those who have not.
- Examples of service recovery, such as providing alternative food options or special arrangements for passengers with specific dietary requirements.
- The behavior of passengers during the landing and disembarkation process, including impatience and the need for cabin crew to enforce safety procedures.
- The importance of patience and understanding from passengers and the need for them to follow instructions from the cabin crew.
- The understanding that even cabin crew members travel as passengers and go through the same procedures as regular customers.

Cabin Crew Member – 4:

The cabin crew's work involves more than just serving food. They start their day by preparing for the flight mentally and physically. They go through briefings with the captain to ensure everyone understands their roles and responsibilities. Safety is their main concern, and they are trained to handle medical emergencies as well. During the flight, they switch between their safety role and customer service role, always prioritizing safety. Crew resource management is

important for effective communication and teamwork. While there is a hierarchy, the airline promotes a culture of making everyone feel comfortable and fostering clear communication.

The behaviour of passengers towards each other can vary. Some passengers may be friendly and interact with their fellow passengers, while others may prefer to keep to themselves. In some cases, there may be conflicts or disagreements between passengers, but cabin crew members are responsible for maintaining a peaceful and respectful environment on the flight.

I think one change that could positively influence customer behavior is better communication and transparency. If airlines can provide clear and accurate information to customers before and during their travel, it can help manage their expectations and prevent misunderstandings or frustrations. This could include providing detailed information about protocols and regulations, flight schedules, delays or cancellations, and any changes to services or amenities.

Additionally, airlines could invest in customer service training for their staff to ensure they have the skills and knowledge to handle difficult situations and communicate effectively with passengers. This could include teaching them how to empathize, listen actively, and respond calmly and respectfully even in challenging circumstances.

Furthermore, airlines could consider implementing feedback mechanisms or surveys to gather customer opinions and experiences, and use this information to identify areas for improvement. This could help them understand customer needs and concerns better and make necessary changes to their processes or services.

Overall, focusing on improved communication, customer service training, and gathering feedback can help create a more positive and respectful environment for both customers and airline staff.

Researcher Commentary: In summary, the person is discussing government regulations and customer service issues related to serving passengers on short flights. They suggest implementing block time scheduling to better allocate time for serving passengers. They also mention the importance of addressing baggage issues before boarding and making sure passengers are aware of any limitations. The person hopes that the insights from their conversation will lead to improvements in customer satisfaction and service outcomes.

Cabin Crew Member – 5:

The flight service manager's role includes checking the aircraft, prioritizing passenger safety and comfort, and managing the boarding process. They encounter a variety of customer behaviours, including drunk or late passengers, and handle these situations by smiling and greeting passengers. Boarding in the correct sequence can be challenging, especially with Arabic boarding. Passengers who are not regular flyers tend to cluster towards the back of the plane. Some passengers expect everything to be provided by the airline, while others are aware of the additional costs. Educating passengers is not always easy, especially when they are not receptive to instructions. In-flight service is provided differently due to COVID, and the flight manager tries to ensure passengers don't go hungry by offering snacks. Difficult situations arise when there is a lack of available food items, but the flight manager goes the extra mile to keep passengers happy. South passengers are easier to deal with, while partner passengers can be more challenging. It is difficult to say how to intervene in these situations. The most difficult part of the job is being a lead crew member and taking care of multiple responsibilities and making quick decisions.

Researcher Commentary: The speaker discussed the challenge of customers not wearing masks in the airport and on board the aircraft. They mentioned that staff need to check for masks, leading to delays and unhappy customers. They suggested that staff at the gate should only allow passengers to enter if they are wearing masks, and that passengers should have masks with them at the boarding gate. The importance of customer satisfaction and smiling was also emphasized.

Cabin Crew Member – 6

At the boarding gate, behaviours vary depending on the passengers. Some passengers may need to know which gate to go to or where their seats are located, so we guide them and assist them in finding their seats. We also help them with seatbelts and emergency exits. Overall, our goal is to ensure a smooth boarding process and a comfortable experience for passengers.

Researcher Commentary: The speaker discusses the importance of starting boarding early to ensure flights are on time, but acknowledges that sometimes delays and cancellations occur due to weather, operational issues, maintenance, or technical problems. They emphasize the need to inform passengers truthfully about the reasons for delays and offer them alternative

options such as snacks, tea, or booking flights on other airlines. The speaker suggests that the airline should consider providing vouchers or alternative travel options for passengers whose plans are disrupted by cancellations. They also share a difficult incident where passengers got upset and abusive due to a flight cancellation, but the team managed to calm them down and arrange alternative options, leading to customer appreciation.