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PhD Doctor of Philosophy in
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The Journey of a Value.

Comprehending, evaluating and recovering the value of service experiences.

Dissertation proposal submitted in partial fulfillment of the Degree PhD in Business and Socioeconomic Sciences

Approved by Prof. Dr. Astrid Dickinger, supervisor

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AFFIDAVIT

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ABSTRACT

The preamble and the three studies of the dissertation proposal are designed to answer two research questions. First, "*What is the anatomy of service experience value from customer and provider perspectives?,* followed by *"How do contextual factors influence the service provider's capacity to recover valuable service of failed?".* The preamble introduces the concept of value, outlining its evolution, emphasizing the critical disparities among the dominant research perspectives and justifying the urgency of the present research. The proposal adopts the Grönroos-Voima value model to tap into value co-creation processes across three spheres: customers, service providers and joint sphere. This is done by uncovering the structure of the customer value-in-use perceptions (Study 1), evaluating service providers' value proposition against those perceptions (Study 2) and assessing the impact of service recovery actions on customers forgiveness and service expectations in the context of varying prior service experiences and harm direction (Study 3). The scope and research questions of the three studies are founded on theoretical developments from multiple disciplines, most notably consumer behavior, psychology, marketing and information systems research. The studies were designed with the intention to contribute to the theoretical understanding of value, but also to explore the potential of unconventional methodologies to address the needs of service research and industry practitioners, looking for effective ways to evaluate and improve service experiences.

Keywords: value-in-use, value proposition, service failure, service recovery, experience

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SDL – Service-dominant logic

GDL – Good-dominant logic

UGC – User-generated content

SFR – Service failure and recovery experience

PREAMBLE

Introduction

The breakneck technological development set up at the end of the 20th century transformed the context of service interactions. On the one hand, new technology has supported the optimization of service design and delivery processes, culminating in the abundance of choice and often saturated markets. On the other hand, customers resorted to technology as a source of information to navigate in the crowded market place, avoiding choice paralysis. In this context, service providers ability to facilitate value for the customers has become the key to winning them and sustaining competitive advantage (Woodruff, 1997). Consequently, value is identified as a pivotal construct in marketing, consumer behavior and service literature (AMA, 2017; Gummerus, 2013; Ostrom et al., 2015; Sánchez-Fernández & Iniesta-Bonillo, 2007), associated with satisfaction, quality judgements and behavioral intentions (Chen & Chen, 2010; Petrick, 2004; Prebensen & Xie, 2017; Sweeney et al., 1997). At the same time, value research is full of ambiguities with respect to definition, structure and measurement of value (Sánchez-Fernández & Iniesta-Bonillo, 2007). The ambiguities stem from the complex nature of value that involves the integration of resources and roles across spatio-temporal dimensions.

First, echoing the paradigmatic shift from Good-dominant (GDL) to service-dominant logic (SDL) (Vargo & Lusch, 2004), the understanding of value evolved from production-related value-in-exchange (Anderson et al., 1992; Bagozzi, 1975) to perceptual value – value-in-use (Grönroos & Voima, 2013; Vargo & Lusch, 2004). While the former is embedded in business operand resources and materializes at the point of exchange (i.e. purchase), the latter emerges in the collaborative consumption process, through resource integration – value co-creation. Consequently, service providers are deprived of the monopoly over the value creation process. Instead, value creation hinges on perspectives of multiple actors in the value-creating system (Vargo & Lusch, 2008a), or in the more extreme views, is wholly attributed to the customer (Grönroos, 2011; Heinonen et al., 2010). Acknowledging a pivotal role of the customer, value-in-use is defined as "the extent to which a customer feels better off (positive value) or worse off (negative value) through" (Grönroos & Voima, 2013) consumption experiences facilitated by the service provider. Value judgements are manifestations of confirmed or disconfirmed subjective expectations of the service experiences, which depend on personal characteristics, prior experiences, but also are shaped by communicated service offer. This definition highlights the urge for the decomposing of value from multiple perspectives, primarily those of a customer and other service beneficiaries (i.e. partners, suppliers, community), but also from service providers stances. Overemphasizing of either of the perspectives impedes design of the relevant and valuable service experiences.

Second, the scope of the actors – service beneficiaries considered for value conceptualization depends on the desired level of aggregation. In the current literature, value is theorized from either macro- or micro- perspective (Storbacka et al., 2016). The former is concerned with the firm-level analysis of value ecosystems to develop a holistic understanding of the value co-creation process across the value chain (Vargo et al., 2014, 2015). Macro-perspective value research is often criticized for lacking explanatory power necessary for guiding the managerial decision. The macro-level inquiry remains blind to the individual perception and contribution of the actors to the value co-creation in question (Grönroos, 2017). Hence, zooming into the micro perspective in necessary for decomposing collective concepts to understand the nature of value-in-use and goals of individual actors (i.e. service provider and customer) in the value system, along with the contribution of those actors to value co-creation (Storbacka et al., 2016).

Finally, the extant literature lacks an agreement in regards to value measurements. The traditional uni-dimensional approach (Agarwal & Teas, 2001; Brady & Robertson, 1999; Cronin et al., 2000; Valarie A. Zeithaml, 1988) is often criticized for being a simplistic (Sánchez-Fernández & Iniesta-Bonillo, 2007) and limited (Mathwick et al., 2001) representation of value, deficient for informing value improvement measures. Hence, value evolved as a multidimensional construct, comprised of dimensions that express customer value perceptions (Gallarza & Gil, 2008; Holbrook, 1999; Sheth et al., 1991). Yet, the structure of value varies with the theoretical positions (Sánchez-Fernández & Iniesta-Bonillo, 2007) and across application contexts, prompting for further research. In this context, the rise of information technology create an opportunity for development of adaptive service evaluation solutions for leveraging the complex and dynamic nature of value (Augenstein et al., 2018). These highlighted issues define the need for further value-research, feeding the motivation for the three studies included in the dissertation proposal.

Positioning of the dissertation within existing research

Though "value" is not a novel concept, until the early 1990s it received limited attention in the service literature (Eggert et al., 2018). Discussions of value as associated with economic relations date back to Aristotelian theory of value, outlined over two millennia ago (Gordon, 1964). In Aristotle postulated that value emerges at the moment of exchange between customer and supplier, where both parties gain from each other. For example, customer "buys shoes for their use value; the retailer sells them for exchange value" (Dooley, 2005, p.6). Such conceptualization was typical for philosophers across centuries. For example, Adam Smith in his work Wealth of Nations (1776) emphasized the difference between value attributed to the exchange of the good (service) - *value-in-exchange*, in contrast to perceptual value that indicates utility of the obtained good (service) – *value-in-use*. While the weight of one value type over another depends on the object of exchange (i.e. water versus diamonds), value-in-use is completely disregarded in Smithsonian economic tradition. Instead, value remain synonymous to value-in-exchange.

Though the utilitarian conceptualization of value inherited from economics remained prevalent, early marketing literature viewed value as a perceptive construct, reflecting customers cognitive evaluation of the exchange process (Alderson & Shapiro, 1957; Bagozzi, 1975; Kotler, 1972). "Value is completely subjective and exists in the eyes of the beholding market. Marketers must understand the market in order to be effective in creating value." (Kotler, 1972, p. 50). Value-in-exchange is defined as a perceived trade-off between (monetary) benefits and sacrifices related to the consumption process, often referred to as perceived value (Valarie A. Zeithaml, 1988). In other words, the value reflects psychological satisfaction or pleasure obtained from taking advantage of the financial terms of the price deal" (Grewal et al., 1998, p. 40). However, in the exchange view, the value is embedded in the product or service. This implies a central role of the service provider in designing and providing service offering - *value proposition*, for subsequent evaluation by the customer (Anderson et al., 1992; Flint et al., 1997).

Ensuing developments in psychology and establishment of behavioral economics has challenged the assumption of the customer as rational decision-maker. Kahneman et al. (1991), Thaler (1985), Tversky & Kahneman (1974) to name a few, demonstrated that customer decisions are inherently biased by emotions, heuristics or situational factors. These developments set foundations for paradigmatic changes from GDL to SDL in marketing and service science (Vargo & Lusch, 2004), with subsequent evolution of value conceptualizations. SDL emancipates value from classical economics' legacy, bringing customers to the center of the value system. Instead of being imposed on the customer, value is "determined by the customer on the basis of *value-in-use*" (Vargo & Lusch, 2004, p. 7), the perspective adopted in the current dissertation proposal. Value-in-use defined as the extent to which customer feels better off (positive value-in-use) or worse-off (negative value-in-use) as a result of the service experience (Grönroos & Voima, 2013). Contrary to the exchange perspective, value-in-use is not embedded in the service offering but is co-created through resource integration by service provider and customer. Phenomenologically defined value-in-use is dynamic, shaped by both internal customer characteristics (i.e. knowledge, personality trains, experience) and external factors (i.e. group membership, environment) etc. Value-in-use of perceived customer value is relative, contextual and dynamic. In this context, the role of the service provider is reduced to design and communication of *value proposition,* that serves as an invitation to partake in the service experience (Chandler & Lusch, 2015).

Importantly, the presented conceptualization of value is not a monolith. The complexity and dynamism of the value result in a multiplicity of conceptualizations and approaches to value research. Those can be grouped according to the level of value inquiry, perspective on, temporal aspects of value creation and measurement approaches.

Level of value creation

In the extant literature value studied from different levels of aggregation: macro- or societal level, meso- level when interaction happens in triads and micro- level of dyadic interactions (Chandler & Vargo, 2011). Zooming out to macro- and meso-level opens a holistic perspective on value co-creation, which happens among wide networks of actors (i.e. employees, partners, government). Each actor in a network acts as "resource-integrating, service providing enterprise" (Vargo & Lusch, 2011, p. 181) in "simultaneous exchange processes" (Chandler & Vargo, 2011, p. 35). The interaction within the network are framed by institutions (i.e. rules, norms and practices) and institutional arrangements (i.e.

independent collection of institutions) (Vargo & Lusch, 2016). Macro- and meso-perspectives are hence useful for studying service systems, the role of the individual actors as well as the structure of their relations (Maglio & Spohrer, 2008; Vargo et al., 2008). However, such all-encompassing value is “difficult to observe empirically” (Storbacka et al., 2016) which is problematic from a decision-making perspective. Hence, advancing understanding of value creation requires micro-foundations that reveal roles, goals and perspectives of individual actors to underpin macro-constructs (Grönroos, 2017; Storbacka et al., 2016).

Micro-level is the more established perspective on value creation, which is also employed in this dissertation proposal. It allows to zoom into individual experiences as well as the dyadic interaction among individual actors in the value system (i.e. customer-supplier) (Chandler & Vargo, 2011). The “interactions are guided by specific expectations for engagement and whether or not those expectations are met or exceeded greatly impacts the value created in a given interaction or exchange” (Akaka & Chandler, 2019, p. 142). Micro-level inferences include definition of value structures and subjective value outcomes (Gummerus, 2013).

Importantly, the levels are not isolated but interconnected with a network of horizontal and vertical ties. For small changes in individual value perceptions at the micro-level are inevitably reflected throughout the value ecosystem on the meso- and macro-levels (Frow & Payne, 2019). Thus, an in-depth understanding of value phenomenon requires constant zoom in and zoom out between levels of aggregation (Chandler & Vargo, 2011).

Perspectives on value creation

According to Grönroos & Voima (2013), value is created in one of the three perspectives or spheres: a *provider, a customer and a joint sphere*. The degree of equilibrium and the locus of value creation (*in which of the spheres is the value created?*) hinder upon the paradigmatic view of value, summarized above. In the traditional, exchange paradigm, where value is embedded in a service offering and provided by the company, value creation is concentrated in the provider sphere. The role of the customer is limited to personal judgments of the value consumption outcomes (Flint et al., 2002), which happens during an exchange in the joint sphere. The judgements were primarily related to the perceived utilitarian characteristics of the service, technical interfaces, characteristics of physical service environment or employee interactions (i.e. price, accessibility, speed of service) (Bitner, 1992).

In the SDL paradigm the locus shifted towards co-creation of value as a function of service providers operand resources (i.e. elements of the service offering) and customers operand resources (i.e. competencies, knowledge) (Normann & Ramirez, 1993; Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2008a). Value cannot be supplied by the service provider. Instead, it is “uniquely and phenomenologically” defined as a result of resource integration and interpretation of the experience by stakeholders in the value system (Vargo & Lusch, 2008a). Hence, value co-creation happens mostly in the joint sphere, while some interpretations might continue in the customer sphere. The focus of this process falls beyond the utilitarian characteristics of the service but is linked to the holistic consumption experience (Baron & Harris, 2008). As mentioned above, the SDL perspective emphasizes the need for considering value creation at different abstraction levels. Hence, on the macro level, the customer sphere would be expanded to include a broader range of value system stakeholders – *value constellation* (Normann & Ramirez, 1993).

In the more extreme views, Customer-Dominant (CDL) (Heinonen et al., 2010) or Service logic (SL) (Grönroos, 2008), the locus of value creation deviates further towards the customer sphere. Value is not co-created, but it emerges upon customer integration of the resources provided by the company. Service providers design the *value proposition* – a promise of the potential value in the closed provider sphere. The potential value is transformed into *real* value – *value-in-use* when the service is experienced by the customer (Foglieni & Holmlid, 2017; Grönroos, 2008). From SL perspective, the role of the service provider is restricted to *value facilitation,* while the real value is created independently by the customer in the closed customer sphere in the post-experience stage (Grönroos, 2017; Grönroos & Gummerus, 2014). Importantly, value-in-use judgements do not happen in a vacuum, but are contingent on the influences of the social environment (i.e. face-to-face interactions, online opinions, reviews). At the same time, Grönroos (2017) emphasizes that value-in-use is rooted in the value co-creation process limited to the joint sphere. Such conceptualization often faces criticism from the SDL advocates, who suggest that SL view of value co-creation is akin to the micro-perspective of value creation in SDL (J. McColl-Kennedy & Cheung, 2018; Vargo & Lusch, 2017).

Approaching value creation from the micro-level perspective, this dissertation adopts a compromise view of value (co-)creation (Figure P.0.1). The author recognizes the central role of customer judgement in real value determination – referred to as value-in-use; while acknowledging the capacity of a service provider to contribute to value co-creation across service experience stages as well as in post-consumption realm. The latter is done by a) communicating the relevant *value proposition*, b) maintaining continuous communication and knowledge exchange with the customers in through feedback loops across the customer journey and c) integrating the knowledge back into the value proposition. The value creation process is not linear; it can be initiated by any actor of the value system. From this perspective, the critical question is “How does customer define value and how well are we (companies) providing it?” (Webster, 1994, p. 29). Hence, answer to the business competitiveness is not encapsulated in a single sphere, but requires the holistic knowledge of the service processes and stakeholder value determination.

Temporal aspects of value creation

The preceding discussion demonstrated that value is experiential, socially constructed and hence can be accumulated over time (Grönroos, 2017; Heinonen et al., 2010; Helkkula et al., 2012). Value creation is contingent on the complexity of human nature, as well as spatial, temporal and other contextual settings (Grönroos & Voima, 2013). Contrary to traditional GDL, temporal value creation is not restricted to the moment of product or service exchange. Instead, value emerges along the service lifecycle: during service experience, but also before and after the experience (Heinonen et al., 2010). This conforms Kahneman's conceptualization of human-made evaluations as a function of derived utilities: *experienced, decision, predicted, and retrospective utility* (Kahneman et al., 1997). Experienced and decisional utility reflect hedonic and rationally defined utilitarian value of the endured service experience. Predictive and retrospective indicate the expectation customer has prior to the experience and memories of those experiences (Berridge, 1999). This implies that value creation is a continuous process between customer expectations and memory of service experiences, which is comprised of multiple moments with different weights (Kahneman & Riis, 2005).

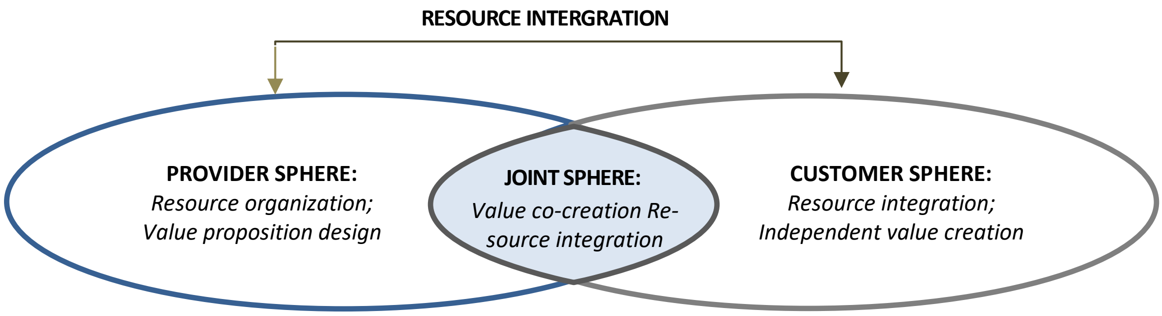

FIGURE P.0.1 THE GRÖNROOS-VOIMA VALUE MODEL
BASED ON GRÖNROOS & VOIMA (2013)

The experience is evaluated "by the value of the representative moment, which can be the feeling associated with its end or a weighted average of the ending moment and the most intensive one", referred to as peak and end rule (Kahneman & Riis, 2005, p. 286). Both moments reside within the actual service experience, creating the opportunity for service providers to steer the process towards improvement or destruction of value-in-use (Echeverri & Skålén, 2011). Given the intangible and phenomenological nature of service experiences, they are prone to failures which have a significant impact on service evaluations (Maxham & Netemeyer, 2002). Timely and adequate reaction to these incidents – service recovery, is capable of reestablishing pre-failure service evaluations or even lead to a higher evaluation, so-called service recovery paradox (McCollough et al., 2000). In the extant literature company's reaction to service failure incidents – service recovery, is related to positive service outcomes, like restored justice, trust, satisfaction or behavioral intentions (Kim et al., 2009; Anna S. Mattila et al., 2009; Maxham & Netemeyer, 2002; Roschk & Gelbrich, 2014; Vázquez-Casielles et al., 2010). These outcomes are also associated with value judgements, which justifies the use of service failure and recovery experience (SFR) in the context of value creation. Despite accepting the complexity and continuity of service experiences and value creation, most of the studies applied transactional approach to service evaluation, where customer opinion of service experience and reaction to service provider's recovery attempts are measured as a single-point-in-time event (Van Vaerenbergh et al., 2019). Such approach hence, ignores the question of how does the current experience fit into the continuum of value creation? In other words, how does the SFR experience influences predicted utility or expectations for forthcoming service experiences? - the question this dissertation seeks to address in Study 3.

Measurement approaches

There are two issues related to the measurement of value. The first is concerned with value conceptualization. In this context, the literature is divided between two camps - advocates of the unidimensional versus multidimensional value conceptualization (Sánchez-Fernández & Iniesta-Bonillo, 2007). Initially, value was viewed as a unidimensional construct, reflecting overall customer perceptions of the utilitarian value of the exchange (Agarwal & Teas, 2001; Brady & Robertson, 1999; Woodruff, 1997; Valarie A. Zeithaml, 1988). Value is measured with a single item or set of complementary items; or terms of perceived benefits versus sacrifices (Bolton & Drew, 1991; Dodds, 1991; Grewal et al., 1998; Zeithaml, 1988).

The critics emphasize that unidimensional conceptualization of value is too simplistic and does not reflect the complexity of customers' value perceptions, including utilitarian, to emotional and social aspects (Mathwick et al., 2001; Sweeney & Soutar, 2001a). The emerged multidimensional conceptualization treats value as a composite of "interrelated attributes or dimensions that form a holistic representation of a complex phenomenon" (Sánchez-Fernández & Iniesta-Bonillo, 2007, p. 431). For value is an "interactive, relativistic, preference experience" (Holbrook, 1994, p. 27) the dimensions account for affective and cognitive aspects of service evaluation. The scope and exact type of dimensions used for measuring value is a field for ongoing debates. The extant research can be divided into five research streams.

First, the *axiological theory of value* (Danaher & Mattsson, 1994; Hartman, 1967; Lemmink et al., 1998) is rooted in Hartman's (1967) model of value. Axiology conceptualizes value as a triad, composed of emotional, practical and logical dimensions. According to Danaher & Mattsson (1994), emotional reactions to consumption experience are decisive for overall value judgements.

Second, *the customer value hierarchy* theory (Parasuraman, 1997; Woodruff, 1997; Woodruff & Gardial, 1996) views value as a layered construct composed of consumption goals, consequences, attributes, as well as a trade-off between predicted and actual experience (Woodruff, 1997). To reflect the multiplicity of goals and customer contexts, parallel measurements should be conducted to various customer segments, like first-time customers, short-term customers, long-term customers (Parasuraman, 1997).

Third, Babin et al. (1994) proposed to measure value in terms of *utilitarian and hedonic* outcomes of consumption (Babin et al., 1994; Babin & Babin, 2001; Overby & Lee, 2006).

The fourth research stream evolves around the *Holbrook's typology of consumer value* (Holbrook, 1994, 1999; Mathwick et al., 2001; Oliver & Burke, 1999) is based on the axiological theory. Holbrook (1994) suggests value measurements based on three dichotomies: a) consumption drivers or motives – *intrinsic versus extrinsic*; b) orientations – *self- versus other-oriented*; c) involvement in the consumption – *active versus reactive.* Cross-combination of the six elements results in eight types of perceived value: efficiency, play, excellence, aesthetics, status, ethics, esteem and spirituality (Holbrook, 1999).

Finally, the *consumption-values theory* (Sheth et al., 1991; Smith & Colgate, 2007; Sweeney & Soutar, 2001; Williams & Soutar, 2009) views consumption as a function of multiple value types. In the original paper, Sheth et al. (1991) propose five-dimensional value structure - functional, emotional, social, conditional and epistemic. The weight of each value types to the outcome value judgements is relative and framed by personality traits and context. Further approbation of the framework across industries and contexts resulted in adjustments to the initial value structure. In some instances, the conditional value was disregarded from the model as it did not appear in the value judgements for tourism products (Williams & Soutar, 2000) or durable consumer goods (Sweeney & Soutar, 2001). The model was expanded to include other value types, like sacrifices (Smith & Colgate, 2007). Smith & Colgate's (2007) adaptation of the consumption-values theory serves as a theoretical anchor for value inquiries in the current dissertation proposal.

Despite discrepancies in conceptualization, the described measurement perspectives are consistent in methodological approaches to collection and analysis of value judgements. In most cases, customer opinions were collected by means of self-reported surveys. While well established, this method is resource-intensive and hence restrictive, when the research objective is as complex and fluid as value. This delineates the second issue related to value measurement.

Nowadays, especially in the business context, service evaluations require continuous monitoring to ensure timely and effective reaction to customer aspirations or service failures. The increasing number of social science scholars advocate that the potential solution resides in the intersection of social science and information system (IS) research, aka computational social science (Michael R. Alvarez, 2016; Lazer et al., 2009). While the idea of using technology to assist social science research is not new, the emerging question fueling scientific debates pertains to the place of Big Data and data analytics in developing social science knowledge. On the one hand, the proliferation of voluminous unstructured online content, especially user-generated content, creates a fertile ground for employing data analytics (i.e. text mining) to exploring, predicting and explaining consumer (value) perceptions and behavior (Dickinger & Mazanec, 2015; Gretzel & Yoo, 2008; Gunter & Önder, 2016; Inversini et al., 2010; Kirilenko et al., 2018; Költringer & Dickinger, 2015; Korfiatis et al., 2019b; Mankad et al., 2016; Y. A. Park & Gretzel, 2007). However, blind importing of data mining methodologies from IS to social science context often lacks theoretical foundation (see Mazanec, 2020). "Rather than testing a theory by analyzing relevant data, new data analytics seek to gain insights 'born from the data'" (Kitchin, 2014, p. 2). While such an approach can be fairly informative for obtaining insightful knowledge at the given research momentum, detachment from the wider scientific debate may prove to be ineffective for long-term theory construction (Kitchin, 2014). The recent failures in the artificial intelligence (AI) systems of the market leaders like Amazon or Netflix caused by the irrationality of consumer decision making in the times of crisis, proves the point (Heaven, 2020). Hence, rather than approaching data analytics as a theory-free empirical research design, a more sustainable approach is to treat it as a "a reconfigured version of the traditional scientific method, providing a new way in which to build theory"

(Kitchin, 2014, p. 6), which embraces the ambiguity of the data and allows for flexibility and contextualization to the theory construction. Importantly, the approach which Elragal & Klischewski (2017) describe as "light theory-driven" data analytics needs to be implemented across the data analytics cycle, including data acquisition, pre-processing, data modelling and interpretation – an approach attempted in the current dissertation proposal.

Research philosophy

The dissertation proposal is designed within a critical realist philosophical paradigm. The choice fits the nature of socioeconomic inquiry and reflects the author's understanding of reality. Critical realism has emerged in the intersection of positivism, which accepts the existence of external objective reality; empiricism, where scientific inquiry is limited to observable reality; and interpretivism, which emphasizes relative and contextual nature of reality. The realist ontology implies that reality exists on three layers: empirical or observable, actual or beyond observable and real or mechanisms causing the events in the upper layers. Probing into the observable phenomenon (i.e. individual behavior) allows drawing inferences about underlying processes and causal mechanisms that facilitate the former. For the objective of social science and business, research is a human, their behavior and interaction individually or within broader social and business structures (i.e. companies, societal groups.), the researched phenomena and the observed reality are a subject of continual change (Danermark et al., 2019). Understanding of the reality is limited by research context, but also by the author's knowledge and theoretical framework. Such epistemological positioning conveys versatility and complexity of social and business systems. The relevance of the research philosophy to the research context and selected methodologies of the three studies is presented separately in the respective chapters.

Research questions and synopsis of the studies

The three proposed studies are aimed at expanding the knowledge of service value formation processes by answering the two broad questions:

RQ1. What is the anatomy of service experience value from customer and provider perspectives?

RQ2. How do contextual factors influence the service provider's capacity to recover valuable service of failed?

These questions are answered in three studies, that, following the Grönroos-Voima value model (Grönroos & Voima, 2013), each tap into a different value co-creation sphere - customer (Study 1), provider (Study 2) or joint (Study 3). The flow of the research process and objectives of the individual studies are illustrated in Figure P.0.2.

Study 1 employs topic modeling to delve into the composite structure of customers' value-in-use perceptions in the hotel settings and to estimate the effect of travel party composition on the prevalence of the identified value-forming components. The analysis is based on a set of online hotel reviews of four-five-star hotels from six European cities.

Study 2 builds upon study 1 and uses a similar methodology to evaluate the appeal of the communicated value proposition of the hotel establishments in the sample. This is done by gathering online hotel descriptions, as a proxy for value proposition communication; merging the dataset with the collection of online customer reviews, as a proxy for value-in-use perceptions; then inferring value-forming attributes from the composed dataset; and, finally, assessing the alignment of the identified attributes in value proposition communications versus value-in-use perceptions.

Study 3 applies a service recovery journey perspective (Van Vaerenbergh et al., 2019) to assess the efficiency of company service recovery actions as a function of customers prior experience with SFR incidents and harm direction. The study is designed as an online experiment where the presence of prior SFR experience, recovery actions and harm direction are manipulated to estimate forgiveness and future service failure and recovery expectations.

The three studies are described in detail in the following sections of the proposal.

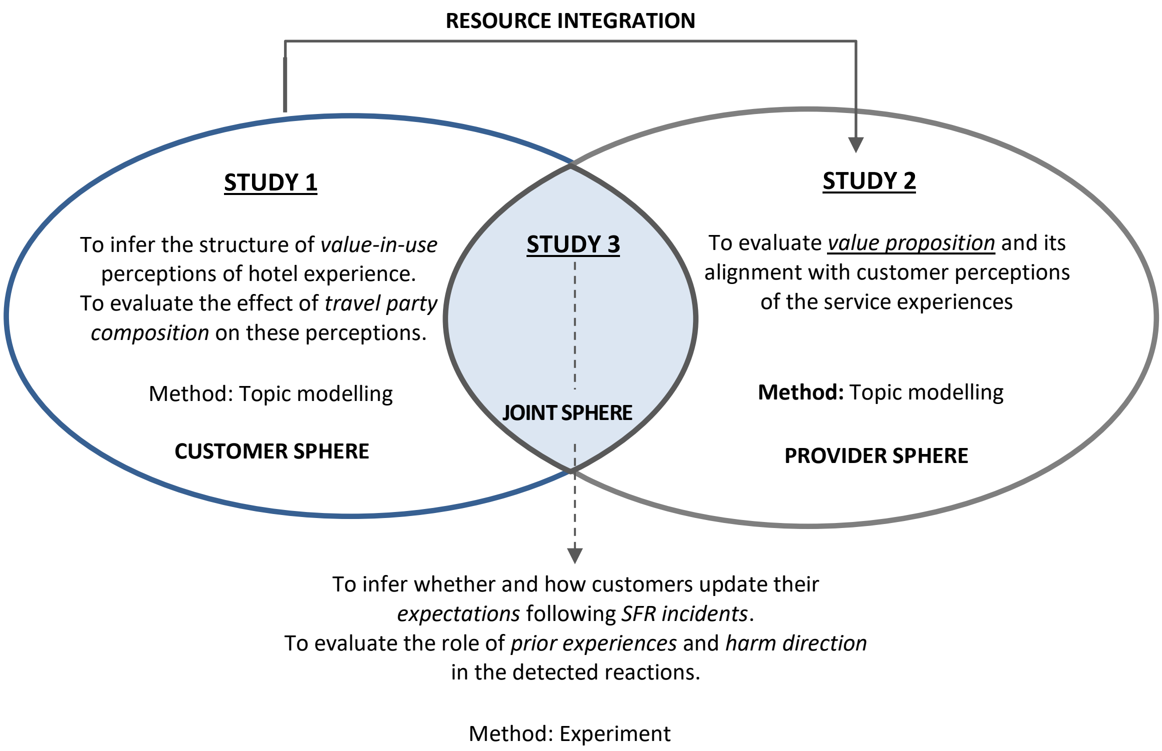

FIGURE P.0.2 RESEARCH FRAMEWORK AND OBJECTIVES
SOURSE: GRÖNROOS & VOIMA (2013)

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1 STUDY 1. MINING VALUE-IN-USE PERCEPTIONS FROM HOTEL REVIEWS

1.1 Introduction

Value is one of the most heavily studied concepts in marketing and service literature. Back in 1994, Holbrook described value as a “fundamental basis for all marketing activity” (Holbrook, 1994), while American Marketing Association has reviewed its’ definition of marketing to reflect the importance of value (AMA, 2017). Value is described as a cornerstone to differentiating a product, service or brand; creating competitive advantage (Parasuraman, 1997; Woodruff, 1997); attracting new customers and promoting loyalty (Williams & Soutar, 2009); facilitating financial and overall business success (McDougall & Levesque, 2000). Broadly defined as a trade-off between benefits and losses, “value” was initially adopted to assess the value of the physical goods (Cronin et al., 2000; Woodruff & Gardial, 1996; Valarie A. Zeithaml, 1988) and only later the conceptualization was adjusted to fit the needs of the growing service sector (Grönroos, 2008; Holbrook, 1999; Vargo & Lusch, 2008a). From the Service-Dominant logic (SDL) standpoint value is the result of the iterative co-creation between the service provider (i.e. hotel), customer and other service stakeholders (i.e. booking engines, review platforms) (Vargo & Lusch, 2014). The role of the service provider is to design a value proposition and communicate it to a consumer as a promise of the potential value. The final value – *value-in-use* - is further defined by the trade-off between perceived benefits and sacrifices of the individual’s service experience (Grönroos & Voima, 2013). The two incidents would subsequently result in perceived positive vs negative value-in-use (Plewa et al., 2015).

Notably, consumer-generated reviews or user-generated content (UGC) was not previously used to evaluate the composites of perceived value-in-use formation. The most recent advances in the field were either conceptual (Grönroos & Voima, 2013) or followed qualitative (Macdonald et al., 2011; Plewa et al., 2015) and quantitative (Prebensen et al., 2013) methodologies, using traditional research approaches (in-depth interviews, surveys). Whereas both methodologies are well-developed, they are prone to limitations that stem from (a) researchers’ capacity to process data and delineate complex relationships in the larger datasets; (b) respondents behavioral biases (social desirability etc.) and other (Fricker & Schonlau, 2002; Santiago-Delefosse et al., 2016). In this regard, the growing pool of computational methods for text analysis, specifically topic modeling methodologies, holds great potential for transforming the vast amount of unstructured textual reviews into consumer behavior knowledge while overcoming the biases of the traditional methodologies.

Over the past two decades, a substantial number of scholars has investigated UGC as a source to gather consumer behavior knowledge (Filieri, 2016; Park & Nicolau, 2015; Xiang & Gretzel, 2010). While traditional qualitative and quantitative methodologies (e.g. narrative, semantic or manual content analysis) are used, a growing number of researchers experiment with novel data mining (in particular, text mining) methodologies to harness the explanatory potential of the unstructured consumer feedback (Dickinger & Mazanec, 2015; Hu et al., 2019a; Kirilenko et al., 2017; Mankad et al., 2016).

Abundance and convenience of readymade text mining packages across the programming environments ("gensim", "lda", "spaCy" in Python; "jLDADMM", "MALLET" in Java; "topicmodels", "OpenNLP", "text2vec" in R), make these techniques accessible to the wider range of social science scholars. In tourism and hospitality research, topic modeling is among the most popular tools to extract latent variables from the large-scale unstructured textual parts of online consumer reviews (Guo et al., 2017; Mankad et al., 2016). "Amplifying and augmenting" the traditional methodologies, topic modeling has capacity for facilitating theoretical advances and inspiring new hypotheses regarding the well-established theoretical concepts, e.g. satisfaction, value, motivation (Banks et al., 2018; Grimmer & Stewart, 2013). At the same time, harnessing the full potential of these methodologies requires substantial statistical and programing training, which is still lacking among social science scholars (Banks et al., 2018; Ramage et al., 2009). Consequently, research applying topic modeling is often criticized for subjectivity and lacking robust criteria explaining model parameter choices (e.g. topic numbers). While remaining a promising methodology for tourism and hospitality research, foundations and guidelines need to be set forth to a) establish the credibility of this rising methodology, and to b) connect it to the existing value theories.

This study leverages the potential of (structural) topic modelling methodology *to infer the structural composition of value-in-use perceptions of the hotel service experience.* Additionally, it showcases the process for textual data analysis as a tool for assessing value perceptions. The results can benefit service scholars and practitioners in setting priorities when decomposing and designing valuable service experiences, as well as communicating the value to the consumers.

The article is structured as follows. The extant literature review of value-in-use conceptualization is followed by an introduction to topic modelling with a focus on the structural topic model (STM). After outlining the philosophical position, the study proceeds with the step-by-step guide through the STM model set up and the implementation process applying the algorithm to the value formation domain and examine 17,000+ positive and negative hotel reviews from Booking.com. This is followed by the presentation of results and discussion of implications for value research as well as practice. The study concludes with potential implications, limitations of the STM methodology and suggested areas for future research.

1.2 Theoretical background

1.2.1 Value-in-Use

In marketing literature, value is a fundamental concept used for explaining behavioral (i.e. satisfaction, loyalty, repurchase intention) and economic outcomes (i.e. competitiveness, revenue) of service consumption (McDougall & Levesque, 2000; Prebensen et al., 2013, 2016; Williams & Soutar, 2009). Enhanced understanding of value, structure and processes that aid its' emergence are instrumental for designing engaging experiences. Amidst the paradigmatic shift from goods-dominant to service-dominant logic (Vargo & Lusch, 2008a) or service logic (Grönroos, 2008), the conceptualization of value evolved from being designed and supplied by the service provider to being co-created by multiple actors of the service process, including customers, service providers or any other relevant stakeholder.

Naturally, business-owned resources integrated into the service offering are necessary for facilitating value creation. However, they alone are not sufficient for defining the outcome value of the service experience. No matter how well-designed, the service offering can only convey *value propositions,* a so-called potential value promise, that is yet to be digested by the customers through their experiences (use) into a perceived outcome value – *value-in-use* (Grönroos, 2008; Vargo & Lusch, 2008a, 2008b). This new logic implies an outside-in approach to the experience design process which starts from assessing *"how value emerges for customers and how through a sense-making process, customers construct their experience of value of a service provider's participation in their activities and tasks*" (Heinonen et al., 2010, p. 533). As to Grönroos & Voima (2013), the advance of the above-stated approach is hindered by the phenomenological nature of value-in-use that originates from the service experience as its' emotional and cognitive evaluation in customers' minds (Vargo & Lusch, 2016).

1.2.1.1 Positive versus negative value-in-use

As previously discussed, perceived value-in-use is strongly subjective and, among others, driven by the consumer's mental image of the desired service experience outcome – set of goals ranging from purely functional (*i.e. the low price paid, wheelchair accessibility etc.*) to hedonic or emotional (*i.e. proof of social status*) (Plewa et al., 2015). Consistent with the goal theory, service experience concludes with either customers benefitting from the service experience (when value propositions – value-in-use coincide) or sacrificing initial goals (in case of value proposition-value-in-use gap) (Macdonald et al., 2011; Woodruff, 1997). Not only can service experience increase customer's well-being, but also contribute to its' deterioration, which implies - value-in-use can also take a negative turn. Along these lines, Grönroos and Voima (2013) define value-in-use as "the extent to which consumer feels better off (positive value) or worse off (negative value) through experiences somehow related to consumption" (p.136).

The urge to treat value-in-use as a dual concept is explained by the human loss aversion bias. As the Prospect Theory (Daniel Kahneman & Tversky, 1979) suggests, all things equal, people prefer avoiding than make the comparable gain. Multiple experiments demonstrate that the psychological pain of losing is about twice as intense as satisfaction from gaining (Daniel Kahneman & Tversky, 2013). As a result, the negative emotions for an unfulfilled service promise may be much more enduring than the emotions from a seemingly positive failure-free experience. For service providers, it means that additional investment into a timely response to negative service experiences could be more lucrative compared to the similar acknowledgement of the positive appreciations. Nevertheless, it seems counter-intuitive that in the service literature, along with other customer evaluation constructs, like satisfaction or quality, value-in-use remains predominantly positive by inference. To the best of the author's knowledge, only a handful of studies explored value-in-use from both positive and negative stances (Echeverri & Skålén, 2011; Grönroos & Voima, 2013; Sweeney et al., 2018).

1.2.1.2 Role of travel party in value-in-use perceptions

The developments in behavioral psychology (Daniel Kahneman & Tversky, 1979; R. H. Thaler & Sunstein, 2008) suggest that customers evaluation and decision making are far from rational, but shaped by personal characteristics (*i.e. personality, culture*), values, feelings and memories, external factors (*i.e. social ecosystem*), goals, as well as cumulative experience. Collectively referred to as individual and situational factor, those characteristics mediate the way customers experience and make sense of the service encounters (Sandström et al., 2008). Whereas the dimensions of these factors are uncountable, travel party composition, examined in this study, has long been acknowledged among the significant mediators of tourist behavior (Wu et al., 2011). Vacillate dynamics of interaction across travel party contexts can potentially change the experience and hence, perception of value-in-use. According to Crompton (1981), presence of other group members (i.e. partner, friends, children) facilitates normative behavior with tourists needing to compromise their experience goals to minimize conflict (in case of friends) or promote the well-being of the travel partners (i.e. children). Quantity and type of travel companions influence destination (Basala & Klenosky, 2001; Crompton, 1981) and accommodation choice (Grigolon et al., 2013); travel expenditures (Rashidi & Koo, 2016); the importance of service attributes (Rhee & Yang, 2015) or satisfaction with the experience (Radojevic et al., 2015). Review of the literature on the topic revealed that the research of the travel party influence on tourist behavior skewed towards the pre-trip and on-trip tourist behavior, leaving potential differences in post-trip evaluations less explored. Considering interconnectedness of value with the above-mentioned concepts, presence or absence of other group members may affect experience evaluations.

Recognizing the complexity of the value-in-use phenomenon, tourism researchers and experience designers are now engaging into a quest for a deeper understanding of customer experiences in order to enrich the design process and stimulate value-creation.

1.2.2 Understanding Value-in-Use Determination

To understand how to integrate value-in-use into experience design practice it is essential to grasp the structure and processes behind value-in-use determination. Given the subjective nature of value-in-use, the inquiry needs to be done from the tourist perspectives. Addressing this issue, Tussyadiah (2014) draws attention to narratives "as a method to capture meaning and values from user experiences with designed objects and systems" (p. 552). Narratives and stories are an essential part of human identity. In daily life and business-related situations, humans rely on their story-driven brains to make sense of the experiences and further communicate these experiences (Stein, 1982). Unsurprisingly, despite its origins in literature research and anthropology, narratives are increasingly used in other disciplines, i.e. marketing (Lundqvist et al., 2013), tourism (Tussyadiah et al., 2011) and design (IDEO, 2013) as sources of empirical knowledge. Though often narratives and stories are used interchangeably, in this study, narrative refers to a broader, more abstract concept or theme linking multiple smaller stories (Bruce et al., 2016; Moscardo, 2017). The latter are the expressive descriptions of the multiple events within the experience.

Narrative research is usually conducted within a qualitative research framework, employing the variety of the respective research methods, i.e. ethnography, autoethnography, in-depth interviews, observations or focus groups or more recently netnography (Tussyadiah, 2014). The latter method evolved as a result of the ongoing digitalization and deluge of the online UGC (i.e. blogposts, online reviews, social media posts). From the narrative research stance, UGC represents voluntary, first-hand customer stories about service experiences, which may be used to gain insights about consumer perceptions and evaluation of service encounters. Turned into narratives, these insights are instrumental for enhancement of the experience design process. One of the distinctive characteristics of online stories is volume. Large sample sizes are unattainable for the manual data analysis techniques employed in the qualitative methods. Subsequently, an increasing number of researchers are drawn towards the novel data mining methodologies that allow partially automated quantitative analysis of the qualitative information (i.e. text, images).

This study focuses on the understanding of customer perception of value-in-use of the hotel experience from the textual part of the online reviews. The author aims at inferring narratives of positive and negative value-in-use, as well as investigate the effect of travel party composition on the narrative. The research is informed by the framework suggested by Smith & Colgate (2007) that delineates the sources that facilitate perception of value-in-use (information, product, interactions, environment, ownership transfer) along with the established value types (functional, experiential, symbolic) (Sheth & Parvatlyar, 1995; Smith & Colgate, 2007). From a service and experience design point of view, the understanding of what composes positive and negative value-in-use in the hotel service system constitutes the first two stages of the service and experience design. For it could be used as a theoretical framework for informing the subsequent ideation and design for the hotel experience with maximum customers' endorsement.

1.2.3 Topic modeling for service value research

The recent avalanche of online UGC brought about by the ongoing technical revolution, opened new horizons for consumer behavior inquiries. One avenue was found in leveraging the potential of *text mining* to summarize, organize, understand and visualize relevant information from the textual part of the UGC. *Text mining* is an umbrella term delineating collection of machine learning methodologies for automated extraction of meaning from the abundance of the UGC content (Blei, 2012; Fan et al., 2006). The most frequently used text mining methodology - t*opic modelling* is an unsupervised probabilistic approach to discover common themes, (aka *topics*) in the large unstructured collection of text documents (aka *corpus*). Essentially serving as an extension of the traditional content analysis, topic modeling, in particular LDA, gained popularity among social science researchers (Guo et al., 2017; Mankad et al., 2016).

Structural topic modelling (STM) (Roberts et al., 2014), showcased in this study, is a specific form of unsupervised probabilistic topic modelling that builds upon the established methods Latent Dirichlet Allocation (LDA) (Blei et al., 2003) and Correlated Topic Modelling (CTM) (Blei & Lafferty, 2007a) (Figure 1).

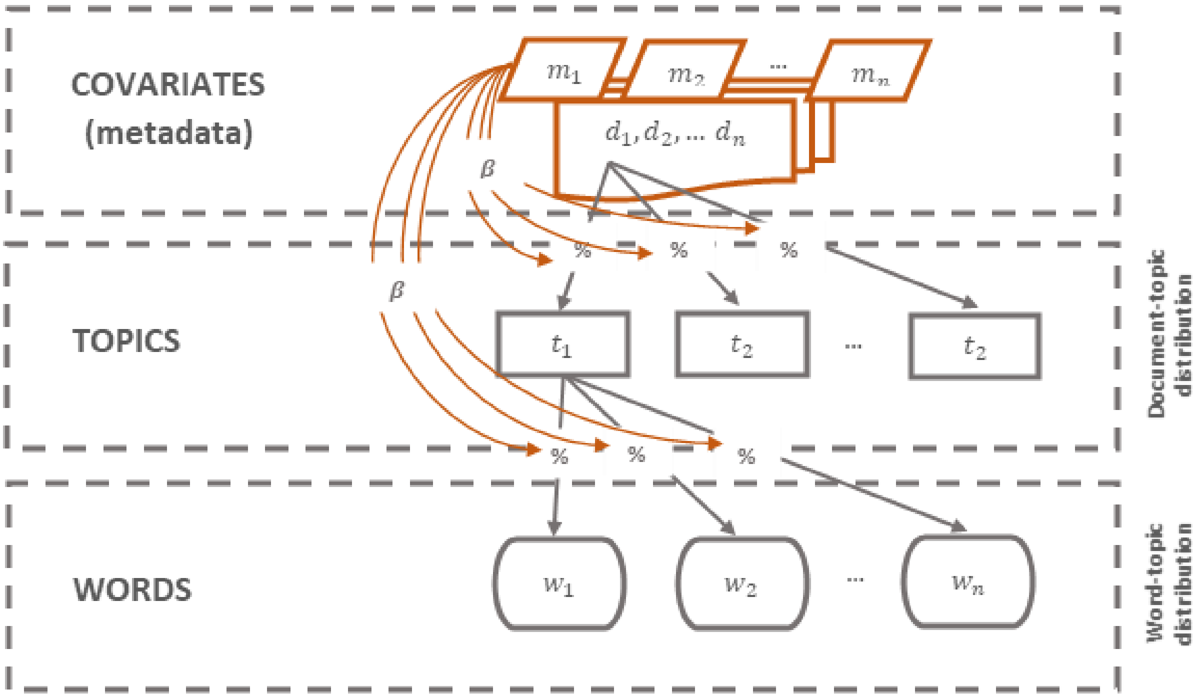


FIGURE 1.1 STRUCTURAL TOPIC MODELLING (ADAPTED FROM SCHMIEDEL, MÜLLER, & VOM BROCKE (2018)

The underlying ideas behind topic modeling algorithms including STM stem from the distributional hypothesis in linguistics that the words co-occurring in the corpus tend to share meaning and are then assigned to a topic (Turney & Pantel, 2010). This makes the first assumption of the LDA-like topic modelling algorithms: each topic is a multinomial distribution over words in the corpus. For example, co-occurring words like *accommodation, rest, reception, book* and *bed* could be summoned under the topic *hotel.* In the context of different neighbors, a word may bare distinct meanings and thus, assigned to multiple topics at a time. For example, while in the *hotel* context the word *reception* co-occurs with words like *booking* and *check-in,* it may also appear along the words like *dance* and *party* to describe the *social event.*

Statistically, this is represented with the word-topic matrix – the first output of the topic models like LDA or STM. Each row represents the word, column – suggested topic and respective cells indicated the probability of the estimated occurrence of the word *w* in a topic *t*. With the fixed vocabulary, what differentiate the topics is the probability-based word rank-order. Words with the highest probabilities (common words) are then used for interpreting and labeling the topics (Blei, 2012; Blei et al., 2009; Steyvers & Griffiths, 2007).

Following the same relational approach, the documents are represented by a multinomial distribution over a set number of topics. Put simply, a document may contain multiple topics in different proportions, which makes the second assumption of the unsupervised topic models (Blei et al., 2003). For example, a document *d* can consist for 20% of topic *t1,* for 50% of topic *t2 and* for 30% of topic *t3.* The results of the distribution are presented in the document-topic matrix with documents as rows and topics as columns. The mixed-membership approach on both word-topic and document-topic levels is the key advantage unsupervised topic model have compared to the traditional fixed-membership clustering algorithms.

While mainly following the logic and assumptions of its' predecessors, STM was brought into a spotlight for its capacity to incorporate metadata into the model (Roberts et al., 2014). Metadata are potential covariates and refer to any additional information besides textual corpus, like star rating, geographical location (country, city), country of traveler's origin, travel party composition or any other information related to the content of the topic and the research problem that might influence the topic prevalence. Topic prevalence is a proportion of the documents associated with each topic, estimated as an aggregate of word frequency vectors for each document in the corpus (Banks et al., 2018; Kuhn, 2018). STM modeling can be thus used not only to understand the underlying structure of the corpus ("what people talk about?") but also the relationships between the meta information and the content ("how different groups talk about this?") (Roberts et al., 2014). The latter explains the increasing interest in the STM model within the social science research community. Since the introduction by Roberts et al. (2014), the model has been used in the organizational (Schmiedel et al., 2018), climate (Tvinnereim & Fløttum, 2015), political (Lucas et al., 2015), transportation research (Kuhn, 2018) as well as tourism and hospitality (Hu et al., 2019a; Korfiatis et al., 2019a; E. (Olivia) Park et al., 2018).

The following sections will elaborate on the STM procedures showcasing potential application to value-in-use inferences in the tourism and hospitality domain.

1.3 Methodology

1.3.1 Research paradigm and research design

Application of topic modelling in the domain of social science and political research is in its infancy. This naturally induces the discussions about a method's capacity to contribute to existing theories, as well as the rigorousness and generalizability of the obtained results. The contrasting arguments are often grounded in scholars' varying philosophical positions from positivism, empiricism to post-positivism (Ignatow & Mihalcea, 2017; Kitchin, 2014; Mazanec, 2020). As the other topic models, STM exploits Bayesian probability logic to infer underlying categories from the observed unstructured textual corpora. The distribution of these categories or topics is conditional on often subjective parameter setting, like topic number (*K)* or covariates to be included in the model (Blei, 2012). Labelling and interpretation of the model output is heuristically driven and hinges upon researchers knowledge and believes of the research matter.

Such assumptions conform with the ontology and epistemological positions of critical realism, which accepts the existence of the external objective reality while emphasizing human limits to understanding the "opaque and confounding truth" (Howell, 2012, p. 50). The task of the researcher is to infer the underlying knowledge and mechanisms explaining actual reality from the observable information of the accessible empirical layer of the reality (Archer et al., 2013). Hence, consumer perceptions of value-in-use are derived from the observable online textual data. The interpretations of the topics are only subjectively plausible, for they are framed by theoretical underpinnings, author's experience and heuristics (Danermark et al., 2019). Hence, following topic modelling research design, the author accepts that the results of the study are not deterministic, but rather indicative of the structural composition of value-in-use perceptions in the hotel context, viewed through the online review lens. The subsequent sections will provide more details about the steps in the research process.

1.3.2 Data Acquisition

The initial step of the research journey is to acquire the data fitting the previously mapped objectives. This involves the decisions regarding *suitable types of data*, *volume* and *retrieval process*. In this research, STM is administered on the textual part of online hotel reviews, published on the online data science community Kaggle.com under the creative commons license (J. Liu, 2018). The initial dataset for the analysis contained 515,738 reviews of the 1,493 high-end hotels from the six major European cities: Vienna, London, Amsterdam, Rome, Milan and Barcelona scrapped from Booking.com between June 2015 – September 2017. To understand the structure of positive and negative value-in-use perceptions and to establish the variations in narratives among the tourists within different travel parties, the textual content of the reviews is observed along with numerical review rating, travel party composition, hotel location and reviewer nationality. The latter two variables are used for the descriptive purpose only.

1.3.3 Data Preparation

Prior to the analysis, unstructured dataset needs to be into the final organized one so that it reflects the objectives of the study and fulfils the requirements posed by the selected modeling algorithm (García, Salvador, Luengo, Julián, Herrera, 2016). The selected dataset is screened for missing cases (with *is.na* function), duplicates (with *duplicated* function) and cases in languages other than English (with *textcat* function), which are subsequently removed. Additionally, the reviews shorter than 30 words are discarded from the analysis, increasing the average review length from 36 to 65 words. Previous studies agree that the reviews on the lower side of the rating scale (one-two stars) are associated with negative experiences, while the highest (four-five stars) are indicative of positive experiences (Babić Rosario et al., 2016; Chevalier & Mayzlin, 2006). Booking.com uses ten-point scale to measure the travelers' experience perception. Therefore, reviews with one to four points are defined as negative, five to seven points as average or neutral; eight to ten points as positive manifestations of perceived value-in-use. 45,393 average-rated reviews were excluded from the analysis. Out of the remaining 155,492 reviews, 94% (147,109 reviews) and 6% (8,372 reviews) were positive and negative, respectively. Since the observed imbalance of the data classes is fraught with higher misclassification rate for the minority class (negative reviews), this study adheres to under-sampling (*RandUnderClassif* function from *DMwR* package) which yielded balanced dataset of 17,372 reviews including 8,372 negative and 9,000 positive reviews (Table 1.1).

TABLE 1.1 SAMPLE SUMMARY STATISTICS

	Frequency	Percentage
Total	17,372	100%
Positive reviews	9,000	51.8%
Negative reviews	8,372	48.2%
Travel party composition		
Solo Traveler	3,784	21.7%
Couple	8,060	46.1%
Family with children	3,321	19.1%
Group	2,296	13.1%

Finally, textual data were transformed into the format required by the topic modeling algorithm. Commonly referred to as pre-processed the textual part of the reviews this process involved tokenization and lowercasing, removing of punctuation, numbers, special characters (i.e. #, ü etc.), common English stopwords (i.e. the, is, at etc.) as well as sparse terms, occurring less than in 10% of the reviews. The words for subsequently stemmed – reduced to their roots (i.e. run, running, runner are changed to run). All of the pre-processing manipulations were performed with the in-built functions from stm package. Table 1.2 illustrates the result of the text pre-processing. Online review text before and after pre-processing.

TABLE 1.2 ONLINE REVIEW TEXT BEFORE AND AFTER PRE-PROCESSING

Original review text:
Quirky décor, comfortable bed, great views, spacious bathroom, excellent breakfast. The dinner in the hotel restaurant was very poor value and not particularly good, I asked for a glass of water to accompany the wine and was presented with a very large bottle of mineral water.
Pre-processed review text:
quirky decor comfortable bed great view spacious bathroom excellent breakfast dinner hotel restaurant poor value particularly good ask glass water accompany wine present large bottle mineral water

1.3.4 Model Setup

Reflecting the overarching aim of the research, two document-level covariates were included in the model: perceived value-in-use (*PVIU*) and travel party composition (*TravelParty*) to examine potential changes in topic prevalence. Thus, topic prevalence is specified as a function of *pviu*, *TravelParty* and interaction between them (Equation 1.1.).

EQUATION 1.1 TOPIC PREVALENCE

$$Prevalence_{d,k} = \beta_0 + \beta_1 \times pviu_d + \beta_2 \times TravelParty_d + \beta_3 \times pviu_d \times TravelParty_d + \varepsilon_d,$$

where $Prevalence_{d,k}$ denotes the proportion of the *k*th topic in the *d*th review. $pviu_d$ is a measure of extremity of the review *d*. Reviews rated 1 to 4 points are coded as *0* marking negative value-in-use expressions, those with 8 points and more are coded as *1,* indicate positive value-in-use expression. $TravelParty_d$ denotes four configurations of travel parties. It equals *1* if the guests travel alone, 2 if they are traveling in a couple, *3* for families with kids and *4* for groups that are not families. β_0, β_1, β_2 , β_3 are the intercept and respective coefficients. ε_d is summary of unobserved residuals or standard error term.

1.3.5 Model selection and Topic Labelling

Before the topic model can be eventually run it is important to determine the appropriate number of topics. Number of topics is a cornerstone user-set parameter that influences granularity and interpretability of the topics (Grimmer & Stewart, 2013). Therefore, the choice of the optimal parameter should be driven by characteristics of the textual corpus (nature of the textual corpus, size and structure of the documents) and by the research goals alike. Though not an easy task, an adequate number of topics can be defined by sequence of data-driven measurements and expert judgements. Several statistical approaches are proposed to inform researcher's decision: 1) held-out likelihood or perplexity (Wallach et al., 2009); 2) semantic coherence and 3) exclusivity of topics (Mimno et al., 2011). As suggested by Roberts (2014), first *serchK* function of the *stm* package was aapplied to evaluate held-out likelihood, semantic coherence and exclusivity of the models with 3 to 30 topics (Figure 2). Models within this range are commonly used in the literature to explain the latent characteristics and attributes inhereted in the online hotel reviews (Guo et al., 2017; Hu et al., 2019a; Mankad et al., 2016). Held-out likelihood curve follows predominantelly upward trend with values maximized for models between 14 and 17 topics and after a slight drop for 20 to 22 topics (Figure 2.3(a)). Similar to held-out likelihood, exclusivity values improve with the increase in the number of topics. In contrast, semantic coherence descends as the number of topics increases (Figure 2.3 (b)).

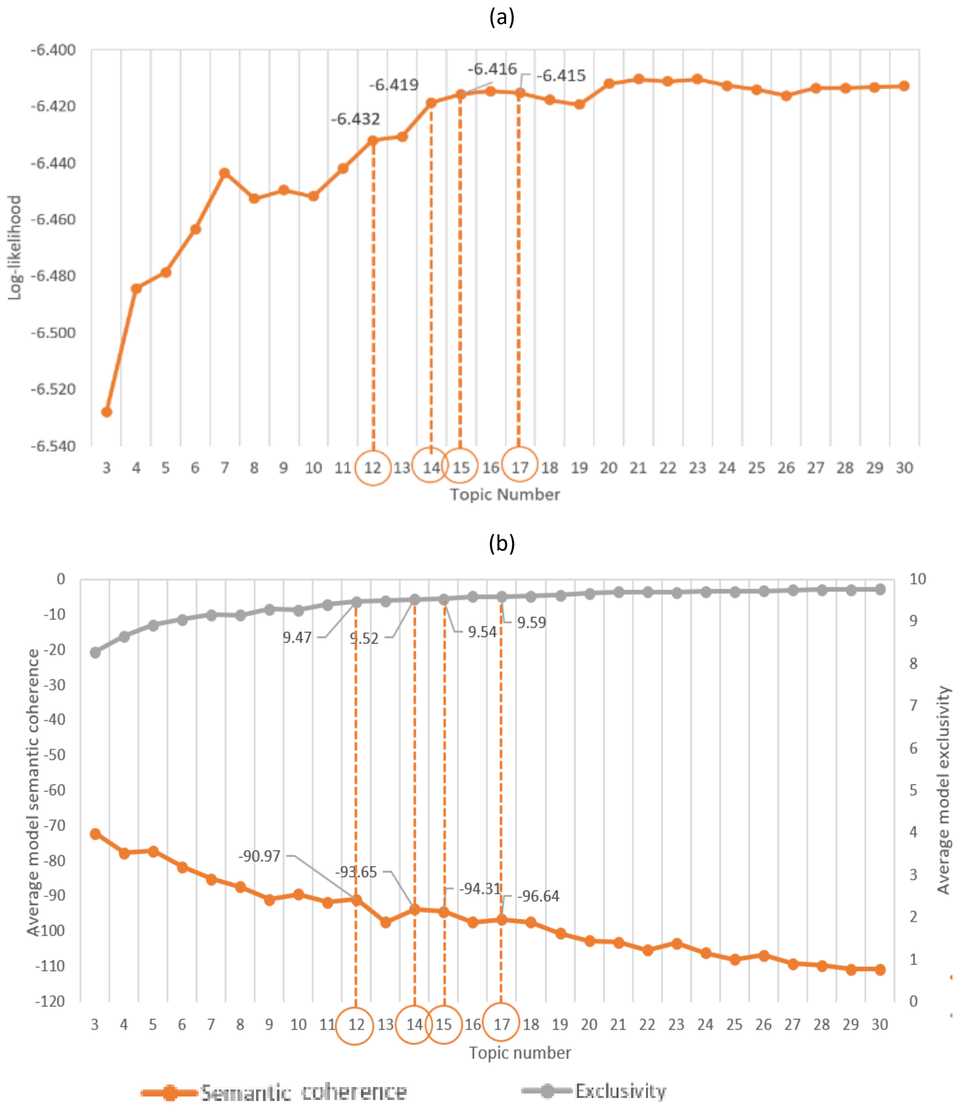


FIGURE 1.2 TOPIC NUMBER SELECTION AMONG THE MODELS WITH 3 TO 30 TOPICS. A) HELD-OUT LIKELIHOOD; B) SEMANTIC COHERENCE AND EXCLUSIVITY SCORES

Though Figure 2.3 does not indicate one clearly dominating model, models with 12, 14, 15 and 17 topics, stand out from the sample and thus are shortlisted for further expert evaluation. Upon the independent review of the most common words associated with the topics in the selected models, 14-topic model was identified as the most semantically meaningful for the purpose of the current research (Table 1.3). Subsequently, the topics were assigned labels that summarize the collective meaning of the allocated words. Interestingly, the labeling process was indicative of the emotionally contrasting perception guest have regarding varying aspects of the hotel experience, which the further section will elaborate in details.

TABLE 1.3 TOPIC LABELLING

Topic Label	Topic Prevalence	Top Words (FREX criterion)
Staff (Praise)	13.1%	amaz, love, brilliant, superb, fantast, welcom, wonder
Surrounding	9.9.%	tram, centr, metro, shop, transport, nearbi, citi
Check-in	9.2%	card, check, credit, late, deposit, cash, readi
General hotel state	9%	star, old, bad, furnitur, four, rate, poor
Room facilities (Praise)	8.7%	size, comfort, larg, bite, big, quit, modern, space
Cleanliness	8.4%	smell, basement, wall, smoke, cigarett, stain, filthi
F&B	7.1%	egg, cook, bread, swim, bacon, toast, fruit
Online booking	6.7%	com, book, cancel, websit, reserv, refund, onlin
Staff (Critique)	6.4%	rude, alarm, unhelp, speak, knock, member, recept
Mantainance problems	5.8%	internet, condit, air, fix, wifi, heat, electr
Accessibility	5.2%	tube, paddington, hyde, tower, kensington, underground, west
Suit facilities	4.2%	execut, mirror, chair, loung, dress, slipper, wardrob
Room facilities (Critique)	3.4%	mattress, pillow, togeth, push, uncomfort, middl, singl
Noise	3%	construct, build, drill, stair, renov, current, recent

1.4 Results

1.4.1 Value-forming attributes

The outcomes of the STM analysis are presented in Table 1.3. The table includes assigned labels, the estimated proportion of the consumer stories dedicated to the topic and the most common words for each topic according to the FREX criterion. As can be observed in the second column staff (praise) is the most prevalent theme in hotel guest stories, mentioned in 13.1% of reviews. It is followed by reviews of surrounding (9.9%); check-in process (9.2%) and general hotel state (9%). Noise, a critique of room facilities and suit facilities are the least mentioned by the hotel guests (3%, 3.4%, 4.2% respectively). The 14 identified value-forming attributes of hotel guest experience (topics), are consistent with the extant research of hotel attributes using both traditional methodologies (Dolnicar, 2003; Wind et al., 1989) as well as the variety of topic modeling techniques (Guo et al., 2017; Hu et al., 2019; Mankad et al., 2016). These findings affirm the effectiveness and support validity of STM as a methodology to extracting meaning from the unstructured online user-generated content. Noteworthy difference established by the algorithm is the duality of two topics. Namely, hotel guests had completely antipodal experiences and thus evaluations of staff interactions and room facilities, which were both praised and criticized by the guests in their stories.

1.4.2 Structure of value-in-use

Emotional and cognitive evaluation of the experiences with the service attributes throughout the service journey culminates with the formation of the perceived value-in-use of the experience (Vargo & Lusch, 2016). As outlined earlier in the literature review, value-in-use is a complex and dynamic phenomenon. Conceptualizing value-in-use from different standpoints is thus instrumental for developing a coherent analytical framework. Drawing on and extending the existing frameworks, the inferred topics were aggregated to reflect the perceived value-in-use. The findings are presented in the form of a structured diagram inspired by the journey map method (Figure 1.3).

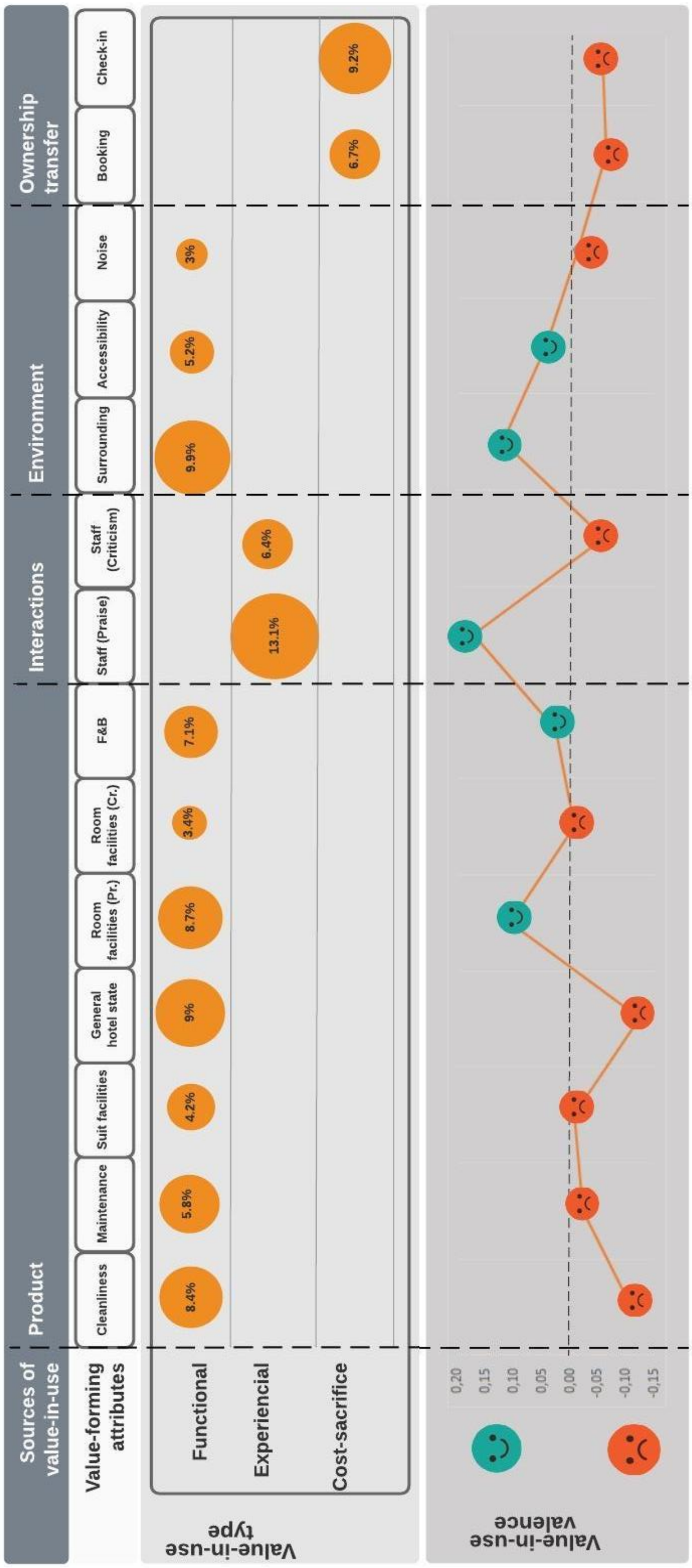


FIGURE 1.3.HOTEL SERVICE EXPERIENCE PERCEIVED VALUE MAP

1.4.3 Types of value-in-use

Building on the extant value research, the identified value-forming attributes can be characterized by the type of value-in-use: functional (10 topics), experiential (2 topics) and cost-sacrifice (2 topics) value-in-use (Sheth, Newman, & Gross, 1991; Smith & Colgate, 2007; Sweeney & Soutar, 2001) (Figure 1.3). Disproportionately emphasized functional value-in-use is mentioned in nearly 65% of guest stories. The value-forming attributes associated with it represent reflections on the utility and functional performance of the hotel resources. Assessing the surrounding of the hotel, check-in or booking process, room facilities, F&B services or ability to sort out maintenance problems, the guests evaluate the ability of the hotel with its resources to perform as expected and satisfy practical needs, i.e. need for sleep or easy access to sightseeing landmarks. The less prominent experiential value-in-use refers to the emotional evaluation of the stay. Conveyed through the praise or critique of staff interactions, it is mentioned in slightly less than 20% of reviews. Finally, nearly 16% of the stories reflect on the finesse of the booking and check-in processes which are associated with the cost-sacrifice value-in-use. According to Smith & Colgate (2007), the costs can be interpreted in terms monetary expenses, effort and time invested in the transaction, which affects financial or psychological well-being. For example, frequency and exclusivity of words *like "card", "check", "credit", "late", "deposit", "cash", "readi*" in the check-in and payment topic among other indicate the potential time, monetary and emotional costs due to the late hotel check-in when the hotel reception operates under limited working hours.

1.4.4 Sources of value-in-use

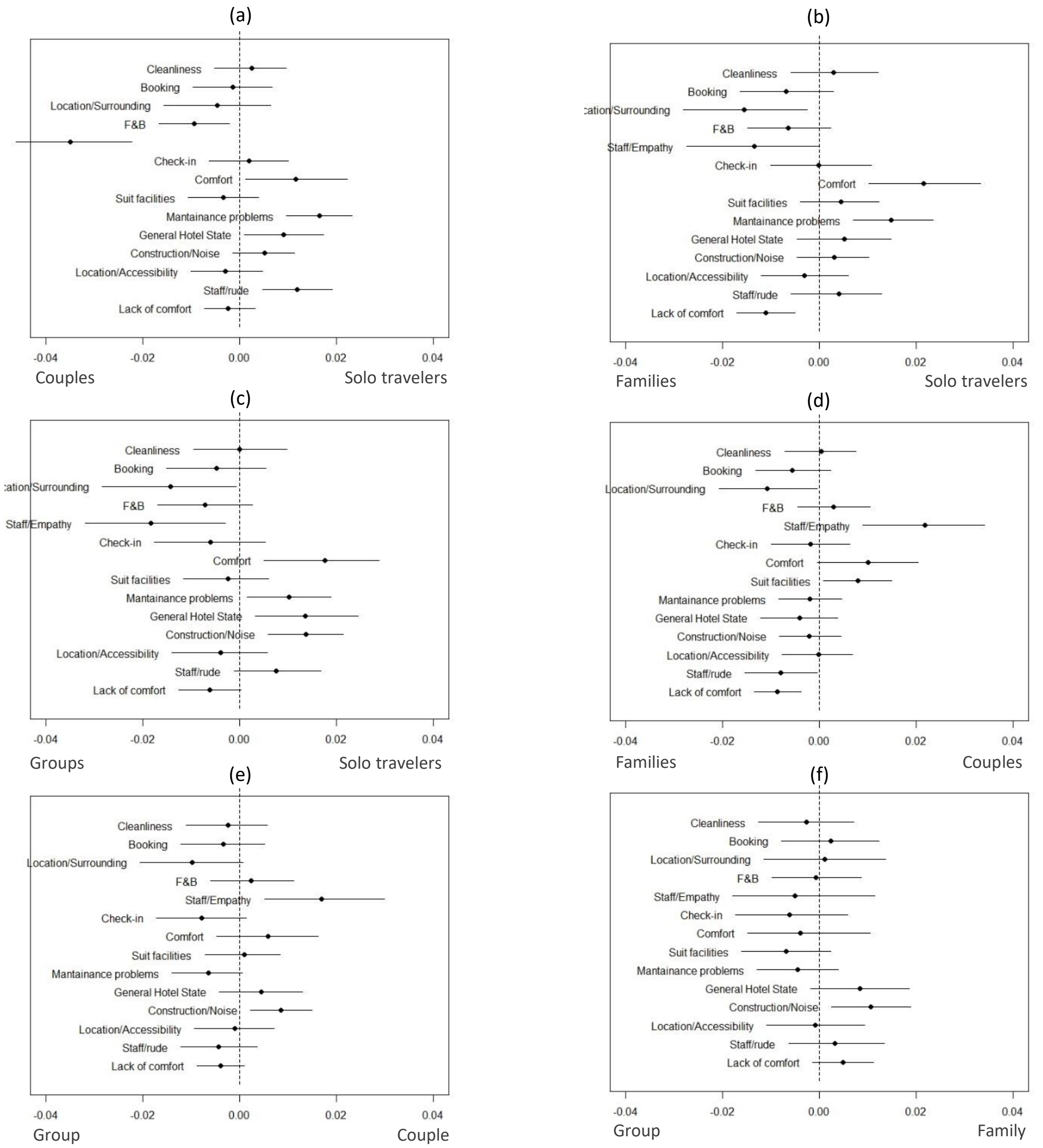
Value-in-use does not emerge at once rather through the continuous interaction of the customer with the service value chain. Hence, another approach to conceptualizing value-in-use is by defining the value-facilitating element of the value chain - source of value (J. B. Smith & Colgate, 2007). The analysis reveals four sources of value-forming attributes of the hotel experience – product (7), interactions (2), environment (3) and ownership (2) (Figure 1.3). Given the uneven distribution, the sources differ in their importance for the overall experience evaluations.

1.4.5 Valence of value-in-use

Finally, delving into the valence of the identified value-forming attributes, allowed to ascertain the difference in likelihood with which each of the attributes contributes to positive and negative value-in-use (Figure 1.3). For example, in the case of "Staff (Praise)" the estimated proportion of positive reviews is 20% higher than negative reviews, which is indicative of the positive value-in-use assigned to this attribute. Similar logic is applied to the classification of the rest of the value-forming attributes. As already mentioned, the positive value-in-use narrative is dominated by the positive staff evaluations, followed by impressions of the hotel surrounding, maintenance problems resolutions and accessibility. The rest of the nine attributes refer to negative value-in-use. Cleanliness is the most negatively assessed attribute, followed by suit facilities and transaction problems like check-in and booking.

1.4.6 Moderating effect of travel party composition

Subsequently the prevalence of the inferred dimensions was evaluated across travel party composition. Figure 1.4 (a)-(f) illustrates results of pairwise comparison of the expected change in attribute prevalence among four travel party composition options: solo travelers, couples, families with children (further as family) and groups. For example, Figure 1.4(a) marks a variation in the estimated proportion



of each topic for solo travelers minus the estimated proportion of the respective topics for couples.

FIGURE 1.4 EFFECTS OF TRAVEL PARTY COMPOSITION ON TOPIC PROPORTIONS: DIFFERENCES BETWEEN (A) COUPLES AND SOLO TRAVELERS; (B) FAMILIES AND SOLO TRAVELERS; (C) GROUPS AND SOLO TRAVELERS; (D) FAMILIES AND COUPLES; (E) GROUPS AND COUPLES; (F) GROUPS AND FAMILIES

Positive numbers indicate that solo travelers are more likely to mention the topic in their reviews, negative means the same for couples. The horizontal bars indicate 95% confidence intervals of these estimates.

For this, several significant differences can be observed. Solo travelers are significantly more likely to reflect on maintenance problems, critique the staff, review comfort or general hotel state compared to couples. The latter are more inclined to praise the staff and evaluate F&B services. In comparison to solo travelers and couples, families are more likely to voice their opinions about hotel surrounding and discomfort of room facilities. Also, groups and families more often recognize positive staff attitude. Finally, all of the travel parties are more sensitive to the external noise than the groups.

1.5 Discussion and propositions

This study provides an outlook on the complexity of value-in-use in the hotel setting. From the perspective of service design, value-in-use is emphasized as a complex phenomenon, which, while rooted in the business owned resources, is largely shaped through the prism of individual characteristics. Losing the control over value creation, businesses are confronted with the need to advance their understanding of the consumers and their experience evaluation processes. This entails for researchers and service designers to pursue the development of an evidence-based approach to measuring the value of consumers service experiences (Carr et al., 2011). Along these lines, the study applied novel STM methodology to explore the composition of the value-in-use of the hotel experience and evaluate the moderating effect of the travel party composition on the proportion of the identified value-forming attributes.

Family

Administered to the collection of online reviews of the middle-class hotels in six major European cities, STM results revealed that hotel guests attain the value of the hotel experience through 14 value-forming attributes. When evaluating hotel experiences, travelers tend to consider positive staff treatment as primary, followed by hotel surrounding, check-in experience, general hotel state and room facilities, respectively. In terms of typology, all 14 value-forming attributes are consistent with the extant research (Dolnicar, 2003; Guo et al., 2017; Hu et al., 2019a; Mankad et al., 2016; Wind et al., 1989), but they do not reflect all the previously outlined attributes. For instance, the presented model did not detect value for money as a determinant of value-in-use (Nasution & Mavondo, 2008; Prebensen et al., 2013). The reason may be in the imposed degree of model precision. In other words, value-in-use component may be integrated in the more narrow value-forming attributes such as general hotel state. Additionally, previous research outlined hotel surrounding is the basic factor of hotel experience evaluations (Dolnicar, 2003; Hu et al., 2019a; Wind et al., 1989). By contrast, the results of this study suggest while that the hotel guests' evaluations are more likely to be triggered as the result of interaction with staff. Both praise and critique of staff comprise around 20% of the evaluation narrative. Based on the aforementioned discussion, the following propositions are developed:

Proposition 1. Value-in-use in multifaced and could best be measured through fourteen value-forming attributes.

Proposition 1a. Employee-guest interaction is the most significant attribute for evaluation of hotel service experiences.

To provide further insights into the value-in-use structure, value-forming attributes were further classified according to the type and source of value-in-use. Out of the four value-in-use types outlined in Smith & Colgate's (2007) framework, only three were mentioned in the hotel reviews: functional, experiential and cost/sacrifice value-in-use. Aggregated analysis of the value-in-use types reveals that when evaluating hotel experiences, consumers remain overwhelmingly functionally oriented. However, per attribute frequency of these evaluations is significantly lower compared to experiential value-in-use attribute like the staff. Additionally, symbolic or expressive value-in-use, which describes the ability of service experience to generate personal psychological meaning and aid in self-expression, is not mentioned at all. One of the reasons might be in the public nature and acceptable format of online reviews as a source of experience evaluation stories. Since the goal of online review platforms is to provide a concise evaluation of service experiences, reviews end to be short and detail-focused. Moreover, as humans, we are often reluctant to share our deep emotions and psychological states in public. These findings imply the following propositions:

Proposition 2. Hotel guests evaluate their experiences in terms of functional, expressive and cost-sacrifice value-in-use.

Proposition 2a. Attributes of the functional value-in-use are the most plentiful hotel guests' service evaluations.

In order to effectively integrate the findings into the experience design process, it is important to treat value-in-use emergence as a continuous, systematic activity. This implies that evaluations happen iteratively throughout the value chain interactions. The obtained results indicate that hotel experience evaluation occurs at four stages that mark sources of value-in-use: product, interactions, environment and ownership transfer. While product characteristics remain essential to the initial experience evaluations, hotel guests remain more sensitive to the external components, surrounding the actual overnight experience (interactions, environment etc.). This research goes beyond previous literature by inquiring into both positive and negative value-in-use and revealing a comprehensive structure of emotional orientation (valence) of the value-forming attributes. The findings suggest that hotel guests mention five positive, against 11 negative value-forming attributes as significant for their hotel experience evaluations. While functional product-related and cost-sacrifice value-in-use is predominantly perceived in terms of loss, experiential value-in-use along with the environmental aspect of functional value-in-use are effective in generating positive value-in-use perceptions. Given the detrimental effect of negative evaluations, the findings are alarming and suggest that service providers should constantly improve the quality of the core service processes. Summarized in the value journey map, the findings promote the more structured approach to the experience design process, allowing to identify the thriving and enduring elements of the value chain. This suggests the following propositions:

Proposition 3. Value-in-use emerges through the multiple stages of the value chain process.

Proposition 4. Value-in-use disproportionately represented by negative over the positive narrative.

Proposition 4a. Negative value-in-use is strongly facilitated by the internal service-related processes.

Finally, the analysis of the influence travel party composition might have on value-in-use narrative. While numerous research has linked travel party composition to changes in tourists planning and behavior (Crompton, 1981; Wu et al., 2011), the current analysis revealed only marginal effect travel party composition on the structure of value-in-use perceptions. To a large extent, solo travelers, couples, families with children and groups exhibit similar behavior. Among the other couples and groups differ the least, with couples being more sensitive only to noise. In contrast solo travelers are the most distinct in their evaluations of hotel experiences. It was found that solo travelers are the most critical to the staff actions, in comparison to other travel parties, solo travelers seldom praise hotel employees for their service. It is possible that solo travelers receive less attention from the side of hotel employees, resulting in fewer interactions beyond the formal value chain. For they tend to weigh functional characteristic of the hotel experience - the quality of room facilities and general state of the hotel, as more significant in their evaluations. For families with children the latter significantly influence travel behavior through adults' consideration of child's welfare (Crompton, 1981). Hence families more than others value surrounding area of the hotel that ensures proximity to the travel objects as well as other tourist infrastructure. Based on these results, the following propositions with some having an impact on the design of the facility can be assumed:

Proposition 5. Travel party composition has a marginal effect on value-in-use perceptions in the hotel context.

Proposition 5a. Solo travelers are more prone to staff criticism compared to other travel parties.

Proposition 5b. Functional characteristics of the hotel experience are more critical to solo travelers than those accompanied by more people.

Proposition 5c. Families value quality of the hotel surrounding higher than the other travel party groups.

1.6 Conclusion

The present study contributes to the growing stream of value research in two aspects. First, by inferring the critical dimensions of customers' positive and negative evaluations of hotel experience. Second, by showcasing dynamic STM approach to value-in-use assessments, as a viable alternative for traditional survey-based research. Additionally, the study provides insights into how travel party composition might affect the evaluations manifested in the online reviews.

The findings suggest that hotel experience value-in-use consists of 14 dimensions reflecting three types of perceived value: functional, experiential and cost-sacrifice value. The overall value-in-use narrative is dominated by the judgements of interpersonal interactions with hotel employees and hotel surrounding, rather than tangible characteristics of their overnight experience itself (i.e. room arrangement, comfort, cleanliness). While, the latter group is the most representative of negative value assessments, the two value dimensions - staff interactions and room facilities, were both praised and criticized by the guests in their stories. The findings also show the configuration of the travel party composition the customer is a member of, only marginally affects value-in-use perceptions across the inferred dimensions. Partially supporting the results of the extant value research (Dolnicar, 2003; Guo et al., 2017; Y. Liu et al., 2017; Mankad et al., 2016; Wind et al., 1989), the study confirms topic modeling as a valid approach to inferring structure and continuous monitoring of value-in-use perceptions across time and contexts.

Additionally, the results of the study have significant implications for management in the hospitality sector and beyond. First, UGC serves as a valuable source of the first-hand customer-related information which can shed light on hidden customer perceptions of the valuable experience as well as the underlying drivers of customer behavior. Second, harnessing the potential of topic modeling opens a door to ongoing audit of customer reactions across time and contexts. Managers can use ensure timely reaction and interventions to the service design process across customer segments. Partial automation of these processes frees time and financial resources, which could be used for service improvements.

The study is not free from limitations, which offer fruitful avenues for further research. First, since online reviewers belong to a specific segment of the population – those with internet access and willing to share their opinions with others through the online platforms, the results of are not generalizable to the global population. Additionally, online opinions may be a subject to response bias and hence prone to manipulations from the side of other online community members (Li & Hitt, 2008). Future studies may expand the sample towards other online platforms or complement the findings with the results of the traditional methodologies. Second, while the exploration of value perceptions is important for understanding the customers and their consumption goals, evaluation of the service processes and service design requires another perspective – that of a service provider (Foglieni et al., 2018). The finding of the current study may serve as a benchmark for evaluating the alignment between company's and customers view of service value.

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2 STUDY 2. EVALUATING CUSTOMER VALUE PROPOSITION IN THE HOTEL SECTOR

2.1 Introduction

The concept of "value proposition" has recently gained increased attention in the service literature as the "most important organizing principle" (Webster, 2002, p. 61) for unlocking business success. In the service-dominant logic (SDL) tradition (Vargo & Lusch, 2008b, 2017), value proposition is a formal invitation by a service provider to various stakeholders to partake in service experience. It serves as a bridgehead to stakeholder engagement and value co-creation.

While the term "value proposition" is not new, the extant research is lacking the consensus in what constitutes value proposition (Ballantyne et al., 2011; Skålén et al., 2014) or how it should be managed to sustain competitive market position and facilitate service innovations (Michel et al., 2008; A. Payne et al., 2017). Analysis of the relevant literature revealed two main issues related to value proposition conceptualization. First, the nature of value proposition itself. Early studies refer to value proposition as a value promise built around key points of difference, developed and communicated by service providers to customers (Anderson et al., 2006; Lanning et al., 2000). Though common for good-dominant logic (GDL), such unidirectional communication contradicts the foundational premises of the SDL, which emphasize reciprocity of value (co-)creation processes (Ballantyne et al., 2011). Instead of being enforced by the service provider, value emerges in the dialogue, as a result of resource integration by service stakeholders, i.e. service provider and customer. Hence, the nature of value proposition evolves from declaring the value of the service experience to provided adequate resources for engaging customers in value co-creation.

Second, the reconceptualization of value proposition is inextricably linked to the changing role of customers in the value system. Given the reciprocity of the value co-creation process, customers evolve from passive consumers to the eventual judges of the service value (Vargo et al., 2014). In other words, the outcome value in phenomenologically defined by customers in the process of experience or use of the value proposition – value-in-use. In fact, in the recent service literature, value-in-use is often used interchangeably with the outcome or total value of service experience (Grönroos & Voima, 2013). Losing monopoly over value creation process, development of the relevant value proposition hinges upon service providers' ability to understand what constitutes valuable service experiences to the customers, and subsequently, to integrate these insights into the value proposition. The degree of alignment between customers' aspirations and communicated value proposition is sought to define the competitiveness of the service offering (Kowalkowski, 2011).

Such alignment can be achieved through a systematic evaluation of value propositions against customers perceptions (value-in-use). Evaluation can be used as a strategy for assessing and monitoring service value; "providing evidence of what works and what does not work"(Foglieni et al., 2018) and revealing areas for potential improvements of the service processes and, hence, value proposition and assess the performance of introduced interventions. In the extant literature, service evaluations are performed either from customers perspective by assessing customer satisfaction, service quality or value perceptions; or from company's perspective by estimating economic indicators together with other quantitative parameters, like the number of visits to the venue or to the webpage, bednights, click-through rate etc. Meanwhile, evaluations of interaction between the customers' and business' perspective, which is essential for facilitating value co-creation, remain rare in the service literature (Foglieni & Holmlid, 2017). Despite this, Payne & Frow (2014) indicate that only 10% of the organizations have a formal process for developing and communicating value proposition.

One of the reasons for this is the complexity and fluidity of value, which implies that total value is updated upon every individual experience. Approaching such a dynamic concept with traditional research methodologies is thus, resourceful and hardly manageable. In this context, data-driven methodologies, like text mining, emerge as a valuable alternative and supports full- or partial automation of service evaluation processes (Augstein, 2018). In the service literature, various data mining methodologies are commonly applied to access customer knowledge encompassed in the online user-generated content, particularly online reviews. The latter has been a source of both quantitative (i.e. star ratings, number of comments) and qualitative (i.e. text, images) information, used for gaining insights into and prediction of customer attitudes (Filieri, 2016; Guo et al., 2017; S. Park & Nicolau, 2015), behavior (Dickinger & Mazanec, 2015; Xiang & Gretzel, 2010) and overall perception of service experiences (Mankad et al., 2016; Song et al., 2016). Following the recent development of the text mining stream of data analytics, service and marketing scholars increasingly turn to topic modelling techniques, like Latent Dirichlet allocation (LDA) (Blei et al., 2003), Correlated topic modelling (CTM) (Blei & Lafferty, 2007b) or Structural topic modelling (STM) (Roberts et al., 2014) to discover and interpret customer perceptions (Hu et al., 2019b; Mankad et al., 2016). At their core, topic modelling is a probabilistic extension of the traditional cluster analysis (Blei, 2012), capable of revealing underlying patterns in the voluminous unstructured textual data (Blei et al., 2003). In this study the STM approach (Roberts et al., 2014) is proposed to evaluate value propositions against customer perceptions of the service experience. The study will aim at answering the following research question.

RQ1. What is the underlying structure of a) the communicated value proposition and value-in-use in the hotel context?

RQ2. To what degree do the identified dimensions of the communicated value propositions align with the respective dimensions of value-in-use?

The study will be conducted in the hotel context, where online hotel descriptions and online reviews of four-five stared hotels from six European cities will be analyzed as a proxy for communicated value proposition and value-in-use, respectively. The following sections will first review the theoretical developments of value from both customer and service providers' perspective. Subsequently, the service evaluation framework and its application for value proposition evaluation as well as the potential of data as a source for service evaluations will be presented. The literature review will be followed by the methodology, potential limitations and will be concluded with the outlining of the expected results.

2.2 Theoretical Background

2.2.1 SDL perspective on the value

The SDL tradition of value research (Vargo & Lusch, 2014), as well as the ensuing research streams - customer-dominant logic (CDL) (Heinonen et al., 2010) and service logic (SL) (Grönroos, 2011) all, emphasize the complexity and collaborative essence of value. The total value of the service experience is a composite of communicated business offering – value proposition, and subjective customer evaluation of the consumption experience – value-in-use. It can only emerge through systemic interaction of service stakeholders, i.e. provider and consumer, known a value co-creation (Payne et al., 2008; Saarijärvi et al., 2013; Vargo et al., 2008). Contrary to the GDL tradition, these interactions are reciprocal rather than unidirectional, implying that resource integration can happen in multiple directions across service system (Ballantyne et al., 2011). In other words, similar to the customers receiving benefits upon consumption of service experiences, providers may use these interactions as a source of knowledge to assess and update their value propositions, aligning those to customers vision of the valuable service. Hence, the evaluation of value proposition is impossible without comprehending the nature of customer value perceptions.

2.2.1.1 Customer Value Proposition

Since its first mentioning in the study by McKinsey consultants Lanning and Michaels (1988) in the late 1980s', value proposition has become a buzz word among practitioners and in academia alike. Frow and Payne (2008) reported that out of 200 surveyed companies, 65% worked with value proposition (Frow & Payne, 2011). The Marketing science institute (Marketing Science Institute, 2010, 2014) outlined value communications among global marketing research priorities. Meanwhile, discussions around conceptualization, antecedents and outcomes of value proposition remain inconclusive; except unanimous agreement about the crucial role of value proposition for catching customers' attention and ensuring business competitiveness (Anderson et al., 2006b; Payne et al., 2017b; Rintamäki et al., 2007).

The evolution of the understanding of value proposition has followed the paradigmatic changes in the service research and reflected them. Consequently, value proposition can be conceptualized from three perspectives from GDL or supplier-defined perspective to transitional, and finally to SDL collaborative perspective (Ballantyne et al., 2011b; Payne et al., 2017b; Skålén et al., 2014).

Supplier-defined perspective. As already mentioned, value proposition originated in the consultancy field, where it was defined as a "clear, simple statement of benefits, both tangible and intangible that the company will provide, along with approximate price it will charge its customers" (Lanning et al., 2000). Lanning and Michaels (1988) encourage businesses to invest in developing value delivery systems aimed at selecting, providing and communicating the value (proposition) to the customers. In the same light Webster (1994) describes value proposition in terms of a) delivering superior value to the customer and b) gaining competitive advantage. Typical to GDL tradition, businesses and their resources are central to value delivery system, leaving the customer with a secondary role of a passive consumer of the deliverable offering (Ballantyne et al., 2011b).

Transitional perspective. Late research advocates investigating customer needs and perception of their experiences. Integrating this knowledge into value proposition is necessary for increasing appeal and ensuring the competitiveness of the company's offerings (Lanning, 1998; berry 2002). In pursuit to better understand the customers, companies engage in interaction with them. Following GDL tradition, the interactions are largely unidirectional, for companies are using customer experience insights to fine-tune the developed value propositions. Despite advancing customers' position in the value delivery systems, Anderson, Rintamaki 2007, still approach value proposition development from the business-dominated inside-out perspective in which value proposition is delivered to the customer. Thus, companies still claim the ownership of value proposition development, while trying to bring it closer to customer expectations.

Based on the degree of alignment of value proposition with the customer consumption goals Anderson et al. (2006b) suggest three approaches to value proposition development: all benefits – listing all the benefits of the product; favorable points of difference – highlighting characteristics best differentiating from the nearest competitor; and resonating focus – emphasizing selective features reflecting customer needs. While the latter approach has potential of delivering the highest value to the customer and business alike, the former "all in" approach has been the most widely applied across companies (Anderson et al., 2006b).

Collaborative perspective. The most recent perspective reflects the paradigmatic shift brought by SDL where scholars are turning from supplier-dominant towards a collaborative perspective on value proposition design. This shift marks principle change in customer-provider relationships from hierarchical to partnership, in which companies engage with customers and other stakeholders in the value system, to collaboratively define or *co-create a* value proposition. Co-creation implies reciprocal rather than unidirectional communication. Hence both company capabilities and customer-related factors influence value proposition in the given context. In this context, conceptualizing value proposition as a promise is misleading, while promise entails "assurance of future consequences". Instead, the more appropriate could be the definition suggested by Chandler & Lusch (2015): *value proposition is an invitation from actors to one another engage in service…in order to attain value, whether it is economic, social or some combination of those.* The invitation is not limited to the proposition development stage but recur across multiple touchpoints along the service experience journey.

This conceptualization regards value proposition as a dynamic concept that may change over time, influenced by the actors involved in the co-creation process and context in which co-creation takes place (Kowalkowski, 2011). Furthermore, the scope of the actors relevant to the value system has been broadened from company and customer to other internal (i.e. employees) and external stakeholders (i.e. suppliers, competitors). Along with facilitating valuable experiences for customers, the value proposition is also concerned with attracting new employees; improving relationships with current employees (Ballantyne et al., 2003); coordinating supply-chain processes (Bititci et al., 2004) etc.

In sum, the three perspectives on value proposition conceptualization diverge along with attitude to stakeholders' role in value creation system. Provider's role in value proposition development and implementation process is inversely related to the role of the customer. Starting from a supplier-centred view of the company as the centre of a value system, in charge of all the processes from development to delivery; through the more integrative transitional view of the company as entailed to develop value proposition resonating with customer experiences; to a collaborative perspective where company's role is to provide resources that are integrated end transformed into value proposition by multiple stakeholders collectively. The latter perspective, adopted in this study, implies that value proposition development as a co-creative process a) depends on in-depth understanding of outcomes and, more importantly, the anatomy of stakeholders' perceptions; b) is dynamic in nature and needs to be revisited at multiple times. Altogether, this has significant implications for value proposition design process one of which is the need for systematic evaluation of experience performance as a trade-off between value proposition and customer value perceptions (Foglieni et al., 2018).

2.2.1.2 Customer Value Perception

Conceptualization of value in service literature have evolved from related to mostly tangible business-owned resources (GDL) to reflecting the subjective perception of service experience (SDL). As a result of such a paradigmatic shift, customers became the cornerstone for defining the final value of service experiences. In recent literature, total experience value is often used as an equivalent for customer perceived value. Emphasizing the phenomenological and idiosyncratic nature of customer perceived value, Grönroos & Voima (2013) coin the term "value-in-use" – "the extent to which a customer feels better off (positive value) or worse off (negative value) through experiences somehow related to consumption" (Grönroos & Voima, 2013). For value creation is not possible without customer as a perceptive agent, understanding customer has turned into the holy grail of business success, turning customer value perceptions into a heavy researched area across service research .

Extant research of customer value either focus on the outcome *(How strongly do customers value service experience?*) or process (*Which parts of experience customers value the most?*) of service evaluation. In the former case, customer value is assessed as a tradeoff between benefits and sacrifices (Zeithalm, 1988; Woodruff,1997). In the latter, the primary interest is in disentangling value perceptions into multiple dimensions and assessing the role of those dimensions in total service evaluations (Gallarza et al., 2017; Helkkula et al., 2012; J. B. Smith & Colgate, 2007). Along with judgements of the overall quality of the experience, process approach allows for mapping the criteria customers use in their experience evaluations, revealing peaks and lows of the experience journey. Focusing on the customer rather than the quantitative characteristics of the service experience, process approach is a better fit for the current research as it follows the main principle of SDL – *customer centricity* (Vargo & Lusch, 2004).

One critical aspect of value research in general and perceived value research, in particular, is the development of a framework to investigate and interpret the process of value emergence. Despite multiple attempts to devise the structure of value perceptions, yet to date, there is no one universally accepted framework. The first divide stems from the complexity of value construct. Part of the scholarship refers to it as a unidimensional construct (Prebensen et al., 2013; Sweeney & Soutar, 2001b). Alternatively, value is conceptualized as a multidimensional construct composed by several attributes, underlying complex nature of value (Holbrook, 1994; Sheth et al., 1991; Smith & Colgate, 2007; Williams & Soutar, 2000). In the systematic review, Sánchez-Fernández & Iniesta-Bonillo (2007) divide multidimensional conceptualizations of customer perceived value into five streams: the customer value hierarchy (Flint et al., 1997; Parasuraman, Zeithaml & Berry, 1994), utilitarian and hedonic value theory (Babin et al., 1994); axiological theories (Hartman, 1967); Holbrook value typology (Holbrook, 1999) and consumption-values theory (Sheth et al., 1991). The latter two are the most frequently referenced in the service literature frameworks.

Holbrook (1999) outlines eights types of value (efficiency, excellence, status, esteem, play, aesthetics, ethics and spirituality) that describe motivation (extrinsic/intrinsic), orientation (self-oriented/other-oriented) and nature of evaluation (active/reactive). *Consumption-values theory* implies customers' value judgments are shaped by the performance of each of the five value dimensions: functional, emotional, social, epistemic and conditional (Sheth et al., 1991). Despite their differences, the described frameworks acknowledge that customers' evaluations are not limited to strictly utilitarian outcomes of the consumption. Instead, customers' perceptions are strongly influenced by the hedonic component, describing emotional worth and ability to bond with experience or other actors.

In the quest for further refinement, Smith & Colgate (2007) designed a two-dimensional strategic framework for describing and documenting value perceptions. Building upon the strength of the existing frameworks, it describes the value in terms of forms (functional, experiential, symbolic, cost-sacrifice) and value-generating service touchpoints or sources of value-in-use (information, products, interactions, environment and ownership). The framework facilitates operationalization and assessment customers' value perception strategies across the value-chain processes.

In the current study, the combination of Smith & Colgate's (2007) framework with value valence (positive or negative) (Grönroos & Voima, 2013; Sweeney et al., 2018) will be used to interpret underlying value dimensions.

2.2.2 Service evaluation: conceptualization and strategy

The review of the value related research in the previous chapter, clearly indicated that service improvements – redesign, is founded in the capacity to comprehend service experience value from multiple stakeholders' perspective, consequently translating the knowledge into value propositions that speak to the members of the value system. Given the dynamic nature of the current socio-economic reality and in order to stay relevant for the stakeholders, companies should be continuously involved in a so-called *learning-design-change* cycle. Evaluation as an evidence-based approach to assessing and monitor value forming processes can support the design of valuable service experiences that match the contemporary requirements (Foglieni et al., 2018).

In commonsense understanding, evaluation is a clear concept, broadly understood as assessment or cognitive judgment of something's or someone's value. Nevertheless, scholarly opinions diverge in *what constitutes evaluation?* (Rossi et al., 2018). Rooted in the education research (Kirkhart & Scriven, 1989), political science and economics, evaluation considers both the research method and research strategy that employs a traditional methodology for evaluative purposes (Powell, 2006). Consistent with the latter perspective, in this study evaluation is defined as

"*an applied inquiry process for collecting and synthesizing evidence that culminates in conclusions about the state of affairs, value, merit, worth, significance, or quality of a program, product, person, policy, proposal, or plan. Conclusions made in evaluations encompass both an empirical aspect (that something is the case) and a normative aspect (judgment about the value of something)*" (Fournier, 2005).

The essential aspect that distinguishes evaluation from other type of research is the clear focus on exploring and attaining value through continuous improvement of service experiences (redesign). Depending on the value perspective, evaluation can be outcome or process focused. The core function of outcome evaluation is accountability for resources used for service design, typically by performing cost/benefit analysis. The latter can be based on strictly economic criteria, customers' perceived evaluations of service performance or combination of both. The most common perceptual criteria for evaluating service performance are satisfaction, service quality, behavioral intentions and value. While this type of evaluation can provide the inquirers with the answer *How was the service performed?* or *How was the value proposition perceived?,* it does not allow interpreting *How the evaluation happened? or What did customers experience?* For this more elaborate *process* evaluations are performed. It focuses on anatomy, patterns and internal dynamics of value creation. The results of process evaluations are useful for making judgements about the extent to which the company's operations align with other stakeholders' expectations, emphasizing the strength of the service experience and revealing the areas in which it needs to be improved (Patton, 2014).

Regardless the overall aim, evaluation is realized by collecting, synthesizing and interpreting the data related to value co-creation. Evaluation can help to advance knowledge of value-forming processes, and support decision-makers in improving established processes and experiences, nurturing a culture of change (Foglieni et al., 2018; Mathison, 2008). In the service sector, evaluation is not an easy task to accomplish, as it needs to account for the complexity and dynamic nature of value. Building upon program evaluation literature, Foglieni (2018) suggests a systematic approach to service evaluation which aims at addressing the questions: What is value? and How can it best be evaluated? In the proposed strategy, service value is determined based on the four elements: an object of evaluation; a perspective of evaluation; evaluation objectives; time of evaluation.

The object of evaluation. The starting point in the evaluation journey is to identify the focus of the evaluation: *what needs to be evaluated?* Given the complex nature of services, this may include tangible service elements, processes, performances, organization, interactions or subjective experiences with those that can be used to attain value by stakeholders in the service system (Vargo & Lusch, 2016). By analogy with the operand and operant resources in S-D logic, these objects broadly fall into either of the two groups: service elements or processes. The former describes tangible elements of the service designed by the company (*operand resources*). The latter refers to the perceptual process of experiencing or integrating these resources by service stakeholders (*operant resources*).

The perspective of evaluation indicates the scope of stakeholders which will be addressed by data collection and evaluation. In other words, whose perception of value will be evaluated. In the light of S-D logic development, value literature emphasizes the need to put the customer first (Grönroos, 2008; Plewa et al., 2015; Sweeney et al., 2018) and engage into an outward-in approach to service evaluations and subsequent service design. However, conducted solely from a customer perspective evaluation of service value is narrowed to the evaluation of customer expectations and perception of the service experience (Heinonen et al., 2010). In this quest for customer-centricity company's perspective should not be fully neglected. However, when restricted to the provider's point of view, evaluation is reduced to assessment of internal resources, processes and economic performance (Manschot & Sleeswijk Visser, 2011). Hence, systemic evaluation should consider both customer and providers perspectives, for it is the company that provided the resources that enables customer experiences to come to life and thus, business efficiency and customer experiences are rarely contradictory forces (Polaine et al., 2013).

The evaluation objectives refer to the dimensions of value that will be assessed in the evaluation process. It is essential to define the anatomy of value in terms of structure as well as the importance of the identified dimensions from different evaluation perspectives. This may be done with the existing value models or value structure may be derived specifically for the purpose of the evaluation. In either way, evaluation objectives should correspond to three criteria of evaluability:

- Plausibility and relevance among stakeholders;
- Accessibility of the information about objectives;
- Interpretability of the results of evaluation based on the defined objectives.

Time of evaluation describes at which stage of the service cycle is the evaluation conducted. Evaluations, before the service is implemented, are usually aimed at assessing the design idea or service prototype before service is offered on the market. During the service experience focus is on monitoring the infield performance of the service experience in order to ensure immediate reaction to unexpectedly arising issues. Finally, after the experience evaluations are delving into perceptions, reactions and memories of experience stakeholders to verify the outcomes and identify the room for improvement for future interactions.

Defining the outlined elements is key to developing an efficient systematic tool for service evaluation which can be replicated across experience service design cycles but also across contexts (i.e. for extended scope of stakeholders, as benchmarking tool). Given the dynamic nature of value, one of the key evaluation challenged is to cope with heterogeneity and constant update of value perceptions.

2.2.3 Data-driven value research

Digitalization and resulting overwhelming connectivity dramatically changed the nature and overall landscape of human-to-human and human-to-business interactions. Through the range of connected devices, both customers and companies generate enormous amounts of information, leaving behind a diffused network of digital traces. Essential characteristics of these data are that they are voluntary in nature, current and often accessible to other web users. New methods emerge to exploit the knowledge creation potential of online data in its' variety of forms, i.t. text, visual files, hyperlinks, tags, URLs or click-stream information. Service research is not new to harnessing the potential of online data to improve knowledge about customer opinions and feelings (Kim & Fesenmaier, 2015), their behavior (Ye et al., 2011), business positioning strategies (Költringer & Dickinger, 2015) or performance (Gunter & Önder, 2016).

Meanwhile, the integration of online data and analytics as an approach to service design and service evaluation remains in its infancy. The research predominantly relies on established quantitative and qualitative methodologies, i.e. surveys, interviews, focus groups, content analysis. While well developed, this approach is resource-intensive, given the time, human and material resources needed for collecting and interpreting the data, and thus, it is not flexible enough to support iterative analysis and real-time decision-making. In this context, data-driven approaches such as text-mining, emerge as a promising alternative (Blei et al., 2003; Mankad et al., 2016). Accept from assessing to the latent information of the online data, the new methods, like data mining, are capable of advancing research processes by allowing for semi- or fully automated analysis of the wider scope of data (Augenstein et al., 2018). Combining these analytics with theory-driven human interpretation generates richer insights into business processes and consumer behavior (Lim & Maglio, 2018a; Ordenes et al., 2014).

The data for the analysis may be extracted from a wide range of internal (i.e. business plans, reports, internal and outgoing communication, online descriptions etc.) and external (i.e. user-generated content, online news entries etc.) sources. However, as demonstrated in the brief review of service research cases, customer-centred inquiry based on unstructured customer data or user-generated content (UGC) like online reviews are prevailing in the application of data-driven methodologies in the field. At the same time, business performance is often evaluated in the light of quantitative information, like the number of visits, comments, likes, click-stream, ignoring the substantial qualitative business-related information from the business reports and internal of outgoing communication. To date, no studies were identified that employ data-mining, i.e. text-mining to delve into qualitative information of value proposition from online business communication, like the company's descriptions extracted from official web pages. A further challenge is seen in combining user-generated information with the insights form business communication to develop a systematic data-driven approach to facilitate the multi-perspective assessment of value co-creation process.

Hence this study attempts to bridge the identified gap by developing and testing text-mining approach to service evaluation derived from online hotel guests' reviews and online hotel descriptions presented on the official web sites.

2.3 Methodology

2.3.1 Research Paradigm and Research Design

Before delving into nuances of the methodological approach, it is essential to delineate philosophical underpinnings of the current research. The author approaches value proposition evaluations from a critical realist standpoint, combining "ontological realism, epistemological relativism and judgmental rationality" (Archer et al., 2013). The ontological assumption of critical realism implies that reality is stratified into empirical (can be experienced directly or indirectly), actual (occurs independently from

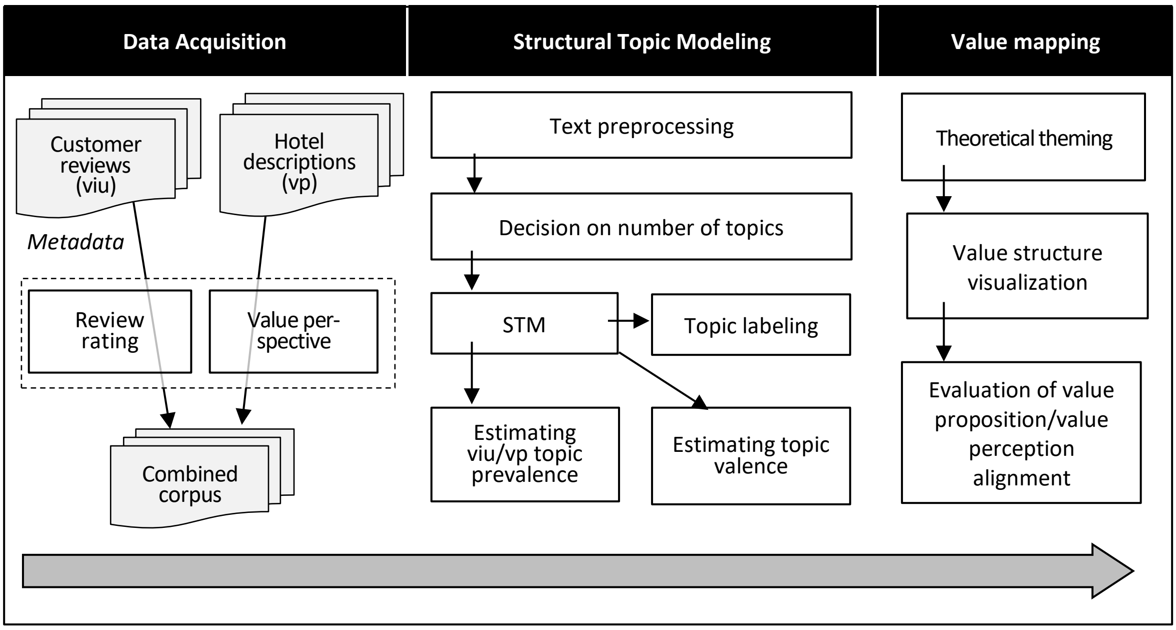

FIGURE 2.1 RESEARCH DESIGN

experience) and real (causal mechanisms that generate events in the actual and empirical level) domains (Danermark et al., 2019). The causal mechanisms of the real domain cannot be apprehended directly, but they can be inferred through empirical investigation and theory construction (McEvoy & Richards, 2006). The resulting knowledge is contextual, mediated by theoretical preconceptions, experiences and perceptions. The SDL view of value as a perceptual construct implies its relativist nature. Value is not rigid but is phenomenologically determined by the beneficiary (i.e. customer) (Vargo & Lusch, 2008).

For research to convey the capacity of the inferred knowledge to inform about external reality, a transparent, reproducible methodology of empirical inquiry is essential Hence, as presented in the previous section, this study employs systemic service evaluation strategy to assess service value dimensions of the hotel experience from both providers' and customers' perspectives. Guided by the abductive logic, theoretical underpinnings of value, service evaluation and technological advancements in service research were reviewed to set the context for the inquiry. Subsequently, the underlying dimensions of perceived and communicated value were inductively inferred with unsupervised topic modeling and then labeled based on semantics. The identified value structure was further contrasted by the source of value information (value proposition vs value-in-use) as well as by the valence of value sentiment (positive vs negative value-in-use). Finally, the topics were aggregated into themes reflecting theoretical value structures (Smith & Colgate, 2007) and visualized in a value map to facilitate identification of areas where interventions might be necessary (Figure 2.1).

The research design in this study builds around structural topic modelling (STM), employed to analyze value proposition communication and customer value perception in the hotel sector. The method has been applied across industries and research contexts to extract the information and underlying patterns in large sets of textual documents, i.e. online reviews (Kirilenko et al., 2018), Twitter posts (Junqué De Fortuny et al., 2012), news entries (Lim & Maglio, 2018b), academic publication databases (Kuhn, 2018), business reports (Babić Rosario et al., 2016; Chevalier & Mayzlin, 2006; Ho-Dac et al., 2013) etc. STM is a part of a broader pool of topic modelling algorithms that in their core are computational versions of a thematic analysis, used for automated coding of large collections of unstructured text (aka *corpus*) and identifying hidden themes (aka *topics*) (Ignatow & Mihalcea, 2017). Like other topic modeling algorithms, e.g. latent dirichlet allocation (LDA) (Blei & Lafferty, 2007), correlated topic modeling (CTM) (Blei et al., 2003), STM (Roberts et al., 2014), STM is built around relativist assumption that first, each topic reflects a distribution of words frequently co-occurring in the corpus; second, a document is the mixture of those words scattered across the topics (Roberts et al., 2014). Assignment to the topics is done in the unsupervised manner that entails no assumptions regarding the thematic structure of the corpus are made prior to the analysis (Ignatow & Mihalcea, 2017). The optimal number of topics (*k*) is determined through a combination of statistic procedure and heuristics, explained in the following section. In contrast to the more established LDA model, STM bears a significant improvement. It allows enriching the model with document-level metadata, which have the capacity to affect distribution (*prevalence*) of the identified topics or the topical content **Error! Reference source not**

found..2. Hence, to tackle epistemological relativism, STM supports knowledge creation across multiple contexts. In the case of this study, STM facilitates evaluation of alignment between value proposition communication and customer value perception.

2.3.2 Data acquisition and preprocessing

In line with the reviewed literature, service evaluation and value proposition evaluation, in particular, should be conducted by contrasting at least two perspectives on the service experiences. Hence in this study, two types of textual data were collected: official hotel descriptions as a proxy for value proposition communication and inline hotel reviews as a proxy for customer perception of hotel experience value. Online hotel reviews dataset used for this study was similar to the one used for preceding research. The dataset of online hotel reviews consisted of 515,738 reviews of 1,493 four and five-stars hotels in six European cities: Vienna, London, Amsterdam, Rome, Milan and Barcelona. Data were initially scraped from Booking.com between June 2015 and September 2017 and subsequently downloaded by the author from the data science community Kaggle.com (Liu, 2018), where the file was hosted under commons license. The reviewer-level items include reviewer ID, the textual body of the reviews, numerical review ratings, hotel name, address and reviewer nationality. Upon preprocessing, further elaborated in the following subchapter, the effective dataset consisted of 17,372 reviews of 1,390 hotels from the mentioned cities. Textual hotel descriptions were manually scrapped from the official web sites of 1,390 hotels from the customer review database (Figure 3.). The descriptions were allocated either on the starting page or in the "about" section of the hotel website when the start page was strictly visual. Since both customer reviews and hotel descriptions characterize the same experience, it can be argued that the core vocabulary used in both is comparable and can be used as constituents of one service evaluation dataset. Hence, the two datasets were combined into one dataset by the hotel name. The resulting dataset of 18,762 documents was used for the analysis.

Given the unstructured nature of the obtained text documents, document preparation and preprocessing are an essential part that directly connects with the quality of the modelling output (). First, non-English documents and duplicates were removed from the dataset. Short reviews with less than 30 words were removed from the dataset. Then in order to explore emotional orientation (valence) of customer value perceptions, the ten-point review rating scale used by Booking.com was divided into three groups signaling positive (eight to ten points), negative (one to four points) or neutral (five to seven points) experiences of the customers (Kotsiantis et al., 2006). The latter were discarded from the analysis. The structure of the remaining dataset was significantly skewed towards reviews with positive sentiment.

Hence to prevent possible damage as a result of dataset imbalance (Kotsiantis et al., 2006), the prevailing positive reviews were randomly under-sampled which yielded balanced dataset of 17,372 reviews including 8,372 negative and 9,000 positive review.

Final step was text preprocessing, which included normalization by lowercasing the text; removal of special characters (i.e. punctuation signs), numbers, stop words (i.e. *a, the, at*), sparse terms (words occurring in less than 10% of the documents); stemming (reducing the words to the root forms, i.e. *run, running, runner* is reduced to *run*). Data preparation, preprocessing as well at subsequent STM analysis were all conducted in R environment using respective packages.

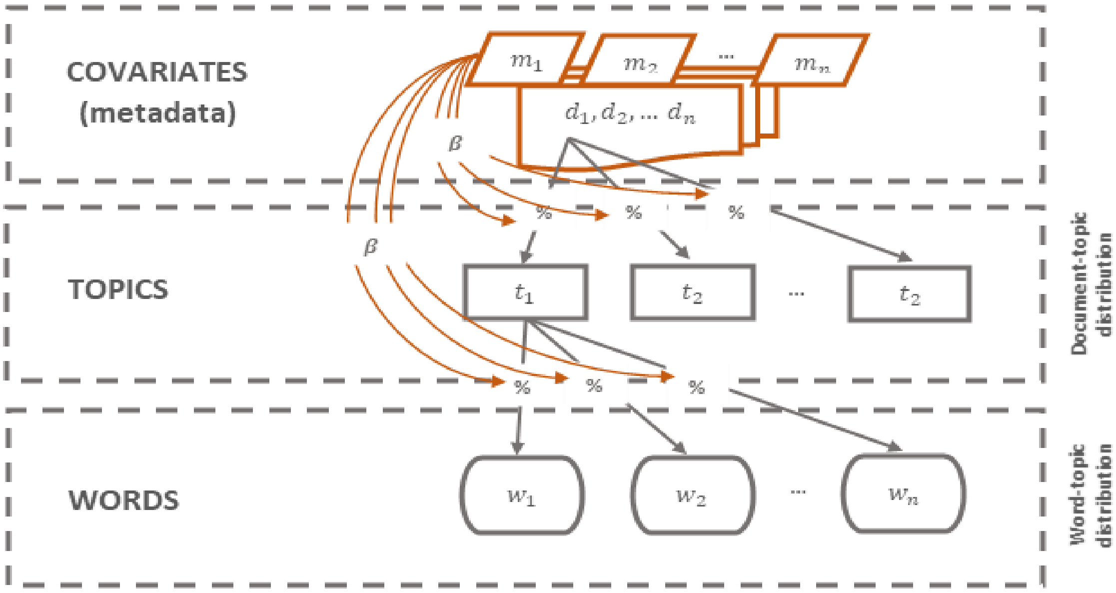

FIGURE 2.2 STRUCTURAL TOPIC MODELING (STM) (ADAPTED FROM SCHIEMEL, MÜLLER & VOM BROCKE (2018))

2.3.3 Model setup

The decision on the number of topics for the model plays an essential role in the performance of the STM model and subsequent interpretativeness of the results. Whereas there is no truly objective way to determine the number of topics, several statistical techniques are used to identify the candidate models (Roberts, 2017). In this study, the optimal number of topics is identified as a trade-off between semantic coherence and exclusivity. Both semantic coherence and exclusivity are maximisation parameters. The former measures the frequency with which words occur and the pairs of words co-occur in the corpus. The latter indicates how probable the words in one topic to appear in another. Upon running the test for models between 3 and 30 topics, 15 topics model was selected as the optimal for the analysis (Figure 2.3), which is consistent with the preceding study where the analysis was run in 14 topics scenario.

This parameter (k=15) was further used to run the model to estimate the underlying structure of value communication versus perceived value. The model is specified as follows (Equation 2.1):

EQUATION 2.1 TOPIC PREVALENCE

$$\text{Prevalence}_{d,k} = \beta_0 + \beta_1 \times \text{source}_d + \beta_2 \times \text{pviu}_d + \varepsilon_d,$$

where $\text{Prevalence}_{d,k}$ denotes the proportion of the *k*th topic in the *d*th review. Source_d indicates whether the text is a hotel description (value proposition) or customer review (perceived value-in-use).

pviud is a measure of the extremity of the customer review *d*. Reviews rated 1 to 4 points are coded as *0* marking negative value-in-use expressions, those with 8 points and more are coded as *1,* indicate positive value-in-use expression. $\beta 0$, $\beta 1$, $\beta 2$ are the intercept of the respective coefficients. εd is a summary of unobserved residuals or standard error term.

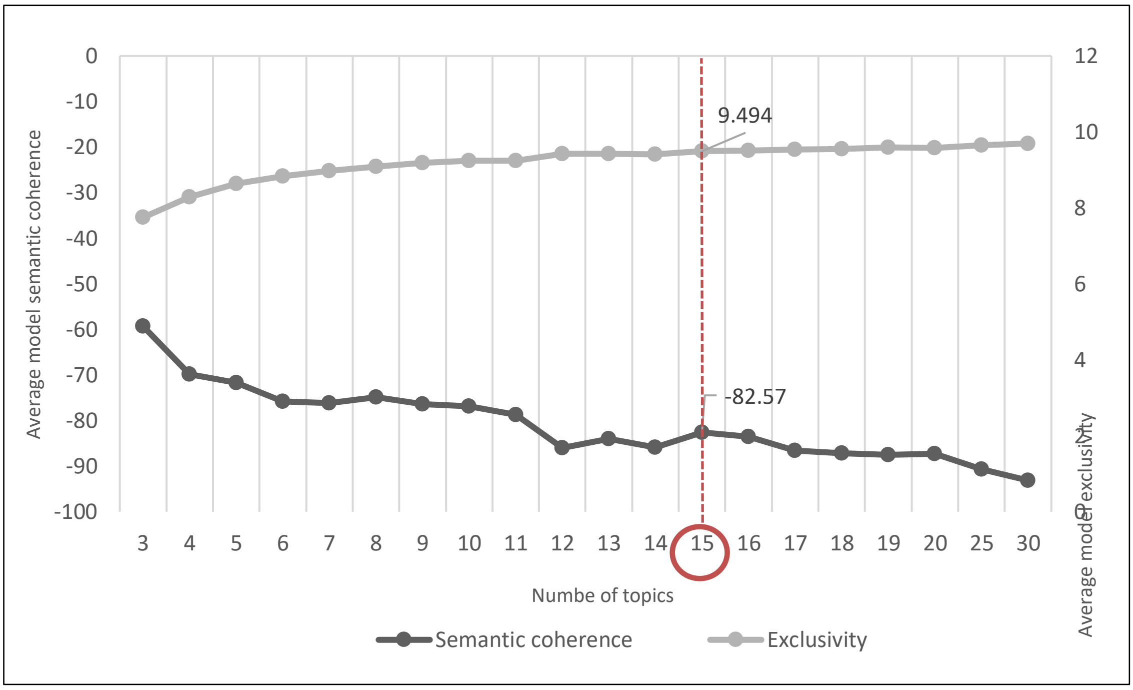

FIGURE 2.3 STATISTICS TO SELECT NUMBER OF TOPICS

2.4 Limitations

The proposed research design is not without limitations, which are primarily related to data collection procedure and the nature of the data in the final sample. First, service evaluations in this study will be performed based on a dataset of textual hotel descriptions and online reviews. Excluding other forms of data, i.e. visual content, and sources of data, i.e. online advertising, press-releases or customer reviews from other platforms, could lead to ignoring of significant value-related insights and limit the generalizability of the findings. Second, the extant literature emphasizes that online reviews, used for assessing customer perceived value, are subject to self-selection (Li, Hitt, 2008, Hu, Pavlou,Hang 2017) and response bias. Customer online evaluations of the service experiences could be framed by personality traits, i.e. technological efficacy or propensity to complain; and influenced by situational factors (Choi, 2016; Aral, 2013), i.e. peer-pressure or time of review.

Additionally, for performing value proposition evaluations, this study will rely on the mean-difference approach. The future studies might investigate the performance of the suggested approach against others, i.e. Jason-Shanon divergence, etc.

2.5 Expected results

The proposed study suggests and implements a systematic semi-automated framework for value proposition evaluation. It is expected that the study will exhibit the structure of value from both a business and a customer perspective. The identified value-forming elements will reflect functional, experiential, symbolic and cost-sacrifice types of value related to the hotel product itself, environment, interactions or ownership transfer experience (Smith & Colgate, 2007). Building on the current theoretical developments this study is expected to contribute to the theory in the following. First, the results will enhance understanding of the composite and prevalence structure of value from multiple perspectives. Second, the study will validate STM as a methodological approach to service evaluations and systematic value monitoring. Evaluating the alignment of forming value elements across the two perspectives will generate insights into coherency of value proposition narrative with the perceptual understanding of valuable hotel experience among customers.

From a managerial standpoint, the proposed service evaluation approach could be helpful in assessing strengths and weaknesses in the value proposition communication, revealing the areas for service redesign interventions. The nature of the data used for the analysis and semi-automated approach to analysis could be an incentive for implementation of the ongoing learning-design-change cycle - a value monitoring system to assess business performance, predict customer reaction to service value redesign, facilitate proactive reaction on potential service failures and once again evaluate the effectiveness of the measures.

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3 STUDY 3. THE EFFECT OF PRIOR SERVICE RECOVERY EXPERIENCE ON CUSTOMER FORGIVENESS AND FUTURE SERVICE EXPECTATIONS: VICTIM VS OBSERVER PERSPECTIVE

3.1 Introduction

Service experiences are prone to failures. Whether dining out, staying in the hotel, checking in for a flight or going for a routine grocery shopping, customers often suffer from poor service themselves or witness other customers being mistreated (Shin et al., 2018). According to the 2017 National Customer Rage Study 56% of consumers in the US have experienced at least one problem during the past 12 months, which is nearly 20% more than the similar indicator from 1976 (Customer Care Management & Consulting, 2017). Extant literature indicates the damaging effects of poor service delivery, associated, among others, with negative emotions, dissatisfaction, negative word-of-mouth, switching intentions (Bitner, 1990; McCollough et al., 2000; Sparks & Fredline, 2007; Tsarenko & Tojib, 2012). Given the lasting effect of negative emotions (Daniel Kahneman & Tversky, 1979), increasing research has been concerned with customers' reactions to companies' service recovery efforts following service failures together with factors facilitating or inhibiting these reactions (Schoefer & Diamantopoulos, 2008; Sparks & Fredline, 2007). According to the finding, a range of tangible, like compensation (e.g. Wirtz & Mattila, 2004), and psychological recovery actions, like excuse or apology (e.g. Bradley & Sparks, 2012), aid positive customer evaluations (e.g. satisfaction) and favorable behavior (e.g. repurchase intention, reduced negative word-of-mouth) (e.g. Choi & Choi, 2014; Hess Jr. et al., 2003; Mattila, 2001; Swanson & Kelley, 2001). The effectiveness of the service recovery efforts hinges upon subjective processing and transformation of initial customer emotional, cognitive and behavioral reactions to service failure and recovery (SFR) incidents, known as forgiveness (McCullough et al., 1998; Tsarenko et al., 2019). Severity of service failure, perceived quality of recovery performance (Hess Jr. et al., 2003) or customers relationship history with the service provider are common mediators of these effects.

These findings primarily describe the perspective of the sides directly involved in the SFR experiences, particularly affected customers (also a *focal* customer) and employees accountable for the problem and/or recovery actions. Since services are often delivered publicly, the obvious question is whether the observed consequences of service failure and recovery (SFR) experiences extend to other actors, like other customers, employees or random by-passers (aka *social-servicescape*). While a number of previous studies have integrated other customers into the service experience frameworks, the focus was mostly on the impact presence of others has on focal customers' behavior (Belk, 1975; Grove & Fisk, 1997; Huang & Wang, 2014). To the best of author's knowledge, only a handful of studies explored spillover effects of the SFR processes on the experiences of witnesses or passive *observers*. There is a general agreement that observing someone being mistreated, impacts one's mood negatively (Mattila et al., 2014), service evaluations (van Vaerenbergh et al., 2013) and behavior (Casidy & Shin, 2015), while witnessing company's effort to recover the failure may have a soothing effect (Sharifi et al., 2017). However, the size of the identified effects and the relevant moderators are yet to be discovered. Given that dozens of other customers may observe a single SFR incident, pertinent detrimental effects of service failures may be immense.

Finally, we are turning to the approach to SRF inquiries. In most of the exemplified studies, customer SFR incidents are studied as stand-alone experiences, loosely connected to the total customer experience. Extant experience research draws attention to the dynamic nature of experiences, particularly customer experiences, that are updated at each service encounter and the post-consumption stage when customers resort to behavior justification and sense-making (Boulding et al., 1993; Maxham & Netemeyer, 2002). Good or bad, experiences serve as a source for future service expectations (Zeithaml et al., 1993), which customers use as a benchmark for judging service outcomes (Oliver, 2014). Therefore, neglecting temporal dimension in SFR research might hinder from understanding the entire service failure consequences and how SFR experience interrelates with the regular customer journey and vis-a-versa.

Following the recent developments in service recovery literature, in this study, SFR is conceptualized as a holistic experience – journey that can co-exist with or disrupt regular customer journey (Van Vaerenbergh et al., 2019). The objective of the study is to infer whether and how customers update their expectations following service failure and recovery incidents; evaluate the role prior experiences and harm direction in the detected reactions. The objective will be attained by implementing the scenario-based experiment and manipulating the quality of prior SFR experience, service provider's response to the service transgression and the degree of customer's involvement in the transgression event.

The results of the study are expected to contribute to the service recovery and broader consumer behavior literature by leveraging the SFR journey lens to advance the understanding of underlying mechanisms defining customers' evaluations of companies' efforts to mitigate the harm caused by service failure incidents. It also is expected to provide evidence of interdependencies between SFR and regular customer journey, which would prompt the amendments to the existing perspective on the effectiveness of service recovery actions.

The remainder of the study proposal consists of the following parts. The theoretical framework covers the literature on customer service expectations and the role of previous experience in shaping those; customer involvement in SFR experience and forgiveness; and finally, common organizational responses to service failures. The following part describes the research design and methodological approach used in this study. The proposal is wrapped by the summary of the expected results and list of references.

3.1 Theoretical Background

3.1.1 Organizational responses to service failures

Service recovery refers to actions undertaken by a service provider in response to dissatisfaction with service or its elements (Koc, 2019; Miller et al., 2000), which aims at mitigating damaging effects of service failure experience and restoring favorable attitudes towards the company. It is service recovery that facilitates forgiveness and shapes service failure and recovery expectations of the customers.

Drawing on resource-exchange theory (Foa & Foa, 2012), organizational responses to service failures take two forms: tangible and psychological (Miller et al., 2000) (**Error! Reference source not found.**). *Tangible* service recovery strategies include the provision of economic and financial benefits as restitution for the failed service experiences. Monetary compensation, in the form of a voucher, credit for future service experiences, discount or money back (Roschk & Gelbrich, 2014); new/exchanged goods or new/re-performed are examples of this type of recovery strategies. *Psychological* recovery refers to an affective reaction to customer's distress (Liao, 2007; Miller et al., 2000), expressed through apology, excuse, justification or by providing referential account. *Apology*, the most common psychological recovery strategy, is a form of psychological compensation describing "a regretful acknowledgement of service failure" (*Apology | Meaning of Apology by Lexico*, n.d.). In its basic understanding, an apology is a minimum requirement for the customer-centric service, and in the situations of failed services, should happen automatically regardless the following recovery strategies.

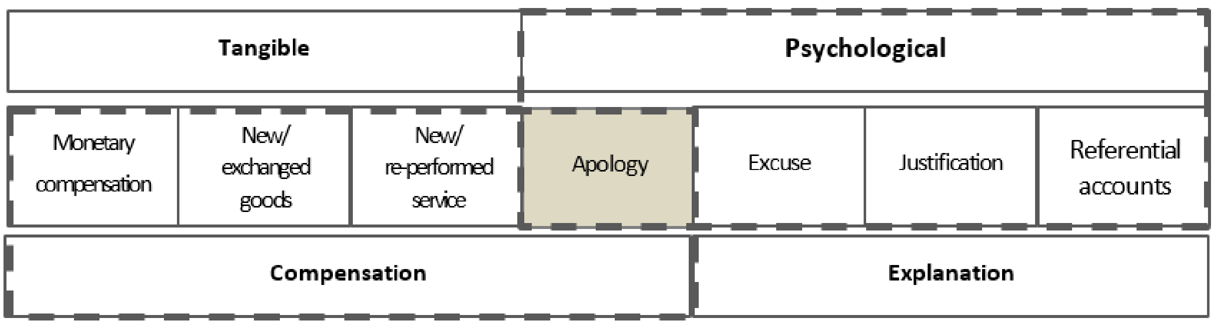

FIGURE 3.1 TYPOLOGY OF ORGANIZATIONAL RESPONSES TO SERVICE FAILURES
BASED ON FOLGER & CROPANZANO, 1998; ROSCHK & GELBRICH, 2014

Excuse refers to a service provider's attempts to shift the responsibility for the service failure to the external cause. Unlike excuse, justification entails acceptance of the responsibility, which is followed by the reasons condoning dissatisfactory service experience outcome (Folger & Cropanzano, 1998). Finally, a referential account is a strategy to minimize perceived gravity of service failure "by invoking downward comparison" (Bradley & Sparks, 2012, p. 41).

Apologies and monetary compensations remain the most widely studied service recovery strategies (Casidy & Shin, 2015; Grewal et al., 2008; A.S. Mattila, 2001; Wirtz & Mattila, 2004), whereas research on the rest of the strategies remains fragmented and results are often inconsistent. While a group of studies report that excuses outperform justifications or referential accounts in the capacity to elicit favorable service evaluations (Bradley & Sparks, 2012; Shaw et al., 2003); some scholars argue the contrary (Conlon & Ross, 1997). Another avenue that this study aims at exploring the efficiency of combined service recovery responses in contrast to the simple apology. Extant literature suggests that complementing apology with cometary compensation increases the favorability of service recovery actions (Casidy & Shin, 2015; Mattila, 2001). Meanwhile, the cumulative effect of psychological recovery strategies remains underexplored.

3.1.2 Customer service expectations and the role of prior experience

For decades, services and marketing literature has emphasized customer expectations and the role they play in perceptions of service outcomes (e.g. service quality, satisfaction, value). Service expectations are defined as customer predictions of *how* service experience should look like. According to disconfirmation theory (Oliver, 1980, 2014), the degree to which service experience adheres to customer expectations defines customers' post-consumption evaluations. Hence understanding and anticipating customer expectations is instrumental for designing valuable service experiences.

Service recovery expectations are constituent of overall service expectations that reflect customers prediction of service provider's ability and approach to handling service transgression (Boulding et al., 1993). The predictions hinge upon service-related components, such as the communicated value proposition; and subjective factors, such as personal needs or prior experience with the service or prior relationships with the service provider (Kelley & Davis, 1994; McDougall & Levesque, 2000). The latter are prevalent in defining service recovery expectations, implying that expectations are not static, but revised with every service encounter.

The extant literature emphasizes that customers strongly rely on prior experience to develop service recovery expectations (Boulding et al., 1993; Oliver, 2014). It is defined in terms of aggregated number of previous interactions with a service or a service provider along with the quality of those interactions. Importantly these interactions are not restricted to a company but extend to a class of similar services (Zeithaml & Bitner, 2000).

Negative prior SFR experience illustrates a double deviation, in which service failure is followed by weak service recovery (Tax & Brown, 2000). Such a dissatisfactory experience generates a feeling of cognitive dissonance (Festinger, 1962). To compensate for it, customers tend to increase their expectations as a for subsequent experiences, to ensure sufficient evaluation-expectation spread and, in this manner, justifying negative evaluations (Clow et al., 1998).

Similar update of service recovery expectations occurs following positive prior SFR experience as well. Acknowledging service provider's efforts in recovering failed services, customers are likely to increase their rating of the overall experience, known as service recovery paradox (McCollough et al., 2000); which serves as a signal for the corresponding adjustment in service recovery expectations, explained by assimilation (Maxham & Netemeyer, 2002; Oliver & Burke, 1999). The expectations are updated upon every SFR incident (Bitner, 1990). However, given the salience of negative events (Daniel Kahneman & Tversky, 2013), with reoccurring negative SFR experiences boost recovery expectations stronger compared to repeated positive SFR experiences.

Another important construct, especially in the light of prior SFR experiences, is service failure expectation – predictions regarding service malfunction. Failure expectations reflect a degree of uncertainty or risk acceptable in service encounters (Murray & Schlacter, 1990). It is inversely related with service evaluations and hence with service expectations (Hess Jr. et al., 2003).

Given the previous research the following hypotheses are proposed:

H1. Customers with negative prior SFR experience have higher service failure and recovery expectations compared to customers with a) positive or b) no SFR experience.

H2. SFR experience results in significant update their a) service failure and b) service recovery expectations.

H3. The magnitude of increase in a) service failure and b) service recovery expectations between SFR incidents is moderated by a) emotional and b) decisional forgiveness.

3.1.3 Forgiveness

Customers judgements of the effectiveness of service recovery efforts reflect customers' ability to cope with negative emotions elicited by service failure incident. Forgiveness, as one of the coping strategies, describes the process of letting go of "vengeful thoughts and feelings towards (service) providers in the aftermath of service transgressions" (Tsarenko et al., 2019, p. 1). It is a link between SFR experiences and service outcome judgements that directly influences future service expectations. Though an established concept in philosophy (Hughes, 1995; North, 1987) and psychology (Berry et al., 2005; McCullough et al., 1998), forgiveness is relatively new to services and marketing research. Early results indicate the capacity of forgiveness to promote service repatronage intentions (Harrison-Walker, 2019) while discouraging customers from engaging negative publicity (Harrison-Walker, 2019; Strizhakova et al., 2012) or revenge behavior (Johnson et al., 2011; Joireman et al., 2013; J. R. McColl-Kennedy et al., 2015).

Worthington & Scherer (2004) suggest forgiveness happens on two levels - emotional and decisional. *Emotional forgiveness* describes the affective reaction to the perceived injustice gap – the difference between preferred and actual service recovery (Exline et al., 2003). The larger the gap the harder it is for the customer to forgive. *Decisional forgiveness* indicated behavioral intention towards a transgressor, formed through cognitive evaluation of an SFR experience (Worthington & Scherer, 2004). Reflecting two levels of decision-making – heuristics and cognitive, emotional and decisional forgiveness are not prerequisites for each other, but rather happen in parallel. One may decide to forgive, but still, hold on to emotional grudge towards the service provider.

Understanding of the processes behind emotional and decisional forgiveness in SFR experiences is instrumental for grasping the reasons behind effectiveness (or lack of) of specific service recovery strategies over others. Based on the extant literature, the following hypothesis are proposed:

H4. Service recovery strategies have significantly different effect on customer a) emotional and b) decisional forgiveness.

H5. Customer a) service failure and b) service recovery expectations moderate the effect of service recovery actions on c) emotional and d) decisional forgiveness.

H6. A) emotional and b) decisional forgiveness positively effect c) service failure and d) service recovery expectations.

H7. Customer a) emotional and b) decisional forgiveness mediates the effect of service recovery actions on future c) service failure, d) service recovery expectations.

3.1.4 The direction of harm: victim versus observer

Services often happen in public settings, with multiple customers and simple by-passers having an opportunity to observe service delivery process, and hence witness SFR incidents. However, not much is known about the potential impact those incidents have on evaluations and service expectations of those only indirectly involved into the service process (further in this study as *observers*) (Casidy & Shin, 2015; Henkel et al., 2017; A. Mattila et al., 2014; Sharifi et al., 2017; van Vaerenbergh et al., 2013).

The extant research demonstrates, that observing injustice towards fellow customers and service provider's reactions to it, results in negative emotions and attitudinal changes towards the company , which among others, can be lead to adjusted service expectations (Sharifi et al., 2017). Observing varying recovery efforts (e.g. monetary compensation, apology) elicits positive emotions in observers (Mattila et al., 2014; van Vaerenbergh et al., 2013). Furthermore, only handful of studies focus of direct contrasting of victims' reactions against those of observers (Sharifi et al., 2017; van Vaerenbergh et al., 2013). Limited knowledge in this area indicate, that while victims tend to be more hurt by the service failure, they are also more forgiving and tend to recognize recovery efforts by the company. Meanwhile, observers remain more critical of provider's attempt to restore the failed service experience (Sharifi et al., 2017). At the same time, van Vaerenbergh et al. (2013) report that observers are more prone to forgive service failures. Such mixed conclusions indicate the need for further investigation of the observer versus victim perspective on SFR effectiveness, subsequent forgiveness and expectation development, expressed in the following hypotheses:

H8. The effect of service recovery on a) emotional and b) decisional forgiveness is stronger for victims of service failure incidents compared to observers.

H9. The magnitude of increase in a) service failure and b) service recovery expectations between SFR incidents is moderated by the degree of involvement in service failure incident (victim versus observer).

Conceptual model (Figure 3.2) provides an overview of the research constructs and illustrates hypothisized relations proposed above.

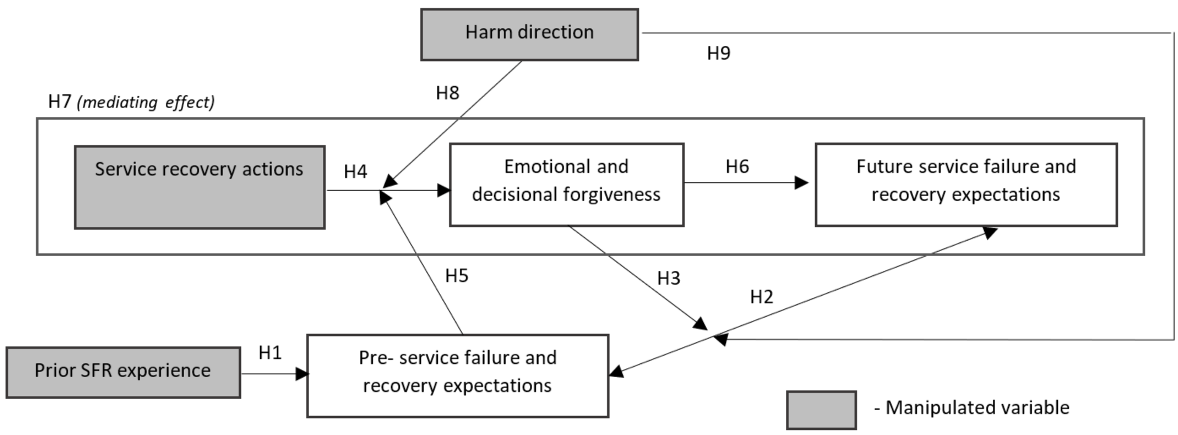

FIGURE 3.2 CONCEPTUAL FRAMEWORK

3.2 Methodology

3.2.1 Research paradigm and research design

In service and marketing literature experiments are frequently used to inquire into determinants and reactions to service failure/recovery experiences (Mok et al., 2008; A. K. Smith & Bolton, 1998; Sparks & Fredline, 2007). Considered a "gold standard" of scientific inquiry, the unique selling proposition of experimental research design is in the capacity to identify causal relationships among variables by manipulating them in the control environment. The cornerstone issue is the generalizability of the conclusions. While attainable in natural sciences, the quest for universal infallible causes in consumer research, in particular, is jeopardized by the heterogeneity and complexity of social systems. Apart from the defined treatment, the human behavior is subject to contextual factors, like subjective experiences, personality traits, situational factors (i.e. weather, group membership) etc. From a critical realist perspective, the outcome of experimental manipulation does not imply universal regularities. However, it indicates the existence of underlying causal structures (mechanisms), "that may well give rise to differences or contrasts that are relatively enduring across time, space and context" (Jones, 2010). In other words, the observed outcomes are the function of mechanisms that exist outside of human perception and actual context that may be partially considered; which are never a perfect reflection of reality (Danermark et al., 2001).

This study employs between-subject scenario-based experiment design (Figure 2), to assess the impact of service recovery actions on hotel guests' forgiveness and future service expectations, but also to estimate how this impact varies depending on the role in the service failure/recovery process (object or observer); and across guests with distinct prior experience histories. Hence three independent variables will be manipulated (**Error! Reference source not found.**):

Prior service failure/recovery (SFR) experience: no experience vs positive SFR experience vs negative SFR experience);

customer's role: victim or observer of the service failure;

hotel's service recovery actions: apology, apology and explanation; apology and compensation.

Scenario-based experiments are particularly favored among consumer behavior researchers as a tool for operationalization of difficult and expensive manipulations by controlling over otherwise unmanageable variables (Bitner, 1990). By using scenarios, researchers also avoid ethical considerations associated with imposing or observing service failures in the real-life context while controlling for response bias due to memory lapses and post-consumption rationalizations, common for recall-based studies (A. K. Smith & Bolton, 1998). These issues are particularly relevant for the current research since the goal is to measure the changes in service expectations throughout SFR experiences attributed to pre-defined conditions (e.g. presence and quality of prior experience). The key drawback of the scenario-based experiment is the inability of participants to imagine and/or fully emphasize with the presented scenarios and thus, provide actual reactions. To minimize this issue, the scenarios for the study were selected and refined through the multi-stage process. The set of potential service failure situations was compiled based on the findings of the previous studies conducted within the scope of the dissertation. The scenarios were subsequently pre-tested for realism and credibility with a group of Master students and fellow researchers at Modul University Vienna. The resulting 18 scenarios plot SFR experience triggered by the hotel overbooking adjusted for the manipulation conditions (Appendix A).

3.2.2 Procedure and Sampling

The participants for the study will be recruited via online panel service Prolific (www.prolific.co) and subsequently will be randomly assigned to one of 18 scenarios. Each participant will be first presented with the instructions, explanation of the objectives of the study, and then instructed to imagine themselves in the role of the hotel guest. The experiment will start with the general introduction to the experience context – a traveler visiting Vienna for a long weekend arrives to check in to the hotel with subsequent manipulation of the prior SFR experience. At this stage, the participants will be asked to evaluate their emotions, service and service recovery expectations and demographics. Upon completion of the pretest questionnaire, the participants will proceed to one of three versions of SFR situations. The experiment will conclude with the post-test opinion measurement of the relevant variables.

3.2.3 Treatment, Measures and Manipulation Checks

Independent variables. Given the research design, three factors will be manipulated in this study: prior SFR experience, customer role and service recovery actions (Appendix A). *Prior SFR experience* will be manipulated by implying that the participant had either no prior SFR experience, positive or negative prior SFR experience. To manipulate *customer's role,* the participants will be asked to imagine that the failure happened to them (victim) or that they observed SFR experience of a customer ahead in line (observer). Finally, to manipulate *service recovery actions* receptionist either briefly apologized for the inconvenience and presented the overbooking information (apology), apologized and provided an explanation for the occurred situation (apology with explanation); or alongside with brief apology provided a voucher for a spa visit and a discount for the future hotel stays (apology with compensation).

Dependent and mediating variables. Appendix B summarizes the measurement items to be used in the current study, the original source for the items and Cronbach's alpha, mean value and standard deviation. 7-point Likert scale (*from 1= strongly disagree to 7- strongly agree*) and semantic differential scale will be used to measure the core model constructs and control variables.

Dependent variables *customer service expectations and service recovery expectations* will be measured with three items, each adapted from Hess Jr., Ganesan, & Klein (2003). Mediating variables - the level of customers' *emotional* and *decisional* forgiveness will be captured by four items each (Shin et al., 2018; Tsarenko & Tojib, 2015).

Control variables. To improve causal interpretability of results and to exclude alternative explanation of the observed relationships, measurement also includes five *control* variables: emotions, frequency of service consumption, perceived severity of service failure and quality of service recovery actions. *Emotions* will be measured with ten items describing five positive and five negative emotional states (e.g. angry, joyful, happy, upset) (Schoefer & Diamantopoulos, 2008). *Disconfirmation* will be measured with one item ("To which degree would you say that your expectations were met?") (Oliver & DeSarbo, 1988). Both emotions and disconfirmation will be measured at pretest and posttest stages. Frequency of service use will be only measured once during pretest by one item ("Approximately how many nights have you spent in the hotels or other paid accommodation establishments (e.g. hotel, motel, bed & breakfast) last year?"), requiring participants to select one of three given frequency options. Perceived severity of service failure and quality of service recovery performance will be captured by two items each (Hess Jr. et al., 2003), measured during posttest only.

Manipulation checks. To make sure designed treatment worked as intended, four manipulation checks will be performed at various experiment stages. Both during pretest and posttest respondents were presented with three-item scale assessing to which extend they found scenarios to be realistic (e.g. "Presented scenario is believable.") (Miller et al., 2000). During pretest, respondents will also be asked to evaluate the quality of the prior SFR experience, measured with three items adapted from Grégoire & Fisher (n.d.) (e.g. "I am happy with the efforts the hotel was making towards consumers like me. ") Finally, during posttest, respondent' perception of their role in the described hotel check-in experience and exercised service recovery actions were measured with self-constructed scale (three items for each variable).

3.3 Limitations

Limitations of the current research proposal are related to three areas: research scope, data collection and research design. First, the types of service recovery efforts may be extended to include a greater variety of company reactions (i.e. justification, direct monetary compensation etc.) and combinations of those. Additionally, the study would benefit from exploring the other situational factors capable of affecting customer evaluation of SFR experiences (i.e. customer emotional intelligence (Tsarenko & Tojib, 2012), fairness perceptions (Wirtz & Mattila, 2004), failure severity (Sparks & Fredline, 2007), recovery voice (Karande et al., 2007)).

Second, respondents for the experiment were recruited via an online panel, limiting the participants to those who have internet access and willingly signed up for participation in the online panel. The latter implies some participants are well-skilled in survey tasks, which may create a risk of induced response bias.

Finally, despite the author's attempts to ensure consistency in the administered manipulations, one cannot fully control for the variety of personal circumstances of every experiment participant. This includes, however, given the critical realism paradigm, these limitations are accepted by the author and will be taken into account while interpreting the results.

3.2. Expected Results

Taking the example of the hotel experience, the study will extend knowledge of the service recovery process. In particular, it will provide more evidence of the effectiveness of economic versus psychological recovery strategies in terms of customer forgiveness and service recovery and service failure expectations. Defining SFR experience as a journey (Van Vaerenbergh et al., 2019), in contrast to the traditional single-point-in-time view, allows identifying interconnections and lasting effects of SFR experiences across multiple service interactions; which could help understanding irregularities in customer reactions to SFR actions and subsequent inconsistency in SFR research results. Finally, contrasting the two perspectives, one of a victim with observer's, will shed light on the scope of true harm caused by service failure incidents and the capacity of service recovery actions targeting a broader audience of observers.

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SUMMARY AND IMPLICATIONS

Table S.0.1 presents a structured summary of the three studies including research objectives, theoretical foundations, disciplinary perspectives, method as well as theoretical and managerial implications. The results of the proposed studies and the dissertation as a whole are intended to expand conceptual understanding of value co-creation across customers, providers and joint spheres, while generating actionable insights and hands-on tools for the managers to evaluate and improve the existing service designs. For this, the author undertook a multi-disciplinary approach to conceptual development and research design. With consumer behavior as a central perspective, in each study, it was intertwined with the others, like computational social science, psychology, service science.

TABLE S.0.1 OVERVIEW OF THE THREE PROPOSED STUDIES

	STUDY 1	STUDY 2	STUDY 3
RESEARCH QUESTIONS/ OBJECTIVES	*To infer the structural composition of value-in-use perceptions of the hotel service experience.*	*What is the underlying structure of a) the communicated value proposition and value-in-use in the hotel context?* *To what degree do the identified dimensions of the communicated value propositions align with the respective dimensions of value-in-use?*	*To infer whether and how customers update their expectations following service failure and recovery incidents; evaluate the role prior experiences and harm direction in the detected reactions*.
THEORY USED	Value theory	Value theory, theoretical evaluation theory	Theories on customer reactions to service failure and recovery
(INTER-) DISCIPLINARY PERSPECTIVES	Computational social science, consumer behavior, psychology, service science	Computational social science, consumer behavior, psychology, service science	Consumer behavior, psychology, service science
METHOD	Structural topic modeling of online customer reviews	Structural topic modeling of online customer reviews and online hotel descriptions	Online experiment with survey
THEORETICAL CONTRIBUTION	Inference of structure and prevalence of value-in-use dimensions. Estimation of travel party composition effect. Approbation of topic modeling as an approach to inferring structure and continuous monitoring of value-in-use perceptions across time and contexts.	Evaluation of the alignment between value proposition narrative and the value-in-use. Validation of STM as a methodological approach to service evaluations and systematic value monitoring.	Conceptualizing customer reactions to SFR incidents through service failure and recovery journey lens.
MANAGERIAL IMPLICATIONS	Insights into customer perceptions of service expereine value for service design priorities accross customer segments.	Tool for semi-automated assessment of strengths and weaknesses in the value proposition communication, revealing the areas for service redesign interventions.	Insights into service quality management for directly harmed customers and observers.

APPENDICES

Appendix A. Experimental set up and treatments for Study 3

Item	***Description***
Experiment set up	When booking a table in the restaurant, a room in the hotel, a travel ticket or doing routine grocery shopping, we always envision the perfect experiences. Yet it often happens that things do not go as anticipated. In this study, we are interested in your opinion of companies' actions amid those unfortunate circumstances. We will first present you the description of the hotel experience and then will ask questions about that experience. Remember, there are no right or wrong answers. Now we will kindly ask you to relax and try imagining yourself as a hotel guest in the following situation…
Introduction	After a two-hour flight, you land in Vienna and at around 3 pm arrive at your hotel – a modern four-star hotel in the city center, walking distance from the main sights on your list. You are looking forward to getting your room, dropping your bags and starting the city quest.
Manipulation 1. Prior SFR experience	
No prior SFR experience	Though it is your first time in this particular hotel, you have stayed in similar properties before. So far, the experience was always smooth.
Positive SFR experience	After a two-hour flight, you land in Vienna and at around 3 pm arrive at your hotel – a modern four-star hotel in the city center, walking distance from the main sights on your list. You are looking forward to getting your room, dropping your bags and starting the city quest. Though it is your first time in this particular hotel, you have stayed in similar properties before. During your last stay, you had a major problem with your booking. However, the hotel personnel reacted quickly and provided an adequate resolution to the problem.
Negative SFR experience	After a two-hour flight, you land in Vienna and at around 3 pm arrive at your hotel – a modern four-star hotel in the city center, walking distance from the main sights on your list. You are looking forward to getting your room, dropping your bags and starting the city quest. Though it is your first time in this particular hotel, you have stayed in similar properties before. During your last stay, you had a major problem with your booking. The hotel personnel was very slow in reacting to your complaint and, in the end, did not manage to provide an adequate solution for the problem.
Manipulation 2. Customer role	
Victim	You approach the front desk and wait a couple of minutes before being greeted by the receptionist. You provide your name and reservation details. The receptionist confirms the reservation but informs you that the hotel is overbooked, so

	you are relocated to a partner hotel approximately 200m away. The arrangements for the equivalent room have already been made.
Observer	As you approach the front desk and wait to be greeted, you hear that the guest next to you, has problems checking in. The receptionist has just informed them that the hotel is overbooked and they are relocated to a partner hotel approximately 200m away. The arrangements for the equivalent room have already been made.

Manipulation 3. Prior SFR experience

Apology	The receptionist adds - "I am terribly sorry about this situation. On behalf of the hotel, please accept my sincere apologies for these inconveniences"
Apology and excuse	The receptionist adds - "I am terribly sorry about this situation. On behalf of the hotel, please accept my sincere apologies for these inconveniences. There was a technical issue on the part of our reservation system provider, so some reservations were lost for a while. This led to overbooking."
Apology and compensation	The receptionist adds - "I am terribly sorry about this situation. On behalf of the hotel, please accept my sincere apologies for these inconveniences. Please, accept a little compliment from the hotel - a voucher for a spa visit and a 10% discount for the future stay in the hotel."

Note. Pre-test is performed after Manipulation 1. Post-test is performed after Manipulation 2

Appendix B. Details of the measurement items for Study 3

Scale	Source(s)	Items
Dependent variables		
Service expectations	(Hess Jr. et al., 2003)	In general, I will not be surprised if I encounter some kind of problem during my hotel stay. I would consider myself lucky if I did not experience some kind of problem with my next hotel stay I consider the odds of running into a problem when I stay in the hotel as being pretty high.
Service recovery expectations	(Hess Jr. et al., 2003)	I expect the hotel to do everything in its' power to solve a problem. I do not expect the hotel to exert much effort to solve a problem. I expect the hotel to try to make up for the problem.
Mediating variables		
Emotional forgiveness**	(Shin et al., 2018; Tsarenko & Tojib, 2012)	I continue to think about how much I hate the hotel. I am not going to get even with the hotel. I will let go of my negative emotions against the hotel. I will let go of the resentment I felt toward the hotel.
Decisional forgiveness**	(Shin et al., 2018; Tsarenko & Tojib, 2012)	I will continue my relationships with the service provider. I will make an effort to be friendly in my future interactions with the service provider. I will cut off the relationships with the service provider. I will give the hotel an opportunity to make it up to me.
Control variables		
Emotions	(Schoefer & Diamantopoulos, 2008)	The described hotel experience made me feel: Joyful; Angry; Happy; In a bad mood; Proud; Upset; Warm feelings; Sad; Appreciated; Annoyed
Perceived severity of service failure**	(Hess Jr. et al., 2003)	Having in mind the described experience, how do you rate the described check-in problem?
Quality of service recovery performance**	(Hess Jr. et al., 2003)	Based on your experience with the hotels, what is your opinion of the hotel's response to the emerged problem?
Disconfirmation	(Oliver, 1980)	To which degree would you say that your expectations were met?
Manipulation checks		
Scenario realism	(Miller et al., 2000)	The presented scenario is believable. There are service problems like this in real life. I was able to identify with the hotel guest.
Customer role**	Original items	According to the described scenario, you are the victim of the service failure at the hotel. While arriving at the hotel, you had problems checking in While arriving at the hotel, you observed another customer having problems to check-in.
Service recovery actions**	Original item	Please select one option that best describes the hotel's reaction to the problem.
Prior experience quality*	(Grégoire & Fisher, n.d.)	According to the scenario, please reflect on the prior experience with similar hotels: I have previously experienced problems with hotel service. My previous experience was quite good. I am happy with the efforts the hotel was making towards consumers like me.

***** **-** items that appear in the pre-test questionnaire only

** - items that appear in the post-test question