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*The antecedents of post-initial adoption behavior
in a S-D logic context:*

Leveraging the power of the viral metaphor to advance service innovation adoption



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Abstract

Repercussions of innovation adoption and diffusion studies have long been imperative to the success of novel introductions. However, perceptions and deductions of current innovation understandings have been changing over time. The paradigm shift from the goods-dominant (G-D) logic to the service-dominant (S-D) logic potentially makes the distinction between product (goods) innovation and service innovation redundant as the S-D logic lens views all innovations as service innovations (Vargo and Lusch, 2004; 2008; Lusch and Nambisan, 2015). From this perspective, product innovations are in essence service innovations, as goods serve as mere distribution mechanisms to deliver service. Nonetheless, the transition to such a broadened and transcending view of service innovation necessitates concurrently a change in the underlying models used to investigate innovation and its subsequent adoption. The present research addresses this gap by engendering a novel model for the most crucial period of service diffusion within the S-D logic context – the *post-initial adoption* phase, which demarcates an individual's behavior after the *initial adoption decision* of a service. As a well-founded understanding of service diffusion and the complementary innovation adoption still lingers in its infancy, the current study develops a model based on interdisciplinary domains mapping. Here fore, knowledge of the relatively established viral source domain is mapped to the comparatively undetermined target domain of service innovation adoption.

To assess the model and test the importance of the explanatory variables, survey data from 750 respondents of a bank in Northern Germany is scrutinized by means of Structural Equation Modeling (SEM). The findings reveal that the *continuance intention* of a customer, *actual usage* of the service and the *customer influencer value* all constitute important *post-initial adoption behavior* that have meaningful implications for a successful service adoption. Second, the four constructs *customer influencer value*, *organizational commitment*, *perceived usefulness* and *service customization* are evidenced to have a differential impact on a

customer's *post-initial adoption behavior*. Third, this study indicates that *post-initial adoption behavior* further underlies the influence of a user's *age* and besides that is also provoked by the internal and external environments of service adoption.

Finally, this research amalgamates the broad view of service innovation by Nambisan and Lusch (2015) with the findings ensuing this enquiry's model to arrive at a framework that it both, generalizable and practically applicable. Implications for academia and practitioners are captured along with avenues for future research.

Keywords: *S-D logic, service innovation adoption, service diffusion, WOM, commitment, customization, TAM model, continuance intention, viral metaphor, disciplined imagination, interdisciplinary domains mapping*

Table of content

1. INTRODUCTION	1
1.1 BUSINESS ECONOMIC MOTIVATION	2
1.2 ACADEMIC MOTIVATION	3
1.3 PROBLEM STATEMENT, RESEARCH QUESTION AND SUB-QUESTIONS	4
1.4 CONTRIBUTION	5
1.5 STRUCTURE	6
2. LITERATURE REVIEW	7
2.1 THE EVOLUTION TO A SERVICE-DOMINANT (S-D) LOGIC	7
2.2 SERVICE INNOVATION	9
2.3 INNOVATION DIFFUSION THEORY	11
2.3.1 Traditional product innovation diffusion models	12
2.3.2 Shortcomings of traditional product innovation diffusion models	14
2.3.2.1 Reciprocal relationship of prolonged service exchange	14
2.3.2.2 Customer attrition	15
3. METAPHOR BUILDING AND HYPOTHESES DEVELOPMENT	18
3.1 THE IMPORTANCE OF METAPHORS IN ORGANIZATIONS	18
3.2 METAPHOR CHOICE – THE DEVELOPMENT OF A GENERIC STRUCTURE (STEP 1)	20
3.3 MODEL BUILDING – THE DEVELOPMENT AND ELABORATION OF THE BLEND (STEP 2)	21
3.3.1 Immune response and attitude toward using	24
3.3.2 Susceptibility to infection and level of episodic influence	25
3.3.3 Incubation and organizational commitment	26
3.3.4 Replication and perceived usefulness	27
3.3.5 Mutation and service customization	28
3.3.6 Recovery and customer attrition	29
3.3.7 Chronic infection and actual usage	30
3.3.8 Transmissibility of infection and customer influencer value	31
3.3.9 Direct effects	33
3.3.10 Sub-questions in form of moderating variables	34
3.3.10.1 Sub-question 1 – The external environment	34
3.3.10.2 Sub-question 2 – The internal environment	36
3.4 CONCEPTUAL MODEL – THE EMERGENT MEANING STRUCTURE (STEP 3)	38
4. METHOD	39
4.1 SETTING	39
4.2 SAMPLE	41

4.3 PROCEDURE	42
4.4 MEASURE DEVELOPMENT	42
4.5 ANALYTICAL STRATEGY	45
5. EMPIRICAL ANALYSIS AND RESULTS	47
5.1 PREPARATION OF THE DATA FILE	47
5.2 DESCRIPTIVE STATISTICS	47
5.3 MEASUREMENT MODEL EVALUATION	49
5.4 OVERALL MODEL EVALUATION	51
5.5 STRUCTURAL MODEL EVALUATION.....	53
5.5.1 Additional findings and control variables	56
5.5.2 Moderating influences.....	58
5.6 A RIVAL MODEL.....	59
6. DISCUSSION AND IMPLICATIONS.....	61
6.1 THE ANTECEDENTS OF POST-INITIAL ADOPTION BEHAVIOR IN A S-D LOGIC CONTEXT	61
6.1.1 Mediated effects on the post-initial adoption behavior.....	62
6.1.2 Direct effects on the post-initial adoption behavior	66
6.1.3 Moderating effects of the internal and external environments.....	68
6.2 TOWARD AN APPLIED VIEW OF SERVICE INNOVATION	71
6.3 THEORETICAL IMPLICATIONS.....	74
6.4 PRACTICAL IMPLICATIONS	76
6.5 LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH.....	78
7. CONCLUSION.....	80
8. REFERENCES	81
9. APPENDIX	92
APPENDIX A – THE MULTIPLICATION CYCLE OF A VIRUS.....	92
APPENDIX B – COMPLETE SET OF HYPOTHESES	93
APPENDIX C – ORIGINAL SOURCES OF THE QUESTIONNAIRE CONSTRUCTS	94
APPENDIX D – QUESTIONNAIRE – ENGLISH VERSION	95
APPENDIX E – QUESTIONNAIRE REMINDER MAIL – ENGLISH VERSION	103
APPENDIX F – QUESTIONNAIRE – GERMAN VERSION.....	104
APPENDIX G – QUESTIONNAIRE REMINDER MAIL – GERMAN VERSION.....	114
APPENDIX H – SEM OUTPUT INCLUDING THE UNSTANDARDIZED ESTIMATES	115
APPENDIX I – COMPLETE SET OF MODERATING INFLUENCES.....	115

List of figures

Figure 1: A broadened view of service innovation (Lusch and Nambisan, 2015, p. 162).....	10
Figure 2a: Bass model: S-shaped cumulative adoption curve (Mahajan et al., 1990, p. 4)	12
Figure 2b: Non-cumulative adoptions due to external and internal influences (...)	12
Figure 3 : Rogers model: Adopter categorization on the basis of innovativeness (...)	13
Figure 4a: Bell-shaped infectivity curve of influenza within an infectious individual (...)	21
Figure 4b: The one-step growth curve showing the principal stages during virus replic. (...)	21
Figure 5 : Technology Acceptance Model (TAM), (Davis, 1986, p. 24).....	25

List of models

Model 1: Dynamics of viral progression within host individuals (...)	22
Model 2: First part of the model showing the indirect links through mediation	38
Model 3: Second part of the model showing the direct links without visible mediation	38
Model 4: First part of the model showing the results of the indirect effects through mediation...	55
Model 5: Second part of the model showing the results of the direct effects without (...)	56

List of tables

Table 1: Definitions and synergies of the variables	23
Table 2: Demographics of respondents (n=750)	41
Table 3: Measurement model	43
Table 4: Means, standard deviations and correlations	48
Table 5: Intercorrelations of the latent variables	50
Table 6: Overall model fit	52
Table 7: Structural model	53
Table 8: Additional findings and control variables	56
Table 9: Age multi-group analysis	57
Table 10: Significant set of moderating influences	59
Table 11: Analysis of competing structural models	60
Table 12: Integrating the broad view of service innovation with this research's findings	72

1. Introduction

For decades, service exchange has been the hub of economic activity within most societies. In developed countries, the service sector accounts for the majority of the Gross Domestic Product (GDP) per capita with an overwhelming share of 78% in the USA and 74% in the EU (The World Bank, 2015). Management literature almost universally agrees that offering service is not an optional verdict, but a necessity to stay competitive and profitable (Anderson et al., 1997; Kohtamäki et al., 2013; Oliva and Kallenberg, 2003; Wise and Baumgartner, 1999). As a consequence, the focus transfers from a goods-dominant (G-D) perspective of tangible resources, transactions and embedded value, to a service-dominant (S-D) logic that incorporates intangible resources, relationships and the cocreation of value (Vargo and Lusch, 2004). Herein, service is the common denominator to all exchanges and goods are considered as distribution mechanisms to provide service.

Concurrently with the shift to the transmittable nature of goods, the process of innovation has undergone radical alterations over the past decade. Lusch and Nambisan (2015) describe these changes along three lines. First, a *network-centric focus* denotes that innovations emerge from the joint action of a network, opposing the traditional confinement within the borders of organizations. Second, an *information-centric focus* results in many innovations not centered on goods but on intangible offerings with high information content. Finally, a *value- and/or experience-centric* focus deliberates rather the cocreated value or experience gained by using the innovation than its physiognomies. These three foci have transformed the innovation landscape and have led to the new definition of service innovation as

“the rebundling of diverse resources that create novel resources that are beneficial (i.e. value experiencing) to some actors in a given context; this almost always involves a network of actors, including the beneficiary” (Lusch and Nambisan, 2015, p. 161), where resources are defined as *“anything an actor can draw on for support”* (p. 159).

According to the S-D logic, resources are classified into two categories (Vargo and Lusch, 2004). *Operand resources* usually have a facilitating and enabling function and are thus mostly tangible and static. On the other hand, *operant resources* (embedded knowledge and skills), act on other resources and are often intangible and dynamic.

Despite these progressions, adequate service innovation diffusion models have been deficiently advanced. While the *initial adoption decision* is defined as the erstwhile exchange of a service innovation, the *pre-* and *post-initial adoption behavior* denote the comportment before and after a customer consumes a particular service for the first time. Considering the multiple exchanges implied by the relational aspect of the S-D logic, especially the *post-initial adoption behavior* has been regrettably neglected. Consequently, this research seeks to expand service innovation by developing a functional model that captures the broad conceptualization of service innovation adoption.

1.1 Business economic motivation

As Barczak (2012) explicates, especially in today's times of prolonged economic volatility, service innovation is a key avenue to aid firms improve their innovation proficiencies and subsequent market success. There are three core economic drivers explaining the interest in innovatively enlarging firms' service portfolios in the B2B and B2C context (Oliva and Kallenberg, 2003). First, service experiences higher margins than product offerings and is therefore more attractive from an economic perspective (Anderson et al., 1997; VDMA, 1998). Second, in the age of increasing customization, customers mandate service tailored to their individual needs of process support and lifecycle management (Gao et al., 2011). Finally, with increasing commoditization of goods, service-lead growth promises to enhance differentiation (Sawhney et al. 2004). Due to the invisible and inimitable nature of service, it is difficult to duplicate for competitors and can thus lead to a competitive advantage (Gebauer

et al., 2006). Nonetheless, in reality the service growth as a percentage of GDP has been stagnating over recent years for most advanced economies. In the United States, the share grew from 76% to only 78% from 2000 until 2014, while in the Euro area only a 4% increase could be accounted for from 70% to 74% (The World Bank, 2015). Oliva and Kallenberg (2003) offer a possible explanation by outlining that even though organizations recognize the potential of service offerings, they struggle in deploying a successful service strategy. This could potentially be the result of the insufficient apprehension of the *post-initial adoption behavior* that drive a user's continuance intention, usage rate and word-of-mouth activities.

1.2 Academic motivation

One of the key challenges of effective service strategy implementation is the diffusion and adoption of service innovation. Even though the managerial importance toward successful service innovation diffusion appears evident, the overwhelming stream of diffusion modeling literature has adhered to the G-D logic and its traditional diffusion models for durable goods such as the Bass model (Bass, 1969). This creates a clear gap in academia with most authors simply assuming that the S-shaped cumulative adoption curve of innovation diffusion is equivalent within the G-D and S-D logic (Jain et al., 1991; Krishnan et al., 2000; Lilien et al., 2000; Hogan et al., 2003). To the best knowledge of the author, there have only been two publications so far insinuating an essentially different approach for service (Libai et al., 2009; Shi et al., 2014), in which Libai et al. (2009) evidently prove the misfit of using product models for service innovation diffusion for several studies. Conclusively, this research is motivated by realizing that, when viewed through S-D logic lens, important aspects are missing within current service innovation diffusion models, particularly within the principal *post-initial adoption* phase of service innovation.

1.3 Problem statement, research question and sub-questions

This inquiry is encouraged manifold by a business economic motivation of developing a successful service strategy for the adoption of service innovation, and an academic motivation of narrowing the gap in the service diffusion and service innovation adoption literature. In response to the problem statement, this research seeks new insights into service innovation adoption by inductively leveraging the power of metaphors. The resulting model then deductively tests the innovation adoption behavior of a digital B2C service.

Metaphors have traditionally been a vital part of theory building in organizations by clarifying and advancing the understanding of theoretical conceptions (Cornelissen and Kafouros, 2008). This research introduces the viral metaphor to ameliorate the current perceptions about service innovation adoption. Here fore, a virus is chosen as the epidemiology of directly transmitted infectious diseases and networks, such as the diffusion network within which a service innovation manifests, are fundamentally connected (Keeling and Eames, 2005). Ultimately, the hitherto described problem statement leads to the following research question:

How do the lifecycle characteristics of a virus, translated as the determinants of perceived service value, affect the consumer attitude and thus post-initial adoption behavior of service innovation?

Two sub-questions in form of moderating factors are supplementing the research question.

1.) How does the external environment of service innovation diffusion, signified by existing *competition* and *tie strength*, influence the service adoption?

2.) How does the internal environment of service innovation diffusion, denoted by the *need for interaction with a service employee* and the *attitude toward using technology*, influence the service adoption?

1.4 Contribution

First, this research contributes to academia by adding to the literature stream of service innovation diffusion with an approach including attrition and the relational exchange of service as proposed by the S-D logic (Vargo and Lusch, 2004). Herewith, it answers the call of Peres et al. (2010) to lessen the gap between product diffusion theories applied for service. Second, this study operationalizes the broad conceptualization of service innovation by Lusch and Nambisan (2015) and breathes life into their tripartite framework of service ecosystems, service platforms and value cocreation. Hereby, it corresponds to the service research priorities of Ostrom et al. (2015), who stimulate more research in the field of service innovation and value creation. Additionally, it follows the highlighted research horizon for service innovation of Barrett et al. (2015) by further applying the S-D logic framework to service innovation. Third, this enquiry expands current technology acceptance studies by merging social innovation diffusion with the technology acceptance model (TAM) of Davis (1993), to explicitly treat *post-initial adoption behavior* of service innovation. Once again, this complements the research priorities of Ostrom et al. (2015) by investigating adoption and usage of technology to advance service. Fourth, the importance of customer relationship management (CRM) in an increasingly networked society is considered by including consumers' commitment and word-of-mouth (WOM) activities from a dual perspective as connoted by Harrison-Walker (2001). This also adheres to Ostrom et al. (2015) by furthering the research priorities on value creation as it highlights the customer as a resource integrator, who is influenced by multi-actor networks. Fifth, this study extends the efforts of Bhattacharjee (2001) by scrutinizing the key drivers of users' continuance intention. Finally, this research is valuable through its interdisciplinary approach of mapping knowledge from the viral source domain to the target domain of innovation adoption, collaboratively effecting the broadening of current service innovation horizons and advancing the S-D logic paradigm.

Additionally, this study results in important managerial contributions. First, in line with the customer retention – acquisition dialogue, it underlines the prominence of *post-initial adoption behavior* for service innovation. Second, this research adds to a better understanding of *post-initial adoption behavior* by analyzing the respective antecedents, which proves vital for marketing tactics and future planning. Finally, the scrutiny into the continuance intention of current customers provides salient information for organizations, as it remains pivotal to comprehend which factors influence attrition before users discontinue a service.

1.5 Structure

This research commences by reviewing existing literature in the field of service theory, innovation and diffusion studies. The second chapter elucidates the importance of metaphors and inductively generates new knowledge through a three-steps-approach that merges the source domain of viral biology with the target domain of service innovation adoption. Successively, Dewey's (1910) *double movement of reflective thought* is leveraged by deductively testing the novel theory with a detailed questionnaire send-out to customers of a German bank. The remainder of the study considers the methodological approach, evaluates the findings and deliberates the implications, limitations and avenues for future research.

2. Literature review

2.1 The evolution to a service-dominant (S-D) logic

Eichengreen and Gupta (2013) substantiate in a review that until the mid-1980s relatively little research was conducted in the service array. It follows a remarkable boom in the academic interests, over which the information advancement and technological progress of the last three decades can evidently be seen. However, even though nearly all developed economies are service based, or as the S-D logic argues, “all economies are service economies” (Vargo and Lusch, 2008, p. 7), research still devotes most efforts to product innovation and its adoption (Barczak, 2012). To place this study’s problem statement, a delineation of service necessitates amplified attention.

Traditionally, four well-documented characteristics of service that constitute fundamental disparities to goods were widely conceded (Parasuraman et al., 1985; Kotler and Armstrong, 2012). *Intangibility*, denoting that service cannot be perceived by the senses, *heterogeneity*, encompassing its variable nature, *inseparability*, implying the simultaneous production and consumption and finally *perishability*, as service cannot be stored. Over the last decade, several authors voiced their doubts about this core paradigm. Lovelock and Gummesson (2004) demonstrate in the “Search of a New Paradigm and Fresh Perspectives”, that all four supposedly unique service characteristics are in fact not generalizable across different service economies. The authors insinuate in form of an alternative paradigm that the true value does not lay in the perceived differences between service and goods but rather in the mode of possession. They argue that service, rather than allowing full-fledged ownership, offers temporary access or possession with imbursement in form of access or rental fees. Nonetheless, also through the lens of this perspective, service is manifold still seen as a unit of output including selected, but not necessarily all, unique service characteristics. For

instance Lovelock and Gummesson's (2004) "Physical Acts to Customers' Bodies" such as health care or beauty salons, still retain heterogeneity, inseparability and perishability (p. 31). By continuing the use of the unique service characteristics classification though, service is still documented on the basis of how they differ from products. As Rust already stipulated in 1998, "It is time for a change. Service research is not a niche field characterized by arcane points of difference with the dominant goods management field" (p. 107).

Finally, the S-D logic, introduced by Vargo and Lusch (2004), changed the playing field of service and motivated a true paradigm shift. In this definition, which also serves as the theoretical foundation for this study, the singular concept "service" is

"the application of specialized competences (knowledge and skills), through deeds, processes, and performances for the benefit of another entity or the entity itself"
(Vargo and Lusch, 2004, p. 2)

Thereby, service is not demarcated by units of output or unique characteristics diverging it from products, but rather as a dominant logic in itself. In contrast, goods are defined as "appliances (tools, distribution mechanisms)" which serve the service provision (p. 26). After Vargo and Lusch (2004), all exchanges are fundamentally service based and relational as implied through the cocreation of value between the firm and the customer. Therefore, "what precedes and what follows the transaction as the firm engages in a relationship (short- or long-term) with customers is more important than the transaction itself" (p. 12). For service diffusion, this means that *pre-* as well as *post-initial adoption behavior* is more significant than the *initial adoption decision* itself, which substantiates the scrutiny of the *post-initial adoption behavior* throughout this inquiry. While the *initial adoption decision* entitles the erstwhile consumption or exchange of a service, the *pre-* and *post-initial adoption behavior* define the periods before and after a customer consumes a particular service for the first time.

In line with the S-D logic, this study investigates service through the lenses of value cocreation and relationship orientation. Hence, it is important not to conceptualize “service” in form of repeat transaction as genuine in the G-D logic, but rather as a multidimensional construct. By definition, a customer-oriented and relational perspective denotes in itself the reciprocity of exchange and an extended duration (De Wulf et al., 2001), and thus the singular term *service*, as used throughout this study, denotes this multidimensional view.

Recently, Vargo and Lusch (2015) set to expand the S-D logic theory by supplementing the ten foundational premises with an actor-generated institutions and institutional arrangement angle. This implicates that value is not cocreated by merely two actors, the firm and the customer, but within a multi-agent network. Embracing the standpoint that value is always uniquely determined by the beneficiary (the customer), other agents such as the social network or competing forces influence this subjective evaluation.

Conclusively, this research incorporates the multidimensional service quintessence by incising “service” instead of “services”, by focusing on the relational exchange of *post-initial adoption behavior* and by attempting to include a fraction of the institutional arrangements.

2.2 Service innovation

According to Lusch and Nambisan (2015), the S-D logic permits service to be viewed as a transcending mental model, which demarcates all innovations as service innovations. Indeed, while moving away from the G-D logic, the distinction between product and service innovation may no longer be relevant. Resembling the way goods serve as operand resources to dispense service, product innovations oblige as mechanisms, mediums or vehicles for transmitting service as well. Nonetheless, as Lusch and Nambisan (2015) and Barrett et al. (2015) accentuate, opinions on whether differences between product and service innovation should be deemphasized or highlighted diverge. One school of thought assumes differences

and hence necessitates deviating models, for service innovation, from the traditional product innovation models (Miles, 2008; Damanpour et al., 2009). On the other hand, some authors diminish the importance placed on differences between product and service innovations and call for adapting existing models for service innovation (Nijssen et al., 2006). This research favors the approach of Lusch and Nambisan (2015), who pronounce both perspectives as valuable, but too narrow and one-sided. Rather a much broader conceptualization of service innovation is needed, that builds on existing studies and evolves through interdisciplinary research (Ostrom et al., 2015).

A milestone into the direction of a holistic service innovation conception is the overarching framework for service innovation of Lusch and Nambisan (2015, Figure 1).

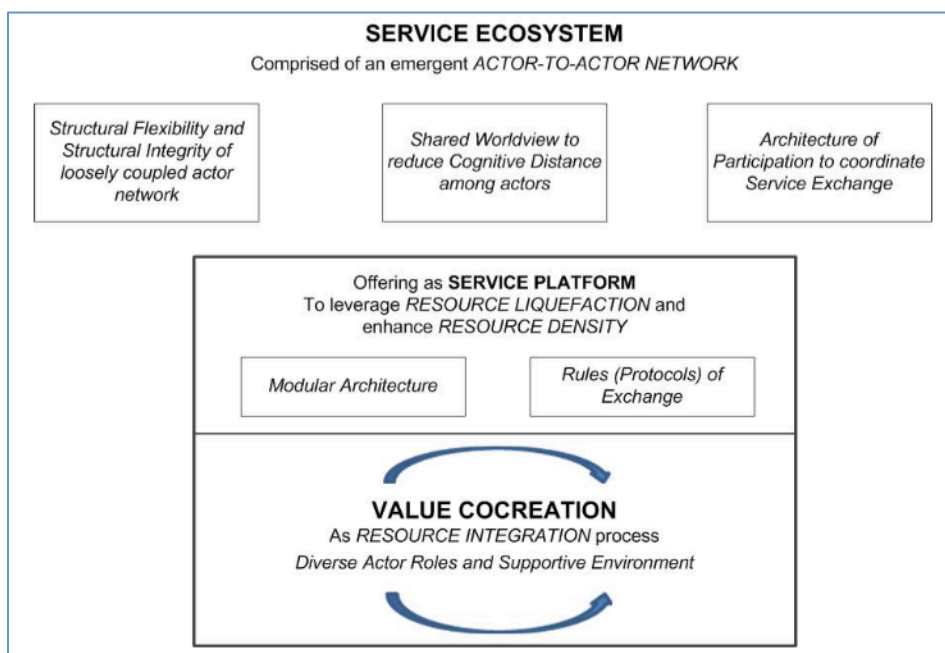


Figure 1: A broadened view of service innovation (Lusch and Nambisan, 2015, p. 162)

The tripartite elements in the framework, *service ecosystem*, *service platform* and *value cocreation*, build up on the four meta-theoretical foundations of the S-D logic – *actor-to-actor networks*, *resource liquefaction*, *resource density* and *resource integration* (Lusch and Nambisan, 2015).

The *actor-to-actor network* parts from the traditional producer – consumer perspective, because all actors engage in resource-integration and thus cocreate value. Together, actors are involved within an emergent structure that is guided by institutional norms and collective meanings. This resource-integrative value creation, channeled by institutional rules, inaugurates a service ecosystem, which is formally defined as “a community of interacting entities [...] that coevolve their capabilities and roles and depend on one another for their overall effectiveness and survival (Lusch and Nambisan, 2015, p. 161). In the successive layer, a *service platform* liquefies resources, indicating the decoupling of information from its physical form, and mobilizes them to be readily available, enhancing resource density in the process. Within the final layer, inferring from the S-D logic, all actors perform as resource integrators and innovation occurs through *value cocreation*.

Lusch and Nambisan (2015) implicate that organizations must adopt this holistic tripartite focus and its interconnections. Nonetheless, for firms to be able to operationalize the framework, the abstract concepts need to become more empirically applicable. Consequently, the ensuing sections first elucidate which rudiments are missing in traditional, well-applied product innovation diffusion models and subsequently attempts to generate new theory.

2.3 Innovation diffusion theory

After diving into a brief chronicle of service research and service innovation, the main takeaway for this study is that engaging in a one-to-one transferal of product innovation models for service innovation is not appropriate. Nonetheless, when viewed through the S-D logic lens, there should not be an apparent focus on disparities between goods and service per se. Keeping this broad conceptualization in mind, the subsequent investigation clarifies, in which manner the shift from a G-D logic to S-D logic has changed certain elements of the innovation diffusion process.

2.3.1 Traditional product innovation diffusion models

Traditionally, the cumulative adoption from introduction to saturation of an innovation designates the diffusion of a durable good and is modeled by an S curve (Figure 2a). A genuine query is: Why is that? Meade and Islam (2006, p.522) offer in their review on innovation diffusion the following explanation: “The two extreme hypotheses that explain this shape are those based on the dynamics of a (broadly homogenous) population and those based on the heterogeneity of the population”. Considering the homogenous population first, the Bass model cogitates only the aggregate initial adoption growth of a durable good in a market with potential m at time t (Bass, 1969). It suggests that the motivation to buy is twofold. Individuals desire to innovate and they feel the need to imitate others in the population, which is represented in the model by the coefficients p and q respectively. As can be seen in Figure 2b, many authors have translated the coefficients of innovation and imitation as the mass media effect (adoptions due to internal influence) and the social effect through WOM processes (adoptions due to external influence), (Mahajan et al., 1990; Hogan et al., 2003). Nonetheless, current research demonstrates that social networks are neither homogeneous nor fully connected as the Bass model assumes (Kossinets and Watts, 2006).

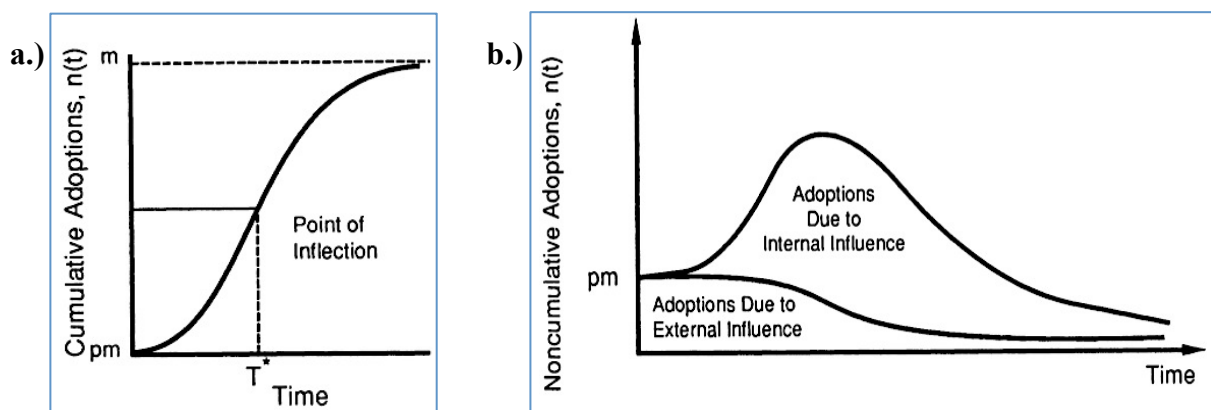


Figure 2a: Bass model: S-shaped cumulative adoption curve (Mahajan et al., 1990, p. 4)

Figure 2b: Non-cumulative adoptions due to external and internal influences (Mahajan et al., 1990, p. 4)

Hence, the second type of diffusion models is heterogeneous in nature and was first developed by Rogers (1962, as cited in Meade and Islam, 2006). He proposes that populations are heterogeneous in their affinity and readiness to innovate. Rogers (1995, p. 247) pictorially explains the curve by classifying product adopters into five distinct groups. As visualized in Figure 3, at the beginning a limited number of venturesome *innovators* (2.5%) adopt the innovation, further followed by the *early adopters* (13.5%). After that, the deliberate *early* (34%) and skeptical *late majority* (34%) follows as a result of social interaction with the early market (q coefficient of imitation) and firm-internal factors such as advertising (p coefficient of innovation). Hereby, the decreased risk and search costs ultimately enhance growth levels (Peres et al. 2010). Finally, the S-shaped curve levels off when the last group is reached, the traditional *laggards* (16%).

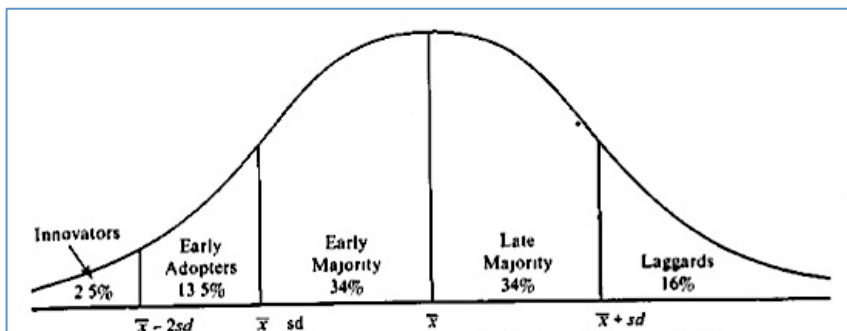


Figure 3: Rogers model: Adopter categorization on the basis of innovativeness (Rogers, 1995, p. 243)

Overall, both models illustrate the diffusion curve of products with meaningful inferences. Therefore, both are widely used and act as founding models for many adapted models (Geroski, 2000, Meade and Islam, 2006).

2.3.2 Shortcomings of traditional product innovation diffusion models

Innovation diffusion contains three high-level stages including *pre-initial adoption behavior*, the *initial adoption decision* and *post-initial adoption behavior* (Rogers 1995). The prevailing number of traditional studies has focused on the *initial adoption decision* itself and on the innovation's characteristics that may drive *pre-initial adoption behavior* (Jasperson et al., 2005). As the ensuing section reveals, it is crucial to further include *post-initial adoption behavior* such as prolonged consumption as defined by relational exchange and customer attrition. Applying either of the two dominating models directly to the service context is essentially flawed and provides biased results as it denotes remaining with the archaic G-D logic, while the nature and process of innovation has undergone radical change and evolved in light of the S-D logic.

2.3.2.1 Reciprocal relationship of prolonged service exchange

During the *initial adoption decision* and whilst the consumer does not have any prior accumulation of experience that is informing him, adoption behavior is likely guided by other people such as friends or salespersons (Foxall, 1999). This guidance through WOM communication, advertising and imitation techniques is fundamental for innovation diffusion (Murray, 1991; v. Wangenheim and Bayón, 2004; Libai et al. 2013). With increasing learning history however, the consumer substitutes these other opinions through his own experience. Foxall (1998) argues that with progressing time, a consumer develops his own set of rules, which guide him for subsequent decision making. Consequently, a positive learning history makes behavior in a similar setting more likely to occur in the future because of two reasons (Foxall, 1999). With a positive consumption history, utility in form of “utilitarian reinforcement” and symbolism, the “informational reinforcement”, lead a consumer to procure the same experience again (p. 146). On the contrary, costs perceived as aversive consequences make a repeated use less likely in the future. This behavioral perspective model

is especially important in the S-D logic context of a relational service contrary to the initial adoption growth of products. According to the S-D logic, service is by definition relational and thus subject to multiple exchanges (Vargo and Lusch, 2015). Through the utilization of operant resources, service is the fundamental basis of exchange and value cocreation is not merely an independent, one-time event (Vargo and Lusch, 2004; 2008). As relational exchange rather than one-time transactions move into the spotlight, the reciprocal service relationship becomes of primary concern as it embodies the idea that long-term profit results from customer satisfaction rather than units of goods sold (Kohli and Jaworski, 1990; Vargo and Lusch, 2004). For instance, the espousal of a financial service should be seen as an evolution of growing consumer sophistication rather than an *initial adoption decision*, with relational interchange, consumption context and learning history paving the way (Foxall, 1999). Thus, while for goods relational exchange and consumption history might be rather trivial as evidenced by the traditional, exclusive focus on the *initial adoption decision*, for service, they are of prodigious worth as they entitle the long-term trust-based exchange with any provider (Berry, 1999).

2.3.2.2 Customer attrition

Besides occurring as a relationship of extended exchange, *post-initial adoption behavior* appears in form of clients discontinuing the service relationship. The sum of de-adoption, customers leaving the entire service provision category, and churn, customers switching from one firm to a competing firm within the same service provision category, compounds the term customer attrition. Libai et al. (2009) define customer attrition as “any case of a customer who terminates a relationship with a service provider” (p. 165). Customer attrition is a primary concern for service providers for three reasons. First, the effective customer base of a service provider is a function of both the number of new customers and the number of leaving ones. Second, customer acquisition is evidently more costly than customer retention. Gupta et al.

(2004) substantiate in a study that a mere 1% improvement in customer retention improves firm value by a staggering 5%. Finally, negative WOM has shown to have a greater impact than positive WOM (Parthasarathy and Bhattacharjee, 1998). Especially the loss of an early adopter relative to a late adopter is very costly, as initial consumers have the largest social impact seen over the whole service life cycle (Hogan et al., 2003). Approximately 75% of switching customers told at least one other person about the switching incident (Keaveney, 1995), and evidence shows that especially negative WOM, in contrast to positive WOM, proves detrimental for beliefs and continuance behavior of other institutional agents (Mizerski, 1982; Mahajan et al., 1984).

Although the negative effects of attrition in a competitive marketplace are undeniable, little research has been done with only two authors merging it into their service innovation diffusion models (Libai et al., 2009; Shi et al., 2014). Libai et al. (2009) are the first to consider customer attrition in form of firm churn and category de-adoption by proposing an amended version including prolonged relationship behavior based on the Bass model. The authors demonstrate that the use of the traditional models initially conceptualized for durable goods, leads to considerable bias in the parameter estimation of m , p , and q , the market potential, innovation and imitation coefficients, respectively. After using the adapted model to re-estimate the studies of Krishnan et al. (2000), Lilien et al., (2000) and Hogan et al. (2003), Libai et al. (2009) validate the magnitude of this parameter bias. p is on average overestimated by a staggering 46%, while q and m are underestimated by 39% and 30%, respectively. The most important implication for managers is the misapprehension of the market potential, m . Due to category de-adoption, consumers are constantly leaving the service milieu. Even though de-adopters can by definition rejoin the category again, the service provider cannot exploit the whole market potential as re-adoption takes time.

Conclusively, two fundamental reasons have been reconnoitered in the product innovation diffusion literature making a one-to-one transference of product innovation diffusion models to service innovation essentially flawed. Research streams have commonly under-investigated the phenomenon of relational exchange and customer attrition when modeling service innovation growth, because the G-D logic has not necessitated the addition of these variables to innovation diffusion models (Bass, 1969; Rogers, 1995). The lack of research in the service innovation diffusion domain and the nonsufficient contributions to *post-initial adoption behavior* for service necessitate new theory generation. It is time to change the approach to service innovation diffusion by absorbing the missing dimensions of prolonged, relational service exchange and customer attrition.

3. Metaphor building and hypotheses development

As the previous literature review outlines, service innovation diffusion literature suggests multiple gaps that require closing in order to facilitate a successful elongated service innovation adoption. Regrettably, practically testable hypotheses are presented rarely and much of the theory generation is still in its infancy. Therefore, this study first seeks to inductively initiate novel knowledge by making use of metaphor building, before deductively testing it for its applicability. According to Ostrom et al. (2015), moving a field forward requires succeeding at interdisciplinary research. Considering the circumstance that broad service innovation conceptualizations are merely available in a rather abstract substance (Lusch and Nambisan, 2015), further discrete ingredients and concepts need to be defined to be practically testable. To establish these constituents, this research complies with the service research call to engage in more cross-disciplinary research by leveraging the power of metaphors (Ostrom et al., 2015)

3.1 The importance of metaphors in organizations

Often unknowingly, metaphors are a frequently used and versatile tool of cognitive linguistics for organizations. Lakoff and Johnson (1980) even go as far as proposing that most of the “ordinary conceptual system is metaphorical in nature” (p. 454). Some comparisons are so widely expended that the speaker does not recognize them as transcribed meanings. Many conceptualizations used in common business life fall in this mundane category. For instance, the concepts of the ‘organization’ itself or firm ‘culture’ are such pervasive metaphorical representations. Hereby, metaphors are seen as an amalgamation of language and thought to construct and comprehend reality. This is confirmed by one of the originators of organizational metaphor theory, Gareth Morgan, who argues that due to an organization’s complex and ambiguous nature, it is difficult to capture by the senses (Morgan, 1980). Thus,

metaphoric use has a clarifying effect when the senses fall ill to non-physical matters. Perceiving a known situation placed in another informative context inspires new perspectives and broadens one's mind. Hereby, the ease of understanding the metaphor and the degree to which it captures salient features are decisive for its *explicative* and insights *generative* impact (Cornelissen and Kafouros, 2008). Indeed, the role of metaphors within organizations has become widely acknowledged (Tsoukas, 1991; Cornelissen 2004, 2005).

In practice, using metaphors as a theory-building or theory-facilitating tool can be explained as the mapping of dispositions of one source domain to another target domain (Cornelissen and Kafouros 2008). Within the context of this research, a metaphor in shape of a virus is deliberately transposed to the service adoption field. This demands an interdisciplinary domain mapping from the relatively known source domain of virology to the comparatively unknown target domain of service innovation adoption and service innovation diffusion.

Ultimately, the viral metaphor has a dual purpose for this study. First, it is used to *explicate* theoretical findings of service innovation adoption and its subsequent diffusion and second, to *generate* novel insights about successful service innovation diffusion. Here fore, knowledge is engendered through comparison, substitution and interaction between the source and target domain, which vindicates the interdisciplinary domains' approach (Morgan, 1980). For clarification purposes, this research uses the "Domains-Interaction Model" by Cornelissen (2005, p. 758) to facilitate the metaphor building process. Hereby, step one, *the development of a generic structure*, includes the decoding of the features and structures of the chosen metaphor and its applicability to the target domain. During step two, *the development and elaboration of the blend*, the transfer between the source and target domain occurs. Finally, the third step, *the emergent meaning*, denotes the newly synthesized and collectively generated theoretical model, which is subsequently tested within this study.

3.2 Metaphor choice – The development of a generic structure (Step 1)

The viral metaphor has been chosen based on the following three reasons. First, intuitively seen there are many analogies between the adoption of a service innovation and the diffusion of a virus. Other authors have evidently noticed the seeming likeness as well. For instance, Geroski (2000) terms the so-called epidemic model as the most widely used model displaying an S-curve for new technology diffusion. Naturally, the concept “epidemic model” in itself is already a metaphor as the term is borrowed from the viral spread. However, not only academia has leveraged the virus parallel for its purposes. Managers have likewise risen to employ the metaphor. For instance, IBM and Symantec are jointly creating “a full biology-inspired immune system for computer protection, so systems can deal with invaders as automatically as your body deals with microorganisms” (Dlunginski, 2001, p. 30). Academia and management have used the viral metaphor through disciplined imagination after Weick (1989), by intuitively recognizing and consistently applying commonalities (Røvik, 2011).

Second, besides intuition, there are hard facts showing that the S-shaped innovation diffusion curve can also be found in the field of viruses, such as for instance in the real life cases of the H1N1 flu wave in Mexico in 2009 or the Ebola epidemic since 2013 (Bourne, 2009; Chowell et al., 2014). Similar networks, transmissions and infection rates empower Keeling and Eames (2005) to say that networks and viral diseases are fundamentally linked. Figure 4 indicates the likeness by displaying a bell-shaped and cumulative S-shaped curve of the viral life cycle.

Finally, the viral source domain and the service diffusion target domain comply with the two rather paradoxical governing rules for metaphors (Cornelissen et al., 2005). As revealed before, there is a *within-domains similarity* as service diffusion and viral expansion share important characteristics. Additionally, there is still a relatively high *between-domains distance* as viral biology and service diffusion literature have an inherently different semantic affiliation.

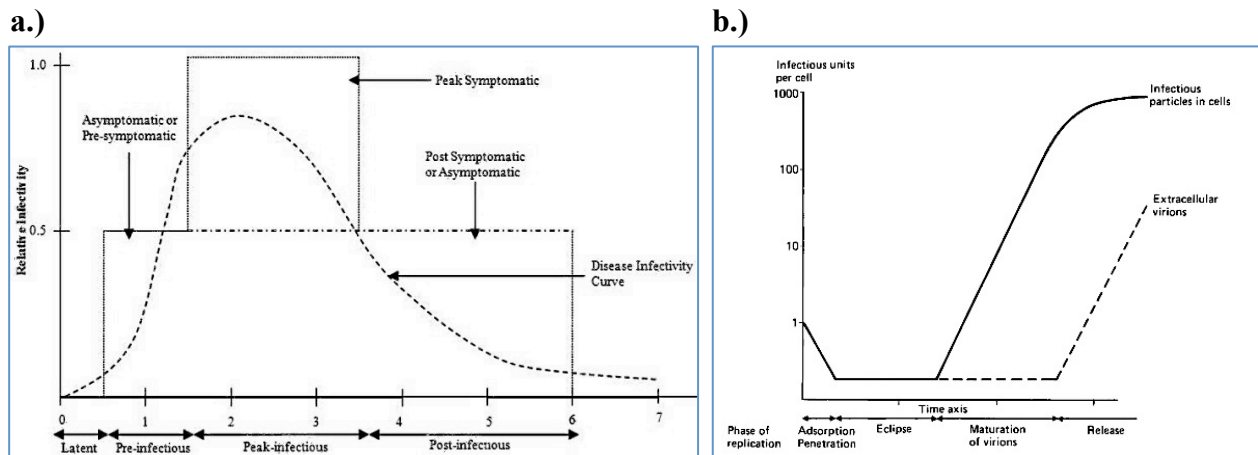
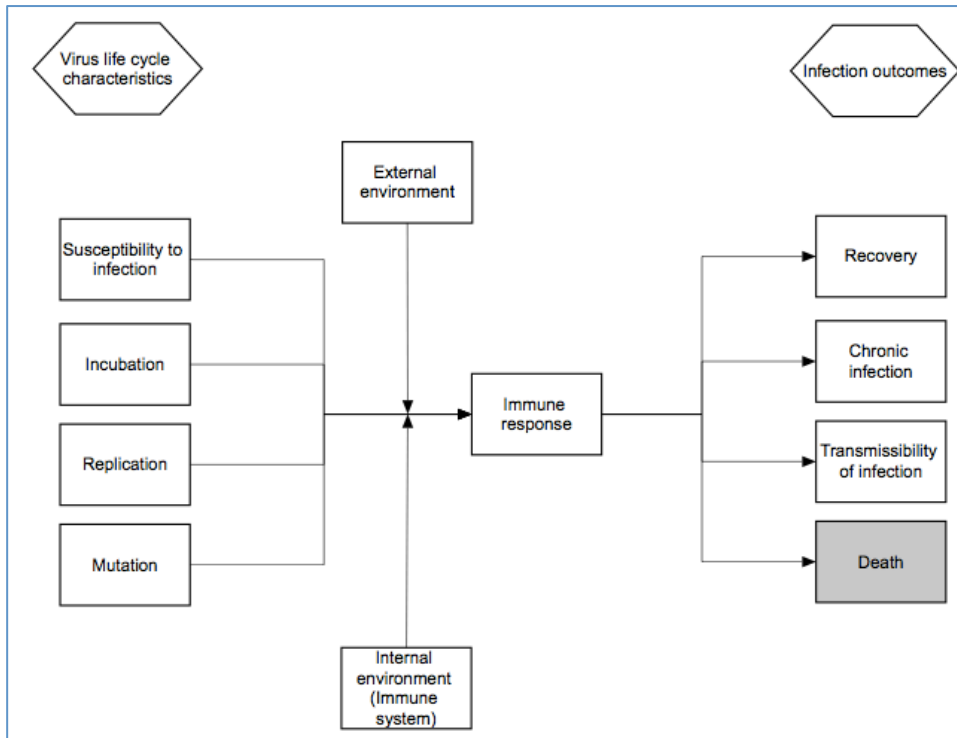


Figure 4a: Bell-shaped infectivity curve of influenza within an infectious individual (Halder et al., 2010)

Figure 4b: The one-step growth curve showing the principal stages during virus replication (Lycke and Norrby, 1983). (For a visualization of the replication stages please see Appendix A)

3.3 Model building– The development and elaboration of the blend (Step 2)

To extract metaphoric value, understanding the nature of a virus is of principal importance. Being the second-largest entity in terms of biomass and most plentiful entity on the planet (Douglas and Young, 2006), viruses are indeed a mysterious species as even the basic question whether viruses are alive is hotly debated (Pandey and Trivedi, 1994; Villarreal, 2004). Although the conceptual nature of viruses has remained blurry over the last century, researchers commonly agree on their behavior and composition. As depicted in Appendix A, “the essential nature of all viruses is to infect a host cell, replicate, package its nucleic acid, and exit the cell” (Douglas and Young, 2006, p. 873). Along the lines of this commonly agreed on viral progression, Model 1 includes the *viral life cycle characteristics*, the resulting *immune response* of the host and the possible *infection outcomes*, all moderated by the external and internal environments.



Model 1: Dynamics of viral progression within host individuals (constructed by the author on the basis of Lycke and Norrby, 1983; Ananthanarayan and Paniker, 2005; Dimmock et al., 2007)

There are four viral physiognomies that are widely discussed as part of the virus life cycle and four outcomes of a viral infection (Lycke and Norrby, 1983; Ananthanarayan and Paniker, 2005; Dimmock et al., 2007). Successively, the viral life cycle characteristics *susceptibility to infection*, *incubation*, *replication* and *mutation*, the mediator *immune response* and the infection outcomes *recovery*, *chronic infection* and *transmissibility of infection* are introduced and transcribed into the context of service innovation adoption as the *determinants of perceived service value*, attitude and *post-initial adoption behavior* (Model 2, p. 38). Merely the variable *death* is omitted, as it does not apply to the target domain. For an overview of the hypotheses please refer to Appendix B. Table 1 constitutes a synopsis of all definitions and analogies between the viral and service innovation terminologies, with exception of the moderating variables.

Table 1 – Definitions and synergies of the variables

Viral terminology	Service innovation terminology	Analogy
<p>Immune response “The term immunity [...] covers the mechanisms by which a host may specifically recognize and react to viruses. [...] The host immune response may be beneficial, detrimental, or both” (Klimpel, 1996, Chapter 50, Viral Activation of Immunity, Paragraph 1).</p>	<p>Attitude toward using “The degree of evaluative affect that an individual associates with using the target system in his or her job” (Davis, 1993, p. 476).</p>	<p>Both variables denote an affective response as the host/individual analogously recognizes, evaluates and reacts to the virus/service innovation adoption.</p>
<p>Susceptibility to Infection “Susceptibility defines the capacity of a cell or (individual) to become infected” (Roizman, 1996, Chapter 42, General Concepts, Paragraph 2).</p>	<p>Level of episodic influence “Defined as the change in attitude and/or behavioral intention resulting from an interpersonal information exchange” (Gilly et al., 1998, p. 84).</p>	<p>The parallel is that both variables necessitate contact with another person and that this person serves to infect or influence the susceptible individual.</p>
<p>Incubation “The incubation period (is) the time between the initiation of infection and the appearance of the first symptoms” (Lycke and Norrby, 1983, p. 114).</p>	<p>Organizational commitment “Organizational commitment is the strength of an individual’s identification with, and involvement in, a particular organization” (Porter et al., 1974, p. 604).</p>	<p>Both variables state the degree of involvement of the virus/individual in the host/service provider.</p>
<p>Replication Replication denotes the “synthesis of viral components using protein synthesizing machinery of [the host]” (Pandey and Trivedi, 1994, p. 72). “Viruses can only replicate in living [permissible] cells” (Lycke and Norrby, 1983, p. 1).</p>	<p>Perceived usefulness “The degree to which an individual believes that using a particular system would enhance his or her job performance” (Davis, 1989, p. 477).</p>	<p>The synergy of the variables is that the virus and the individual are only using a system if it enhances them; either for replication purposes or because of its added value (perceived usefulness).</p>
<p>Mutation “Like all other organisms, viruses sport mutants in the course of their growth, and these mutations can affect all properties including the type of plaque formed, the range of hosts which the virus can infect, and the physicochemical properties of the virus (Dimmock et al., 2007, p. 14).</p>	<p>Service customization “Customization – the degree to which the firm’s offering is customized to meet heterogeneous customers’ needs” (Anderson et al., 1997, p.129).</p>	<p>The analogy is that superior mutation or superior customization lead to a selective advantage over competitors that makes it harder for the host/individual to terminate the liaison with the virus/service provider.</p>
<p>Recovery “In a recovery, infections are dealt with by the host’s immune system so that the host recovers and can reproduce and provide new nonimmune hosts for the virus” (Dimmock et al., 2007, p. 242).</p>	<p>Customer attrition (Continuance intention) Customer attrition denotes “any case of a customer who terminates a relationship with a service provider” (Libai et al., 2009, p. 165).</p>	<p>The synergy is that once a virus is cleared from the host, or the individual leaves the service provider, both can be infected/joined again after a minimum time period.</p>
<p>Chronic infection “In acute and subclinical infections, the balance favors the host (i.e. the virus is cleared from the body), whereas in persistent and chronic infections it is tilted towards the virus (which is not cleared and does not have to face the hazards of finding a new susceptible host for a long time)” (Dimmock et al., 2007, p. 227).</p>	<p>Actual usage The behavioral response that denotes the “self-reported system use” (Davis, 1993, p. 480).</p>	<p>The analogous physiognomy between the two variables is that both are behavioral responses, which signify the preserving of the virus or service innovation within the host/individual.</p>
<p>Transmissibility of infection Two of “the main variables that determine the transmissibility of viruses are excretion (manner, duration, quantity of virus, and infectivity) [and] environment (stability of the virus and the chance of contact with a new host) [...]” (Fenner, 1996, Chapter 48, Epidemiologic Features of Viral Infections, Paragraph 4).</p>	<p>Customer influencer value “CIV, captures the value of the influence that an individual (usually a customer) exerts on other customers or prospects” (Kumar et al., 2010, p.302).</p>	<p>Both variables signify the gradient of infectiousness between two individuals, one taking the sender’s perspective (customer influencer value) and the one the receiver’s perspective (level of episodic influence).</p>

3.3.1 Immune response and attitude toward using

“The term immunity [...] covers the mechanisms by which a host may specifically recognize and react to viruses. [...] The activation of different immune functions and the duration and magnitude of the immune response depend on how the virus interacts with host cells [...] and on how the virus spreads” (Klimpel, 1996, Chapter 50, Viral Activation of Immunity, Paragraph 1). Basically, the strength and magnitude of the *immune response* depends on *viral life cycle characteristics* such as *infectiousness*, *incubation*, *replication* and *mutation* (Model 1). In the service innovation adoption domain, this translates to TAM variable *attitude toward using*, which is a major determinant of whether an individual actually uses a system (Davis, 1993; Figure 5). It is defined as “the degree of evaluative affect that an individual associates with using the target system in his or her job” (p. 476). Similarly to the *immune response*, *attitude toward using* is theoretically influenced by multiple variables (Model 2, p. 37). Hereby, both variables denote an affective response as the host/individual analogously recognizes, evaluates and reacts to the virus/innovation adoption.

Furthermore, both constructs influence the subsequent *infection outcomes* and *post-initial adoption behavior*. The host’s *immune response* can be beneficial or detrimental for the host (Klimpel, 1996). Beneficial in the sense that it destroys the virus (*recovery*) and detrimental when the *immune response* turns against the host’s own body (*chronic infection*). Compatibly, *attitude toward using* can evoke a *post-initial adoption behavior* that is beneficial (*high actual usage*) or detrimental (*customer attrition*) for the organization. As some *determinants of perceived service value* are further theorized to have a direct effect on the *post-initial adoption behavior*, *attitude toward using* is hypothesized to have a partial mediating effect.

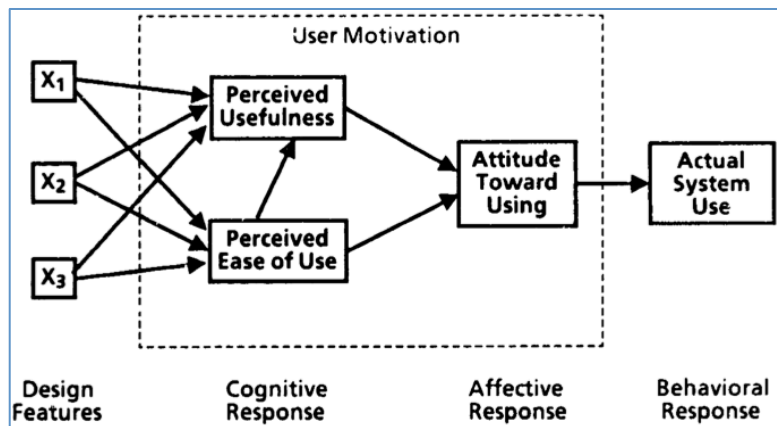


Figure 5: Technology Acceptance Model (TAM), (Davis, 1986, p. 24)

3.3.2 Susceptibility to infection and level of episodic influence

Susceptibility to infection is defined as “the capacity of a cell or [individual] to become infected” by another individual (Roizman, 1996, Chapter 42, General Concepts, Paragraph 2). This process either spreads through direct contact between an infected and uninfected individual or through an indirect route via a carrier (Røvik, 2011). The corresponding feature in the target domain of service innovation diffusion is the *level of episodic influence*, which is expressed as “the change in attitude and/or behavioral intention resulting from an interpersonal information exchange” (Gilly et al., 1998; p. 84). The parallel between the two variables is that they both necessitate contact with another person and that this person infects or influences the susceptible individual. Many studies have widely accepted the impetus of WOM on the subsequent attitude and behavior of an individual (Brown and Reingen, 1987). Some even argue that rational agents may favor interpersonal information over their own private information (Godes and Mayzlin, 2004). One possible reason is that personal sources are deemed more trustworthy and thus have a larger impact on the consumer’s attitude compared to firm advertising. This is especially important for the S-D logic as service mandates an increased need for personal sources compared to goods, which links to the actor-generated institutions (Murray, 1991; Vargo and Lusch, 2015). The analogy between *susceptibility to infection* and *level of episodic influence* leads to the following hypothesis:

H1: The *susceptibility to infection*, translated as the *level of episodic influence*, has a positive effect on the subsequent *immune response*, the *attitude toward using*.

3.3.3 Incubation and organizational commitment

“The *incubation* period [is] the time between the initiation of infection and the appearance of the first symptoms” (Lycke and Norrby, 1983, p. 114). It can vary between years or a mere few days such as the 2.5 – 3.5 days period of a common cold (Lidwell and Williams, 1961). Intuitively speaking, this means that the virus spreads and multiplies throughout the whole body without evoking any symptoms, yet. Naturally, the longer the *incubation* period, the more the virus can multiply and spread without inducing an *immune response* and the fiercer is its involvement within the host’s body. In the business world, *incubation* is translated to *organizational commitment*. The term denotes the attitudinal perspective of Porter et al. (1974) and is expressed as “the strength of an individual’s identification with and involvement in a particular organization” (p. 604). Hence, both variables state the degree of involvement of the virus/individual in the host/organization. A suitable real-life example is Apple. If a customer is already fond of Apple, for instance because of owning the iPhone, he might be more inclined to demonstrate a positive attitude toward a new service innovation such as the Apple Watch. Porter et al. (1974) evidenced this in an organization-employee context, however *organizational commitment* seems also plausible in a customer-organization setting. There are two main factors that lead to this commitment. First, acceptance of the firm’s goals and standards fosters the identification with an organization and second, the willingness to be a member of the organization nurtures an individual’s involvement. Indeed, Steers (1977) found a strong relation between commitment and intent and desire to stay with an organization. Harrison-Walker (2001) stresses the importance of *organizational commitment* by evidencing its positive relationship with WOM communications, which again

is said to have an essential impact on the attitude and consumption behavior of others. Therefore,

H2: The *incubation period*, translated as *organizational commitment*, has a positive effect on the subsequent *immune response*, the *attitude toward using*.

3.3.4 Replication and perceived usefulness

The third virus life cycle characteristic, *replication*, is the “synthesis of viral components using protein synthesizing machinery of [the] host” (Pandey and Trivedi, 1994, p. 72, Appendix A). “Viruses can only replicate in living cells” as they are assembled so simple that they cannot reproduce on their own (Lycke and Norrby, 1983, p. 1). Thus, they need to find a permissive cell because only those ones are usually productive and have the systematics that the virus can use to multiply itself (Albrecht et al., 1996). *Replication* translates into the TAM variable *perceived usefulness*, “the degree to which an individual believes that using a particular system would enhance his or her job performance” (Davis, 1989; p. 477, Figure 5). The synergy for the variables is that both the virus and the individual are only using a system if it enhances them, either for *replication* purposes or because of its added value. Hereby, it does not matter that Davis (1989) original definition encompasses the job as such, since *perceived usefulness* for any sort of activity is only going to be replicated by the individual as long as it adds value. There is much research about TAM proving the link between *perceived usefulness* and *attitude toward using*. Davis (1993) describes the line of thought as follows: An external stimulus in form of system design features provokes the response of *perceived usefulness* and perceived ease of use. This cognitive response further triggers the *attitude toward using* as an affective response, which finally leads to the behavioral response of *actual usage*. By including TAM, this research moves away from traditional diffusion literature. However, to understand the service innovation adoption process and the *post-initial adoption*

behavior deemed as essential by the S-D logic, an individual's acceptance of technology and factors that comprise it need to be included. Nevertheless, perceived ease of use is excluded from the model as it is nearly fully mediated by the *perceived usefulness* of a system and studies have revealed mixed results of its effects (Davis, 1993; Chau, 1996; Parthasarathy and Bhattacharjee, 1998; Nor and Pearson, 2007). Parthasarathy and Bhattacharjee (1998) even argue that ease of use might be an artifact of old times due to the service evolution and the continued simplification and user friendliness of online service systems. Hence,

H3: The *replication* period, translated as *perceived usefulness*, has a positive effect on the subsequent *immune response*, the *attitude toward using*.

3.3.5 Mutation and service customization

Mutation is neatly explained by Dimmock et al. (2007): "Like all other organisms, viruses sport mutants in the course of their growth, and these mutations can affect all properties including the type of plaque formed, the range of hosts which the virus can infect, and the physicochemical properties of the virus (p. 14). (...) Where conditions enable a mutant to multiply at a rate faster than its fellows, that mutant virus will have an advantage and will succeed the parental type" (p. 271). These *mutations* can be positive or negative and lead to completely new viruses, making it often impossible for the immune system to detect and neutralize them. Translated into the service innovation context, *mutation* denominates *service customization*, "the degree to which the firm's offering is customized to meet heterogeneous customers' needs" (Anderson et al., 1997; p.129). The analogy is that superior *mutation* or superior *service customization* leads to a selective advantage over competitors that makes it less desirable for the host/individual to terminate the liaison. *Service customization* results in customer centricity as obliged by the S-D logic, which gives the service provider a competitive advantage by making clients less likely to change to another provider due to

customer loyalty and lock-in (Reichheld and Teal, 2001; Ansari and Mela, 2003). Besides, *service customization* potentially leads to higher customer satisfaction and lengthier relationships, which in turn positively influence the *attitude toward using* and the *actual usage rate* (Anderson and Sullivan, 1993; Fornell et al., 1996; Arora et al., 2008). Thus,

H4: *Mutation*, translated as *service customization*, has a positive effect on the subsequent *immune response*, the *attitude toward using*.

3.3.6 Recovery and customer attrition

The first possible *infection outcome* in viral terms is *recovery*. “In a *recovery*, infections are dealt with by the host’s immune system so that the host recovers and can reproduce and provide new nonimmune hosts for the virus” (Dimmock et al., 2007, p. 242). Thus, recovered individuals are able to remove the virus from their bodies, as their *immune response* is severe enough to clear the invader. This research employs the susceptible-infectious-susceptible (SIS) viral model as it allows for repeat infections such as the common cold. Opposing, the susceptible-infectious-recovered (SIR) model defines infectious diseases that once battled confer lifelong immunity such as measles (Keeling and Eames, 2005). Libai et al. (2009) demarcate customer attrition as customers, who de-adopt/discontinue the relationship with their respective service provider, however who can re-join the provider after a minimum time period. Correspondingly, *recovery* ensuing the SIS viral model resembles customer attrition. The synergy between *recovery* and customer attrition is that once a virus is cleared from the host, or the individual leaves the service provider, both can be infected/joined again after a minimum time period. For instance, after having a common cold, there is a clear degree of reduced susceptibility for reinfection for at least eight weeks after which an individual returns to the prior infection exposure (Lidwell and Williams, 1961). Taking the heterogeneous angle of Rogers (1995), it is only realistic to let de-adopting customers rejoin a service because

individuals have a different affinity and readiness to innovate. Thus, a late adopter who joined early might de-adopt only to rejoin the category at a latter point. Embracing customer attrition is fundamental for service innovation and has regrettably been mostly neglected in current innovation diffusion models (Libai et al, 2009; Shi et al., 2014). As the actual de-adopting behavior can hardly be tested in the context of this study, relationship dissolution is measured in the decision-making stage when consumers contemplate leaving a service provider. Naturally, this stage involves intentions and there is no guarantee that the individual will actually leave the provider. However, this method does allow a cross-section analysis and corresponds to the approach of other authors (Mittal and Lassar, 1998; Bhattacharjee, 2001; Hellier et al., 2003). Thus, customer attrition is measured by the relational *continuance intention* of an individual.

H5: The *immune response*, translated as *attitude toward using*, has a positive effect on the subsequent infection outcome *recovery*, the *post-initial adoption behavior continuance intention*.

3.3.7 Chronic infection and actual usage

“In acute and subclinical infections, the balance favors the host (i.e. the virus is cleared from the body), whereas in persistent and chronic infections it is tilted towards the virus (which is not cleared and does not have to face the hazards of finding a new susceptible host for a long time)”, (Dimmock et al., 2007, p. 227). Hence, a *chronic infection* means that the host’s *immune response* cannot terminate the virus. This translates to the TAM behavioral response *actual usage*, the “self-reported system use” (Davis, 1993, p. 480; Figure 5). The analogy is that both behavioral responses signify the preserving of either the virus or the service innovation within the host/individual. In the first scenario, the host’s *immune system* is not strong enough to clear the virus from the body and in the second scenario, the *attitude toward using* is not negative enough for an individual to terminate using the service innovation.

According to Fishbein and Ajzen (1975), an individual's belief about the consequences of performing a specific behavior directly influences the attitude toward that behavior, which affects the behavioral response. Robey (1979) supports this theory by evidencing the strong relation between attitude and *actual usage*. Thus, *actual usage*, indicating how much a customer uses the service innovation, is influenced by his intuitions, beliefs and attitude. It is therefore vital to integrate it into the service innovation adoption model to better understand the consumer decision-making process. Consequently,

H6: The *immune response*, translated as *attitude toward using*, has a positive effect on the subsequent infection outcome *chronic infection*, the *post-initial adoption behavior actual usage*.

3.3.8 Transmissibility of infection and customer influencer value

Finally, the third infection outcome is *transmissibility of infection*, which indicates the extent to which an infected host transmits the virus to other healthy hosts. Two of “the main variables that determine the transmissibility of viruses are excretion (manner, duration, quantity of virus, and infectivity) [and] environment (stability of the virus and the chance of contact with a new host) [...]” (Fenner, 1996, Chapter 48, Epidemiologic Features of Viral Infections, Paragraph 4). In the service innovation adoption context, this variable translates to the *customer influencer value*, which “captures the value of the influence that an individual (usually a customer) exerts on other customers or prospects” (Kumar et al., 2010; p.302). As noticeable through the variables' respective names, both signify the gradient of infectiousness between two individuals, with one individual taking the sender's perspective and one taking the receiver's side. In essence, the intrinsic measure *customer influencer value* represents the sender's WOM behavior within a social network (Kumar et al., 2010). WOM activities have been a much-investigated topic, however previous research has commonly only taken the receiver's perspective of it (Harrison-Walker, 2001). Nonetheless, by definition, there are at

least two parties in an interpersonal information exchange. This means that WOM is a vital consumer behavior within the *pre-initial adoption* phase and throughout the *post-initial adoption* phase of service innovation, which is essential to consider for the institutional arrangements premise of the S-D logic (Godes and Mayzlin, 2004; Vargo and Lusch, 2015). Relatedly, relatively few studies have considered the precursors of WOM and rather focused on the consequences of it (Harrison-Walker, 2001). The scarce studies that viewed WOM as an outcome, showed that it increases with customer loyalty and that very satisfied and very dissatisfied customers are most likely to engage in WOM actions (Anderson, 1998; Bowman and Narayandas, 2001). This implies that an affective response, such as *attitude toward using*, most likely influences the behavioral response, *transmissibility of infection*. Furthermore, dissatisfied (heavy) users are most active in WOM (Bowman and Narayandas, 2001), which points to the fact that a lesser attitude increases WOM activities. Supplementing existing literature, WOM is included within this research from the receiver's perspective (*susceptibility to infection*) and from a sender's viewpoint (*transmissibility of infection*) with a direct antecedent (*attitude toward using*).

H7: The *immune response*, translated as *attitude toward using*, has a negative effect on the subsequent infection outcome *transmissibility of infection*, the *post-initial adoption behavior* *customer influencer value*.

3.3.9 Direct effects

Besides the indirect effects of the *determinants of perceived service value* on the *post-initial adoption behavior* through the *attitude toward using*, this research further theorizes direct effects of the *determinants of perceived service value* on the *post-initial adoption behavior* (Model 3, p. 38). Previous research evidences besides an indirect effect through attitude, that beliefs and cognitions further have a direct effect on behavioral intentions (Triandis, 1977; Bagozzi, 1982). For instance, within the TAM model, a positive direct effect of *perceived usefulness* on *actual usage* has been proven manifold, which underlines the influence beliefs have on behavior (Davis, 1993; Szajna, 1996). Furthermore, Bhattacharjee (2001) demonstrate a positive direct link between *perceived usefulness* and *continuance intention*, which verifies the effect of beliefs on intentions. Harrison-Walker (2001) corroborates a positive direct link between commitment and WOM (*customer influencer value*), and thus shows that cognitions stimulate subsequent WOM behavior. Consequently, the final conceptual model also investigates possible direct effects, which are summarized in form of hypotheses in Appendix B. Regrettably, explaining them in detail in the main text is beyond the spatial scope of this thesis.

3.3.10 Sub-questions in form of moderating variables

Two sub-questions in form of moderators are determined to further complement this study's research question: "*How do the lifecycle characteristics of a virus, translated as the determinants of perceived service value, affect the consumer attitude and thus post-initial adoption behavior of service innovation?*"

3.3.10.1 Sub-question 1 – The external environment

"How does the external environment of service innovation diffusion, signified by existing competition and tie strength, influence the service adoption?"

Competition exists analogously in the viral world and the service innovation sphere. Indeed, what can be said about viruses is that resilient antibodies within the human body evoke a strong negative reaction of the immune system competing with the virus and thus constraining its subsequent diffusion. Similarly for innovation adoption, Gruber and Verboven (2001) modeled the diffusion of the global telecommunications market and found that *competition* between providers significantly increased the diffusion rate. Geroski (2000) propose the following explanation for this phenomenon in the context of firm innovation adoption. With increasing rivalry, profits will erode similar to a simple Cournot model of *competition*. However, a foresighted firm such as Apple with its initial introduction of the first iPhone, will wish to diffuse the innovation as quickly as possible before a crowded market decreases profits with the entrance of other competitors such as for instance Samsung. At least initially, this kind of strategic behavior is said to increase the diffusion rate. On the other hand, it seems possible that "too much" *competition* has an adverse effect on diffusion and slows the adoption rate because it lowers the firm returns to adoption or because it obscures initial choices between alternative offerings (Geroski, 2000, p. 622). Indeed, the effects of *competition* on innovation diffusion remain rather blurry. Whereas, Hannan and McDowell

(1984) conclude a positive relationship between marketing concentration and diffusion, Levin et al. (1987) evidence a negative one. Thus, this study takes the stance that *competition* influences the service innovation adoption, however the direction of this effect remains to be reced.

H8: The existing *competition* of a service innovation influences the effect of the *determinants of perceived service value* on the *attitude toward using*.

Tie strength is the second variable erecting the external environment construct. Considering again the viral analogy, a tightly networked environment increases the chance that an infected host will transmit the virus to other healthy hosts (Fenner, 1996). Translated to the service innovation domain, the concept is defined as follows: “The strength of a tie is a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal service[s] which characterize the tie” (Granovetter, 1973, p. 1361). A social network’s relationships, which are accounting for a considerable impact on the service innovation adoption, are principally driven by the construct of *tie strength* (Brown and Reingen, 1987; Bansal and Voyer, 2000; Greenhalgh et al., 2004). Granovetter (1973) explicates this with arguing that people rarely act on mass-media information, *p*, unless it is further recommended through personal ties, *q*. Especially for service innovation, firm independent sources such as social networks are more effective than for goods, because individuals have more confidence in personal sources than in impersonal ones (Murray, 1991). Furthermore, Rogers (1995) theorizes that the nature of the social system, measured for instance by *tie strength*, has a considerable effect on the rate of innovation adoption. Bansal and Voyer (2000) confirm in a study that sturdy *tie strength* corresponds to greater influence through WOM actions on an individual’s consumption decision. Furthermore, strong ties affect an individual to seek WOM information more actively in his network. For

instance, in a study by Keaveney (1995), about 50% of service switchers found their new provider through WOM communications, referrals and references. This effect can possibly be explained by the concept of homophily - the collective flocking of birds of the same feather (McPherson and Smith-Lovin, 1987; McPherson et al., 2001; Boase and Wellman, 2001). Rogers (1995) corroborates homophily as "...the degree to which pairs of individuals who interact are similar in certain attributes, such as beliefs, education, social status and the like". He further condemns that: "[Homophilous] communication is also more likely to be effective, and thus to be rewarding" (p. 18/19). Presumably through the sharing of common characteristics in a densely knit social network, individuals have a substantial impact on each other's decision making and thus influence the value cocreation within an actor-to-actor network (Cross et al., 2001; Lusch and Nambisan, 2015; Vargo and Lusch, 2015). Therefore,

H9: Sturdy *tie strength* of an individual's social network strengthens the effect of the *determinants of perceived service value* on the *attitude toward using*.

3.3.10.2 Sub-question 2 – The internal environment

"How does the internal environment of service innovation diffusion, denoted by the need for interaction with a service employee and the attitude toward using technology, influence the service adoption?"

The internal environment acting on the virus can be defined as the host's immune system, the "complex interacting mixture of cells and soluble components that has evolved to protect us from infection" (Dimmock et al., 2007, p. 212). Similar to the immune system, the existing attitude and perceptions of an individual are a rather steady construct and denote the internal service innovation adoption environment. Following Dabholkar (1996), the expected service quality that results from existing perceptions and attitudes, is to some extent defined by the

overall affect model, which is made up of the *attitude toward using technology* and *need for interaction with a service employee*.

The *attitude toward using technology* is theorized to have an essential moderating effect as it forms a person's perceptions through cognitive dissonance. Hereby, individuals reject different experiences as untrue regardless of their value because they have a strong commitment to a certain way of thinking (Festinger, 1962). According to this ideology, some individuals react immune to a novel service innovation judged on previous experiences such as their learning history or social network acceptance. For this research, cognitive dissonance implies that the past *attitude toward using technology* will influence the future *attitude toward using technology*, which likely impacts an individual's *attitude toward using* of a specific technological service innovation (Dabholkar, 1996).

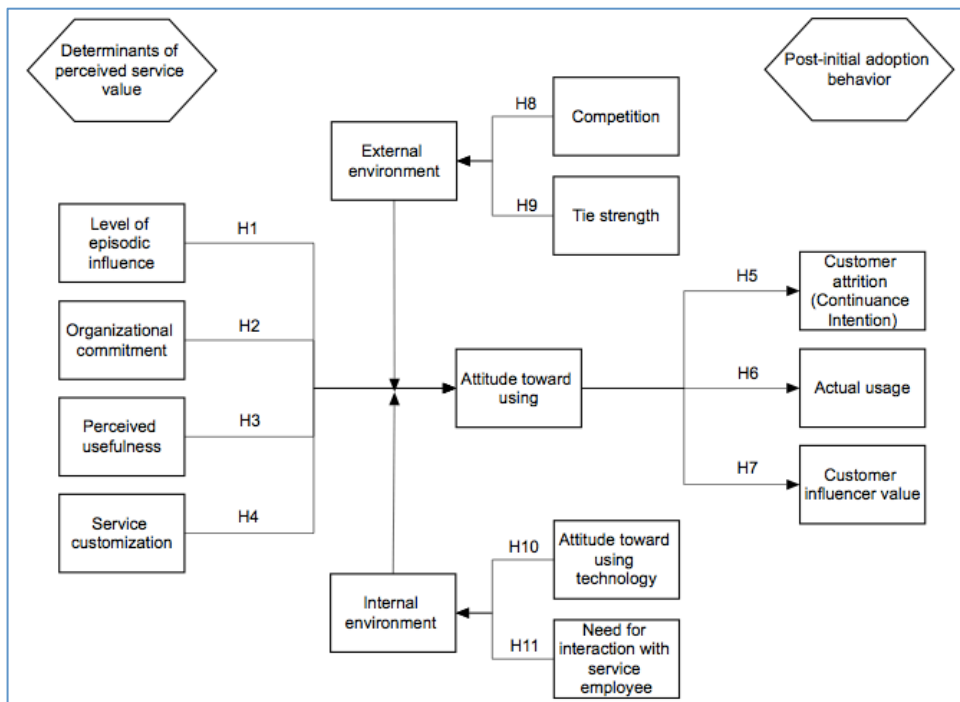
H10: A positive *attitude toward using technology* strengthens the effect of the *determinants of perceived service value* on the *attitude toward using*.

The *need for interaction with a service employee* is hypothesized to have a moderating effect as it symbolizes the heterogeneity between individuals, which denotes the difference among certain attributes between two or more individuals (Rogers, 1995). People have a dissimilar attitude toward replacing service employees by automated machines in service encounters (Cowles, 1989; Cowles and Crosby, 1990). Hereby, the different levels of desired retail contact play a vital role in determining an individual's perception of an automated (online) technology (Forman and Sriram, 1991). Consequently,

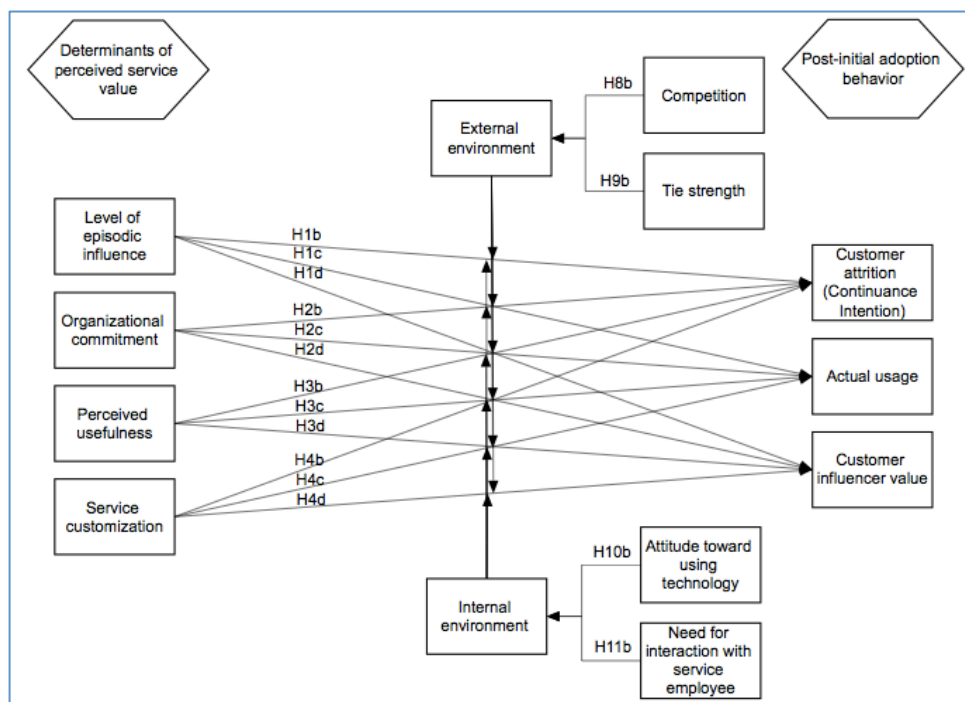
H11: A high *need for interaction with a service employee* weakens the effect of the *determinants of perceived service value* on the *attitude toward using*.

3.4 Conceptual model – The emergent meaning structure (Step 3)

After leveraging the inductive approach of disciplined imagination for the viral metaphor transcription (Weick, 1989), new theory is generated in form of the previous hypotheses, which are deductively tested throughout the remainder of this study. For an overview of the hypotheses, definitions and synergies please refer to Table 1 and Appendix B.



Model 2: First part of the model showing the indirect links through mediation



Model 3: Second part of the model showing the direct links without visible mediation

4. Method

During the first stage of the deductive part, a research design is determined. In the following, the research setting is elaborated on by judging its fit with the problem setting. Second, the sample is scrutinized with regard to the industry and the demographics of the participants. Subsequently, the data collection procedure is outlined. The fourth part evaluates the measure development and the steps of the final questionnaire. Finally, the analytical strategy is discussed with respect to the type and progression of the empirical data analysis.

4.1 Setting

The service dissected within this study is positioned in the financial industry. More precisely, the online postbox as part of the online banking system of a German bank is scrutinized. Introduced only on December 31st 2014, the electronic postbox can be considered a service innovation. According to the service classification schemes by Lovelock (1983), the studied service is directed at intangible assets common in the banking industry. Besides the continuous delivery of the service, the relationship between the consumer and the bank is designated as a “membership” relationship (p. 13). Furthermore, the demand fluctuations over time can be considered as rather narrow and the available supply can usually meet peak demand without a major delay. Finally, the nature of interaction between the service provider and the customer is at arm’s length and through a single site, as the online banking service engages indirect contact facilitated through the use of a single website. Overall, the banking industry and its corresponding features to Lovelock’s (1983) classifications are deemed suitable, because together they picture-perfectly resemble the S-D logic of Vargo and Lush (2004; 2008). In the financial sector, service is truly the basis of exchange and products are expended as distribution mechanisms. Second, the respective service clearly demonstrates that all actors are cocreators and resource integrators, because it obliges input from multiple

players. Finally, banks can only offer value propositions and the beneficiary, influenced by institutional arrangements, determines the actual value creation through his relationship with the providing bank (Vargo and Lush, 2015).

Similarly to the equivalences between the financial industry context and the S-D logic, the specific service innovation is chosen to resemble the four meta-theoretical foundations of the S-D logic (Lusch and Nambisan, 2015). The electronic postbox within the online banking aptly simulates *resource liquefaction*, as the digital substance of the innovation allows the decoupling of information from its related physical form. Before the introduction of the electronic postbox, statements of the bank account were printed within the branches of the respective bank. Through the emergence of the digitization of information, the electronic postbox enables customers to share information, unlimited by the cost and time of physical transport. This liquefying process in turn enhances *resource density* as contextually relevant knowledge is mobilized for the individual user's needs. The electronic postbox can be accessed at any time, anywhere, with the only prerequisite of an Internet connection. Additionally, the electronic postbox dovetails an *actor-to-actor network*, where value is uniquely determined by the beneficiary. Within the postbox, the consumer can receive e-mails, but also tailored suggestions by the bank advisors and consultants. Externally of the postbox, the beneficiary is influenced by interpersonal communication and bank-specific activities. For instance, alterations of the digital components within the electronic postbox by the bank lead to the continuous reinterpretation of value exploration by the beneficiary and other actors. Finally, the principality of the roles underlying value cocreation and the consequent approach of resource bundling to extract that value, qualifies the electronic postbox to fulfill the final meta-theoretical foundation of the S-D logic, as all actors are engaged in *resource integration*.

4.2 Sample

Data is collected from the Sparkasse Harburg-Buxtehude, a bank in Northern Germany with approximately 755 employees and a balance sheet total of €3.52 billion (Daten & Fakten: Sparkassen-Rangliste 2014, 2015). From nearly 190.000 private customers, 41.000 have an online banking account. After excluding the customers, who denied receiving mails by the bank, a sample of 13.038 clients remains that received an E-mail containing an embedded URL link to the survey. 430 complete responses are registered in the first week, after which a reminder mail uplifted the amount to a final 750 responses. Thus, the response rate is 5.8%, which is higher than the usual resonance for surveys send out by the bank itself, such as customer satisfaction inquiries. One possible explanation for that could be the incentives installed to increase the response rate. First, customers could win a lunch of their choice with a board member of the bank. Second, two tickets to an amusement park were inaugurated. Finally, partakers could attain a petrol coupon worth 50€. As Table 2 evidences, the drawn sample contains variance in the control variables *gender*, *age* and *years as a customer*, with a high percentage attributed to younger clients that have been customers for more than 10 years.

Table 2 – Demographics of respondents (n=750)

Item		Frequency	Percentage
Gender	Male	425	56.7%
	Female	325	43.3%
Age	<30	299	39.9%
	30-40	96	12.8%
	41-50	104	13.9%
	51-60	109	14.5%
	61+	142	18.9%
Years with bank	0-1 year	37	4.9%
	2-5 years	87	11.6%
	6-10 years	123	16.4%
	More than 10 years	503	67.1%

4.3 Procedure

Participants of the online survey are first asked to indicate their usage level of the online postbox and their expected service quality as scrutinized by the overall affect model (Dabholkar, 1996). The second part investigates the respondents' social network and its impact on their decision-making. Hereby, a routing question divides customers who talked with another person about the electronic postbox from customers who did not communicate with someone else. Next, the partakers' indicate their feelings toward the electronic postbox, which is followed in the fourth part by their attitude toward the bank itself. In the fifth part the participants compare the electronic postbox to a similar service provided by other banks. Finally, data on the customers' age, gender and years with the bank is collected.

4.4 Measure development

The items comprising all constructs are included in Table 3. As can be seen in Appendix C, all measures are developed based on previous research that yielded similar reliability scores. For the constructs *attitude toward using*, *service customization*, *actual usage*, *attitude toward using technology*, *competition* and *tie strength*, the questions are slightly adapted to fit a 7-point Likert scale, mostly with anchors "strongly disagree" (1) to "strongly agree" (7). While the constructs *attitude toward using* and *attitude toward using technology* initially used semantic differential items with adjectives as end points, other scales employed 10-point Likert scales (*service customization*, *tie strength*), 6-point Likert scales (*actual usage*, *tie strength*) or a 5-point Likert scale (*competition*). Finally, some questions are rephrased to correspond to an interval scale such as the second item of *actual usage*, which was originally expressed to allow for open text-answers.

Table 3 – Measurement model

Construct	Item	α	FL	AVE
Attitude toward using	All things considered, my use of the electronic postbox on my online banking account is:	0.98		0.92
	- Good		0.95	
	- Wise		0.96	
	- Favorable		0.96	
	- Beneficial		0.96	
	- Positive		0.96	
Level of episodic influence	This person provided little new information. *	0.97	0.95	0.89
	The opinion of this person influenced my choice about continuing/using the online postbox.		0.96	
	This person mentioned some things I had not considered.		0.97	
	This person provided some different ideas than other sources.		0.93	
	This person really didn't change my mind about continuing/using the online postbox. *		0.91	
	This person helped me make a decision about continuing/using the online postbox.		0.94	
Organizational commitment	For me, this is one of the best banks of its kind.	0.95	0.85	0.71
	I am proud that I use the services of the Sparkasse.		0.72	
	I usually agree with the Sparkasse's policies and procedures on important matters.		0.80	
	This is a good bank to use.		0.91	
	I like the way the Sparkasse operates.		0.90	
	The Sparkasse understands my needs.		0.86	
	I like the Sparkasse.		0.89	
	I have a special relationship with the Sparkasse.		0.68	
	Doing business with the Sparkasse is enjoyable.		0.88	
	I do business with the Sparkasse because I like it.		0.88	
Perceived usefulness	Using the electronic postbox on my online banking account enables me to accomplish tasks more quickly.	0.96	0.92	0.84
	Using the electronic postbox on my online banking account improves my performance.		0.93	
	Using the electronic postbox on my online banking account increases my productivity.		0.97	
	Using the electronic postbox on my online banking account enhances my effectiveness.		0.96	
	Using the electronic postbox on my online banking account makes it easier to do my tasks.		0.94	
	I find the electronic postbox on my online banking account useful.		0.78	
	The electronic postbox on my online banking account of the Sparkasse satisfies my specific needs. †			
Service customization	I couldn't find the electronic postbox in another bank.	0.80	-	0.81
	If I changed between banks I wouldn't obtain a service as customized as I have now.		0.93	
			0.87	
Continuance intention (Customer attrition)	I want to continue using the electronic postbox on my online banking account rather than discontinue its use.	0.85	0.80	0.70
	My intentions are to continue using the electronic postbox on my online banking account rather than any alternative means.		0.81	
	If I could, I would like to discontinue use of the electronic postbox on my online banking account. *		0.90	

* = Reverse coded; † = Item omitted from the data analysis; α = Cronbach's alpha; FL = Factor loading; AVE = Average variance extracted;

Table 3 continued – Measurement model

Construct	Item	α	FL	AVE
Actual usage	I use my electronic postbox on my online banking account frequently.	0.82	0.81	0.78
	I spend a considerable amount of time using the electronic postbox on my online banking account each week.		0.95	
Customer influencer value	I mention the Sparkasse to others quite frequently.	0.92	0.88	0.71
	I've told more people about the Sparkasse than I've told about most other banks.		0.86	
	I seldom miss an opportunity to tell others about the Sparkasse.		0.89	
	When I tell others about the Sparkasse, I tend to talk about the bank in great detail.		0.84	
	I have only good things to say about the Sparkasse.		0.68	
	I am proud to tell others that I use the Sparkasse.		0.87	
Attitude toward using technology	How often do you get in contact with other technologies? (e.g. Computers, Smart Phones, Apps, Internet banking)	0.85	0.52	0.64
	How would you describe your feelings toward using technological products/services in general? (e.g. Computers, Smart Phones, Apps, Internet banking)		0.85	
	- Good		0.84	
	- Pleasant		0.86	
	- Beneficial		0.86	
Need for interaction with service employee	Human contact in providing services makes the process enjoyable for the customer.	0.79	0.90	0.72
	I like interacting with the person who provides the service.		0.91	
	Personal attention by the service employee is not very important to me. *†		-	
	It bothers me to use a machine when I could talk with a person instead.		0.73	
Competition	Compare the Sparkasse on the following characteristics with competing banks who offer similar services	0.89		0.75
	- Quality of the service provided		0.88	
	- Support services provided		0.92	
	- Reasonably policies		0.91	
	The outcomes obtained with the Sparkasse Harburg-Buxtehude's electronic postbox on my online banking account are ____ than the outcomes available from other banks.		0.73	
Tie strength	Please rate your relationship with that person.	0.98	0.98	0.95
	Please rate your likelihood to share a personal confidence with that person.		0.98	
	Please rate your likelihood of extending everyday (as opposed to emergency) assistance to that person.		0.97	
	Please rate your likelihood of spending a free afternoon with that person.		0.96	

* = Reverse coded; † = Item omitted from the data analysis; α = Cronbach's alpha; FL = Factor loading; AVE = Average variance extracted;

After constructing a first version of the questionnaire in English and German, an expert panel of the bank's employees considered the suitability and applicability of every question for the financial industry setting. Judges were provided with the German definitions of the respective constructs and finally decided to omit two items from the commitment construct¹. The remaining 57 items of the 12 constructs and the three items estimating the control measures *age*, *gender* and *years with the bank* were deemed suitable and included in the final survey.

Successively, the items for all constructs are pretested on a sample of 20 subjects by personally administering the questionnaire via e-mail, phone and face-to-face interviews. Hereby, the English version is pre-tested to a lesser degree than the German one as the final survey is sent out in German. Care is taken to spread the pre-test evenly over gender and age groups. Pre-testers are asked to clarify the intention of the questions, state any problems with the wording and content and give an overall impression of the survey in terms of sequence, format, layout and instructions. As a result, the questionnaire is slightly adapted. The final questionnaire containing all 7-point Likert scales and control variables, and the complementary reminder mails in English and German, are contained in Appendix D - G.

4.5 Analytical strategy

To analyze the collected data, SPSS Version 21.0 is expended for the preliminary analysis and AMOS Version 18.0 for the Structural Equation Modeling. Analysis of Moment Structures (AMOS) is an additional SPSS module that is specifically designed for Structural Equation Modeling (SEM), path analysis and confirmatory factor analysis. As this study's theoretical model is a multivariate model containing several moderators, dependent variables and a mediator, SEM is the preferred method to overcome a step-by-step regression analysis

¹ The original items that measure affective commitment by Harrison-Walker (2001) and that were omitted are: "This organization inspires the best in me in the way of being a good customer" and "I want to help this service organization achieve its goals".

and test direct as well as indirect effects concurrently (Byrne, 2013). The most intriguing advantage of SEM is, that it allows the researcher to test all relationships of the hypothesized model simultaneously and thus also compare all conjectured relationship coefficients, means and variances instantaneously. Second, rapid model debugging is facilitated through AMOS graphical interface, which in turn aids in adjusting the model. This is especially significant in this research's case, as SEM is not merely used for confirmatory analysis but also to clarify the newly generated theory from the metaphor building. Finally, SEM provides not only individual parameter tests but essentially also an overall estimate of model fit and thus evokes more coherent and comprehensive results that can readily be compared with alternative models.

After specifying the measurements and collecting the data, the subsequent empirical analysis first focuses on preparing the data file in terms of missing values, outliers and normality. Second, it indicates the descriptive statistics encompassing the means, standard deviations and bivariate correlations of all constructs. Third, the measurement model is evaluated on reliability, unidimensionality, convergent validity and discriminant validity. Fourth, the overall model evaluation scrutinizes the appropriate sample size and examines the final model fit. Fifth, the results of the hypotheses, control variables and moderating influences are dissected to evaluate the structural model. Finally, a rival model is compared to the hypothesized model to explore the meaningfulness and robustness of the theory.

5. Empirical analysis and results

The following analysis of the structural equation model is conducted by applying maximum likelihood estimation to the covariance matrix.

5.1 Preparation of the data file

The initial preparation of the data file is done in SPSS. First, the data is scrutinized for missing values. As a forced answer mechanism was installed in the survey software Qualtrics, only the missing values for the selection part relating to the *level of episodic influence* and *tie strength* have to be treated. After filtering for outliers, the final data set contains 750 responses of which 175 respondents selected within the routing question to respond to questions about the *level of episodic influence* and *tie strength*. Finally, normality is assessed. Here fore, mean values for all constructs are computed and separately considered. First, the Kolmogorov-Smirnov statistic is dissected. It insinuates a violation of the normality assumption as significant values for all constructs are found. However, according to Pallant (2013), that is a common finding for large samples. To further examine normality, histograms and normal Q-Q plots are fabricated of each construct. Even though some histograms show palpable signs of skewness, the normal Q-Q plots follow a relatively consistent line. Potential outliers are deemed to be within an acceptable range. Overall, the linearity condition is not entirely fulfilled, however judged appropriate enough to continue with the empirical analysis.

5.2. Descriptive statistics

Table 4 provides an overview of the construct means, standard deviations and bivariate correlations. The bivariate correlations are considered along three lines. First, 74 out of 105 correlations below the diagonal are significant. Second, the strength of the correlations is overall rather small as merely nine out of the 74 significant correlations classify as high according to Cohen (1992). More importantly, none of the independent variables are highly

Table 4 - Means, standard deviations and correlations

Construct	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Level of episodic influence	4.02	1.18	1.00														
(2) Organizational commitment	4.99	1.07	0.32***	1.00													
(3) Perceived usefulness	3.87	1.46	0.25***	0.28***	1.00												
(4) Service customization	3.58	1.19	0.26***	0.37***	0.47***	1.00											
(5) Attitude toward using	4.69	1.47	0.17**	0.26***	0.75***	0.36***	1.00										
(6) Continuance intention	4.48	1.49	0.09	0.23***	0.71***	0.24***	0.77***	1.00									
(7) Actual usage	2.66	1.61	0.18**	0.16***	0.54***	0.24***	0.51***	0.57***	1.00								
(8) Customer influencer value	3.65	1.37	0.33***	0.72***	0.28***	0.33***	0.20***	0.19***	0.20***	1.00							
(9) Competition	4.48	0.89	0.23***	0.62***	0.31***	0.37***	0.29***	0.27***	0.17***	0.51***	1.00						
(10) Tie strength	4.63	1.72	0.02	0.30***	0.12	0.23***	0.15**	0.11	0.07	0.30***	0.17**	1.00					
(11) Attitude toward using technology	6.09	0.75	0.03	0.11***	0.11***	0.04	0.14***	0.08**	0.02	0.10***	0.10***	0.13*	1.00				
(12) Need for interaction w.s.e.	4.87	1.38	0.17**	0.27***	0.01	0.16***	0.01	-0.03	0.00	0.25***	0.18***	0.11	-0.14***	1.00			
(13) Age	2.60	1.57	0.00	0.01	-0.15***	-0.10***	-0.10***	-0.02	0.03	0.10***	-0.10***	-0.05	-0.19***	0.09**	1.00		
(14) Gender	1.43	0.50	0.08	0.12***	0.12***	0.16***	0.09**	0.04	-0.01	0.08**	0.15***	-0.11	0.05	0.03	-0.29***	1.00	
(15) Years with bank	3.46	0.88	-0.05	-0.04	-0.09**	-0.08**	-0.09**	-0.06*	-0.07*	-0.04	-0.10***	-0.02	-0.05	-0.01	0.25***	-0.14***	1.00

*** = Significant at the 1% level; ** = Significant at the 5% level; * = Significant at the 10% level; SD = Standard deviation; **Red** denotes a high correlation (0.50 to 1.00) after Cohen (1992); (11) Attitude toward using technology; (12) Need for interaction with service employee

correlated with each other. Merely the dependent variables are occasionally correlated with their antecedents, which makes intuitive sense as they depend on them. Finally, the direction of the significant correlations is mainly positive with the exception of some control variables and the correlation between *need for interaction with a service employee* and *attitude toward using technology* ($r = -0.14^{***}$).

5.3 Measurement model evaluation

The measurement model is assessed by determining its quality based on its reliability, unidimensionality, convergent validity and discriminant validity dimensions. Throughout the preliminary analysis two adjustments are made to improve the final model's eminence. The first item² of *service customization* had a considerably higher mean than the other two belonging items (4.1 in contrast to 3.6 and 3.5, respectively). Furthermore, it loaded on the component of *perceived usefulness* during the factor analysis. This can possibly be justified by its wording, as "specific needs" can also relate to the *perceived usefulness* of a service. Hence, to attain delineated results, the first item of *service customization* is omitted from any further analysis. Second, the third item³ of *need for interaction with service employee* could not be allocated throughout the factor analysis after setting the command to not display loadings smaller than 0.3. A plausible explanation could be the reverse coding of the item. Therefore, the third item of *need for interaction with service employee* is removed from the further analysis as well.

Table 3 contains the results of the reliability analysis, factor analysis and the average variance extracted (AVE) of the final model. Reliability is evidenced by Cronbach's alpha exceeding

² Item 1 of the customization construct by Coelho and Henseler (2012) is materialized as follows: "The electronic postbox on my online banking account of the Sparkasse satisfies my specific needs."

³ The reverse coded third item of the *need for interaction with service employee* construct by Dabholkar (1996) is phrased as follows: "Personal attention by the service employee is not very important to me."

0.8 for all constructs⁴, which is notably above the proposed threshold of 0.7 as insinuated by Nunnally (1978) as cited in Hulland (1999). Unidimensionality is substantiated by proving that the appropriate items load at least 0.55, with only six out of 55 loadings being below a 0.8 threshold. Convergent validity is verified since all factor loadings are significant at the one percent level, have high factor loadings of equal size on the respective constructs and an R² above 0.5 for most items (Hildebrandt, 1987). Moreover, the AVE is over the threshold of 0.5 for each construct and thus further supports validity (Fornell and Larcker, 1981). Finally, discriminant validity is established via two means. First, the cross-loadings are inspected and declared as not substantial compared to the loadings of their respective components (Hulland, 1999). Second, the square root of the AVE is taken for each construct and compared to its intercorrelations with other constructs of the model (Fornell and Larcker, 1981). Based on this more restraining test, further support for discriminant validity is corroborated with merely three exceptions as marked red in Table 5.

Table 5 – Intercorrelations of the latent variables

Construct	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Level of episodic influence	0.89							
(2) Organizational commitment	0.32	0.71						
(3) Perceived usefulness	0.25	0.28	0.84					
(4) Service customization	0.26	0.37	0.47	0.81				
(5) Attitude toward using	0.17	0.26	0.75	0.36	0.92			
(6) Continuance intention	0.09	0.23	0.71	0.24	0.77	0.70		
(7) Actual usage	0.18	0.16	0.54	0.24	0.51	0.57	0.78	
(8) Customer influencer value	0.33	0.72	0.28	0.33	0.20	0.19	0.20	0.71

*Square root of the AVE on the diagonal; **Red** denotes intercorrelations below the square root of the AVE

First, the intercorrelation between *customer influencer value* and *organizational commitment* (0.72) is larger than the square root of the AVE of both constructs (0.71). Additionally, the

⁴ The Cronbach's alpha for *need for interaction with service employee* is slightly below 0.8 with a value of 0.79.

intercorrelation between *continuance intention* and *perceived usefulness* (0.71) and the intercorrelation between *continuance intention* and *attitude toward using* (0.77) surpasses the square root of the AVE of *continuance intention* (0.70). Nevertheless, as the divergences are rather diminutive, this is not considered a major delinquency harming discriminant validity. In summary, the measurement model is clean with substantiation of reliability, unidimensionality, convergent validity and discriminant validity.

5.4 Overall model evaluation

As recommended by Baumgartner and Homburg (1996), Table 6 contains a variety of different fit indices, including absolute, stand-alone, and incremental fit indices. To have confidence in the model evaluation, sample size is a critical factor because small samples may not have enough power to detect specification errors (Kaplan, 1995). Contrary, with excessively large sample sizes that contain high power, even small misspecifications may lead to the rejection of the model. Hu and Bentler (1995) propose a sample size exceeding 250 respondents to safeguard against dependence between the latent variables, since then indices tend to overreject models. Mitchell (1993) suggests as a rule of thumb, that for multiple regression a model should contain 10 to 20 times as many observations as variables. Taking the most deterring approach and including all control variables, the sample size of this study still vastly exceeds the requirement of 300 subjects (15 variables times 20). Consequently, the sample size is deemed as sufficient given the number of parameters to be estimated and the analysis thus proceeds to evaluate the fit statistics.

The chi-square value is significant ($p < 0.01$) and subject to 1081 distinct sample moments with 165 distinct parameters for estimation, giving 916 degrees of freedom. Even though a significant chi-square value indicates that the observed covariance matrix is dissimilar to the predicted covariance matrix, which is an indication for a flawed model fit, this is not an

unusual finding for large sample sizes (Doney and Cannon, 1997). The chi-square value is adversely and often unfairly affected by vast sample sizes and further by violations of the multivariate normality assumption (Baumgartner and Homburg, 1996). The relative chi-square value, the ratio of the chi-square to degrees of freedom (CMIN/DF), can be considered less sensitive to sample size and is thus scrutinized next. For this study, the CMIN/DF is 3.27, a finding that is within the acceptable range of two to five (Marsh and Hocevar, 1985). While the absolute values for the goodness-of-fit index, GFI, (0.85) and the adjusted goodness-of-fit index, AGFI, (0.82) are somewhat lower than suggested (Schumacker and Lomax, 2004; Byrne, 2013), this can once more be explained by the large sample size. Additionally, it may be attributed to the model's complexity, which results from the many variables and degrees of freedom (Marsh and Hocevar, 1985; Baumgartner and Homburg, 1996). Indeed, the values for the comparative fit index, CFI, (0.94) and the Tucker Lewis index, TLI also titled NNFI, (0.93) are acceptably adjacent to the cutoff value for both indexes of 0.95 (Hu and Bentler, 1999). Finally, the root mean square error of approximation, RMSEA, (0.055) is satisfactory with a value below the reasonable threshold of 0.08 (Browne and Cudeck, 1992) and even below the more restrictive threshold of 0.06 (Hu and Bentler, 1999). Given the adequacy of these indices and given the circumstances of a large sample and a complex model that is at least partly developed on theoretical bases, no model respecifications are made and thus the structural model is evaluated in the next step.

Table 6 – Overall model fit

Fit statistics	Value
$\chi^2_{(165)}$	2991.01
χ^2 /d.f.	3.27
GFI	0.85
AGFI	0.82
CFI	0.94
TLI (NNFI)	0.93
RMSEA	0.055

5.5 Structural model evaluation

Table 7 reports the results of the structural model and Appendix H displays the unstandardized estimates within the conceptual model. Fifteen out of nineteen hypothesized paths are significant with merely one path being significant in the opposite direction as theorized. There are no values displayed for the unsupported hypotheses H2b/c and H4/b due to model respecifications procedures. To scrutinize the structural model in AMOS, the insignificant paths are omitted from further analysis to achieve more appropriate empirical constraints. Iteratively, the highest insignificant path is removed and the model re-analyzed until there are only significant paths left. Nonetheless, these post hoc analyses comprise a trade-off between specification searches to a better and more logical model fit and overfitting the model. Byrne (2013) suggests that in the case of thoughtful model respecifications and re-estimations, the analysis moves from a *confirmatory* mode to an *exploratory* mode. As this study suffers from a lack of existing research and thus employs the inductive metaphor development to explicate and generate new theory, an *exploratory* mode besides *confirmatory* facets is in fact desirable and thus validates the model modifications. Care is taken that all respecifications are theoretically and practically meaningful in the author's view and the process is guided by substantive considerations (Baumgartner and Homburg, 1996).

Table 7 – Structural model

Hypothesis	Parameter	Estimate (SE)	p-value
H1	Level of episodic influence → attitude toward using	0.12 (0.02)	***
H1b (+)	Level of episodic influence → continuance intention	0.06 (0.02)	0.007**
H1c (+)	Level of episodic influence → actual usage	0.18 (0.03)	***
H1d (+)	Level of episodic influence → customer influencer value	0.04 (0.02)	0.068*
H2 (+)	Organizational commitment → attitude toward using	0.08 (0.04)	0.022**
H2b (+)	Organizational commitment → continuance intention	<i>Not supported</i>	
H2c (+)	Organizational commitment → actual usage	<i>Not supported</i>	

Table 7 continued – Structural model

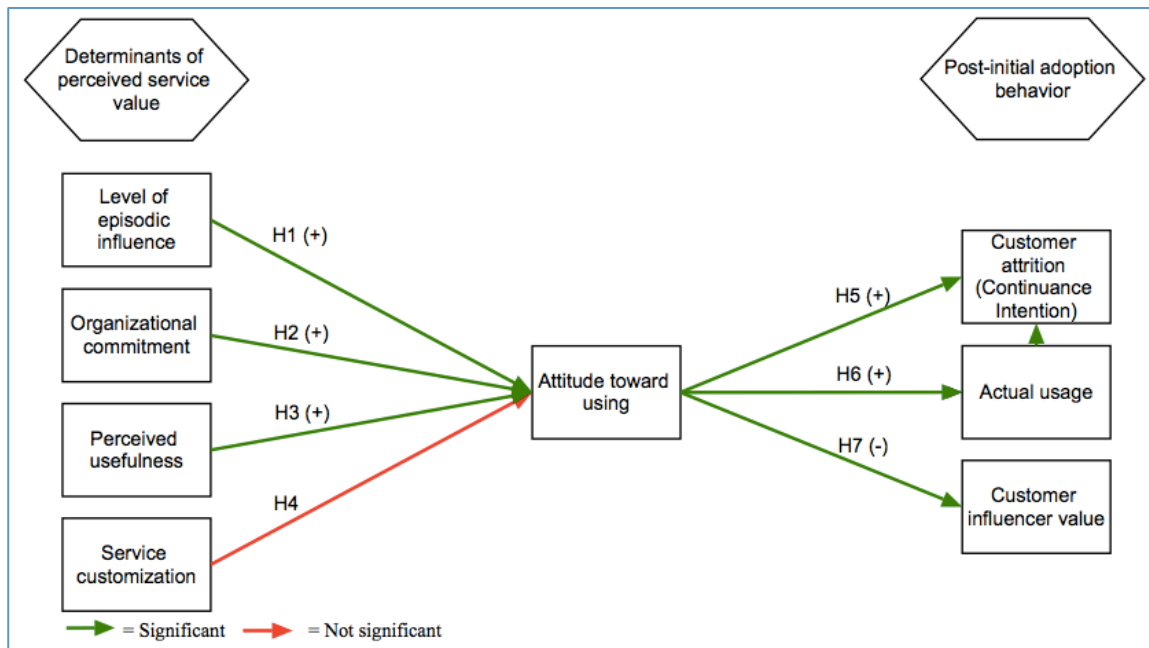
Hypothesis	Parameter	Estimate (SE)	p-value
H2d (+)	Organizational commitment → customer influencer value	0.98 (0.05)	***
H3 (+)	Perceived usefulness → attitude toward using	0.74 (0.04)	***
H3b (+)	Perceived usefulness → continuance intention	0.29 (0.04)	***
H3c (+)	Perceived usefulness → actual usage	0.49 (0.07)	***
H3d (+)	Perceived usefulness → customer influencer value	0.13 (0.05)	0.004**
H4 (+)	Service customization → attitude toward using	<i>Not supported</i>	
H4b (+)	Service customization → continuance intention	<i>Not supported</i>	
H4c (+)	Service customization → actual usage	<i>Significant in opposite direction</i>	
		- 0.18 (0.07)	0.010**
H4d (+)	Service customization → customer influencer value	0.12 (0.05)	0.013**
H5 (+)	Attitude toward using → continuance intention	0.59 (0.04)	***
H6 (+)	Attitude toward using → actual usage	0.41 (0.06)	***
H7 (-)	Attitude toward using → customer influencer value	- 0.11 (0.04)	0.008**

Squared multiple correlations for structural equations	Estimate
Attitude toward using	0.57
Continuance intention	0.77
Actual usage	0.41
Customer influencer value	0.61

*** = Significant at the 1% level; ** = Significant at the 5% level; * = Significant at the 10% level; SE = Standard error

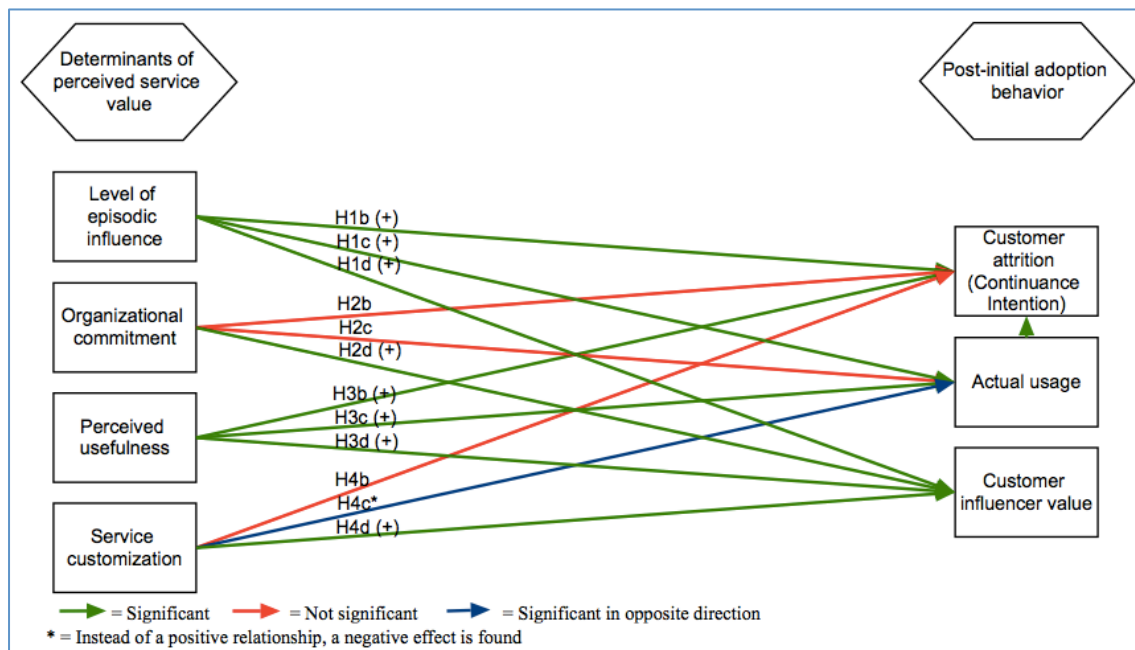
With respect to the first part of the model (Model 4), the *level of episodic influence*, *organizational commitment* and *perceived usefulness* significantly increase the *attitude toward using* and thus hypotheses H1, H2 and H3 are supported. Solely *service customization* is not found to have a significant effect on the *attitude toward using* and hence H4 is not supported. Furthermore, the data substantiates a positive relationship between the *attitude toward using* and *continuance intention* and *actual usage* and a negative relationship between

the *attitude toward using* and *customer influencer value*. Consequently, H5, H6 and H7 are supported as well, which confirms the mediating effect of the *attitude toward using*.



Model 4 – First part of the model showing the results of the indirect effects through mediation

Model 5 visualizes the second part of the model, which includes the direct links between the *determinants of perceived service value* and *post-initial adoption behavior* with the mediator made invisible. The *level of episodic influence* and *perceived usefulness* have a significant positive effect on all three *post-initial adoption behavior* and therefore hypotheses H1b-d and H3b-d are supported. For *organizational commitment*, there is only a significant positive effect on the *customer influencer value*. Hence, H2b/c are not supported while H2d is supported. Finally, *service customization* yields an insignificant link to *continuance intention* and a significant positive effect on the *customer influencer value*. Compared to its hypothesis H4c, the significant negative relationship between *service customization* and *actual usage* reveals a path in the opposite direction as theorized. Therefore, H4b/d are not supported while H4c is. Overall, the first and the second part of the model sustain the theory that the relationship between the *determinants of perceived service value* and the *post-initial adoption behavior* is partially mediated, except for *service customization* which solely has a direct link.



Model 5 – Second part of the model showing the results of the direct effects without a visible mediation

5.5.1 Additional findings and control variables

As Table 8 reports, besides the direct and indirect effects previously affirmed, a positive relationship between *actual usage* and *continuance intention* is exposed throughout the model respecifications. Theoretically, this link has rather been established in the opposite direction as it is usually recognized that intentions lead to actual behavior (Davis et al., 1989; Limayem et al., 2007). Rationally though, it appears logical that the usage behavior of an individual positively affects his *continuance intention* and therefore, with this substantive consideration in mind, the link is added to the original model.

Table 8 – Additional findings and control variables

Parameter	Estimate (SE)	p-value
Actual usage → continuance intention	0.20 (0.03)	***
Age → actual usage	0.16 (0.04)	***
Age → customer influencer value	0.13 (0.02)	***

*** = Significant at the 1% level; SE = Standard error

Additionally, *age*, *gender* and *years with the bank* are included in all analyses to control for further influencing factors on the resulting statistics. *Gender* and *years with the bank* do not have a significant effect on any of the endogenous variables. While, *age* does not affect the *attitude toward using* and *continuance intention*, a strongly significant influence on *actual usage* and *customer influencer value* is revealed (Table 8). To further explore the impact of *age*, the data set is split into five sub files containing each a different age category and the analysis is re-run with all links found previously significant for *actual usage* and *customer influencer value*. Table 9 reports the multi-group analysis and uncovers that merely the links between the *attitude toward using* and *actual usage* and between *organizational commitment* and *customer influencer value* are significant across all groups. Remarkably, younger age groups contain more significant relationships in contrast to their older counterparts (< 30 years = 5 links; 30 – 40 years = 4 links; 41 – 50 years = 2 links; 51 – 60 years = 2 links; 61+ years = 1 link). Moreover, the *customer influencer value* of the below 30-year-olds is not solely impacted by *organizational commitment* as for the other age groups, but further by *perceived usefulness*, *service customization* and the *attitude toward using*.

Table 9 – Age multi-group analysis

	Parameter	< 30 Est.	30 – 40 Est.	41 – 50 Est.	51 – 60 Est.	61+ Est.	Model Est.
H1c	Level of episodic influence → actual usage	0.25 (***)	0.30 (**)	- 0.02	0.10	0.18 (**)	0.18 (***)
H3c	Perceived usefulness → actual usage	0.54 (***)	0.33 (*)	0.67 (**)	0.72 (***)	0.17	0.49 (***)
H4c	Service customization → actual usage	- 0.14	- 0.01	- 0.45 (**)	- 0.32 (*)	- 0.10	- 0.18 (**)
H6	Attitude toward using → actual usage	0.30 (**)	0.44 (**)	0.40 (**)	0.30 (*)	0.66 (***)	0.41 (***)
H1d	Level of episodic influence → customer influencer value	0.04	0.08	0.07	0.10	- 0.04	0.04 (*)
H2d	Organizational commitment → customer influencer value	0.94 (***)	1.21 (***)	0.86 (***)	0.89 (***)	0.81 (***)	0.98 (***)

Table 9 continued – Age multi-group analysis

	Parameter	< 30 Est.	30 – 40 Est.	41 – 50 Est.	51 – 60 Est.	61+ Est.	Model Est.
H3d	Perceived usefulness → customer influencer value	0.25 (**)	0.18	0.10	- 0.08	0.06	0.13 (**)
H4d	Service customization → customer influencer value	0.21 (**)	0.06	0.16	0.05	0.06	0.12 (**)
H7	Attitude toward using → customer influencer value	- 0.20 (**)	- 0.18 (*)	- 0.06	0.13	- 0.08	- 0.11 (**)

N.S. = Not supported; Est. = Estimate; *** = Significant at the 1% level; ** = Significant at the 5% level; * = Significant at the 10% level; **Green coloring** denotes estimates higher than the overall model estimates

5.5.2 Moderating influences

Finally, the structural model is tested for moderating influences on the direct and indirect links. Appendix I reports an overview of the complete set of moderating effects, while Table 10 displays only the significant interactions.

Surprisingly, H9 is the only moderation effect in the first part of the model. More precisely, *tie strength* weakens the relationship between *perceived usefulness* and *attitude toward using* and thus H9 is partially supported. Within the second part of the model, aiming at the direct effects between the *determinants of perceived service value* and the *post-initial adoption behavior*, H8b, H9b and H10b are partially supported. The data suggests that *competition* strengthens the relationship between *organizational commitment* and *customer influencer value* and between *perceived usefulness* and *actual usage*. Similar to the first part of the model, *tie strength* weakens the relationship between *perceived usefulness* and *continuance intention*. Finally, the *attitude toward using technology* strengthens the relationship between *level of episodic influence* and *actual usage* and between *perceived usefulness* and *continuance intention*.

Table 10 – Significant set of moderating influences

Hypothesis	Parameter	Estimate (SE)	p-value
H8b	COMP x organizational commitment → customer influencer value	0.16	***
	COMP x perceived usefulness → actual usage	(0.03) 0.13 (0.05)	0.007**
H9 (+)	TS x perceived usefulness → attitude toward using	<i>Sig. in opposite direction</i> - 0.13 (0.04)	0.001**
H9b (+)	TS x perceived usefulness → continuance intention	<i>Sig. in opposite direction</i> - 0.13 (0.04)	***
H10b (+)	ATUT x level of episodic influence → actual usage	0.12	0.047**
	ATUT x perceived usefulness → continuance intention	(0.06) 0.07 (0.03)	0.034**

COMP = Competition; TS = Tie strength; ATUT = Attitude toward using technology; *** = Significant at the 1% level; ** = Significant at the 5% level; SE = Standard error

5.6 A rival model

To avoid a tunnel assessment and allow for alternative explanations of the data, it is generally advocated to consider rival models besides the theorized model (Bagozzi and Yi, 1988; De Wulf et al., 2001). As the *attitude toward using* was hypothesized and verified to have a partial mediating effect, an appropriate investigation would be to compare an alternative model without such mediation influence. The tested rival model therefore omits the mediator *attitude toward using* and assays only the direct effects of the *determinants of perceived service value* on the *post-initial adoption behavior*. In effect, the rival model materializes identical to Model 5, only that the mediator is not invisible for simplification reasons but entirely excluded from the analysis.

In accordance with Morgan and Hunt (1994), the rival model is compared with the theorized model on the following four criteria: (1) overall fit as measured by CFI, which compares the sampled covariance matrix to the implied covariance matrix, (2) percentage of statistically significant parameters as hypothesized by the model (excluding the interaction variables and

control variables), (3) parsimony as measured by the parsimonious normed fit index, PNFI, and (4) explained variance for the endogenous constructs. Solely, (4) is somewhat adjusted, as the measurement for the explained variance within this research is the squared multiple correlations statistic depicted in Table 7, rather than the AVE.

Table 11 – Analysis of competing structural models

Criterion	Measure	Proposed model *	Rival model †
(1) Model fit (CFI)	CFI	0.942	0.937
(2) Significant parameters	Percentage of model	$15/19 \times 100 = 78.95 \%$	$9/12 \times 100 = 75.00 \%$
(3) Parsimony (PNFI)	PNFI	0.813	0.793
(4) Explained variance	Squared multiple correlations		
	Continuance intention	0.774	0.674
	Actual usage	0.414	0.372
	Customer influencer value	0.608	0.603

* = Incl. direct and indirect effects; † = Incl. only direct effects

As Table 11 indicates, all criteria are in favor of the proposed model, which strengthens the support in terms of meaningfulness and robustness for the hypothesized model. Surprisingly, the PNFI did not decrease even though seven paths less are investigated, which is a strong indicator of the aptness of the proposed model. Maruyama (1997) suggests the possible explanation, that not all of the specified residuals in the rival model are significant, which is why their aggregate does not offset the loss of degrees of freedom (from 916 to 711) and thus does not lead to an improved value. Consequently, the author feels assured to sustain the mediator *attitude toward using* within the model, as it not only increases the percentage of statistically significant parameters and the explained variance, but also simultaneously upsurges the allegedly adversely linked measures CFI and PNFI (Vandekerckhove et al., 2015).

6. Discussion and implications

6.1 The antecedents of post-initial adoption behavior in a S-D logic context

The goal of this research was to explicate existing and generate new theory about what motivates customers' *post-initial adoption behavior* of service innovation, consisting of customer attrition (*continuance intention*), *actual usage* and the *customer influencer value*, in a S-D logic setting. In order to insinuate a response to this question, this study developed theory by inductively leveraging a viral metaphor approach in which four *determinants of perceived service value* were advanced and their subsequent effect on the *attitude toward using* and the *post-initial adoption behavior* deductively tested. Finally, to mature how the internal and external environments influence this process, four interaction variables were set in place and their effects on the direct and indirect links determined.

Overall, the proposed theory is supported, as the impact of the *level of episodic influence*, *organizational commitment*, *perceived usefulness* and *service customization* on the *post-initial adoption behavior* could be verified. Furthermore, a partial mediation effect of the *attitude toward using* is revealed and found significant for all constructs but one. The comparison to a rival model without the mediation proves in favor of the hypothesized model. Finally, the internal and external environments' weight is relegated as somewhat derivative due to a limited number of interaction effects, which further underlines the robustness of the theorized core model.

6.1.1 Mediated effects on the post-initial adoption behavior

Scrutinizing the first part of the model, all *determinants of perceived service value* have a significant positive effect on the *attitude toward using*, except *service customization*.

First, in consensus with Brown and Reingen (1987), the interpersonal information exchange of the *customer influencer value* positively influences an individual's attitude, which underscores the manifold discussed significance of WOM once more. Additionally, it also validates its importance within the S-D logic, as the inclusion of WOM from a receiver's perspective partially constitutes the influential power of institutional arrangements in a multi-agent network (Vargo and Lusch, 2015).

Furthermore, the positive relationship between *organizational commitment* and the *attitude toward using* underscores the applicability of the commitment construct, originally envisioned for the organization-employee setting by Porter et al. (1974), also for the organization-customer context. Thus, the identification with an organization and the willingness to be a member of it nurtures customer involvement and hence demonstrates the significance of incorporating commitment into innovation adoption models. Once more, this is in line with the S-D logic, which verves beyond a focus on the individual characteristics of a service but rather concentrates on the holistic value proposition in a relational context (Vargo and Lusch, 2004; 2008; 2015).

Third, agreeing with the well-established TAM model, *perceived usefulness* has a positive impact on the *attitude toward using* (Davis, 1993). The significant results for *perceived usefulness* and the *attitude toward using* as such emphasize the principality to amalgamate the paths of the TAM model with the innovation adoption notion. This is especially important for the S-D logic, as *perceived usefulness* and the resulting attitude are critical for cocreation and impact the value as perceived by the beneficiary (Vargo and Lusch, 2004).

Finally, for the link that contrary to anticipations is not significant (*service customization* → *attitude toward using*), there are several perspectives to dissect it from. Kalyanaraman and Sundar (2006) found a strong positive association between customization and the attitude toward the service in question, mediated by several user perceptions such as relevance and novelty. The authors continue to explicate that customization has a considerable effect on an individual's attitude and behavior. However, they further manifest that attitude does not mediate the relationship between customization and actual behavior. The latter is in line with the findings of this research as significant direct links between *service customization* and the behavior *actual usage* and *customer influencer value* were revealed, which were not mediated by attitude. Consequently, it could be that behavior already explains most of the construct *service customization* and thus makes a link between customization and attitude redundant. Another vindication is that the link between customization and attitude found significant in Kalyanaraman and Sundar (2006) is actually cofounded by other variables, such as *perceived usefulness* or *organizational commitment*, which are included within this study. Lin and Wu (2002) further support this rationalization by evidencing that customization is an antecedent of *perceived usefulness* and ease of use. Thereby, only *perceived usefulness* may essentially be linked to attitude while the pure construct of *service customization* solely affiliates with the resulting behavior. Finally, a third perspective aims at the relatively novel nature of the service innovation scrutinized within this investigation. Customers may not have had the opportunity yet to familiarize themselves sufficiently with the online banking postbox to form an attitude based on its customizable features.

After focusing on the relationships between the *determinants of perceived service value* with the *attitude toward using*, the links between the mediator and the *post-initial adoption behavior* are scrutinized subsequently. All of the affiliations between the *attitude toward using* and the *post-initial adoption behavior* are significant.

Confirming expectations, *continuance intention* is positively influenced by the *attitude toward using*. Intuitively, the more favorable an individual's attitude toward a given service, the more likely his intentions are to continue using the service. Hence, the less likely he is to engage in attrition in form of either de-adoption or churn. This verifies the advised and regrettably mostly neglected importance to include customer attrition in service diffusion models (Libai et al., 2009; Shi et al., 2014). It is particularly fundamental in the S-D logic context, as it aids the customer-centered premise of an inherently relational exchange contrary to mere transactions (Vargo and Lusch, 2004; 2008; 2015). If customer attrition is elevated, bonding relationships are hardly ensuing and thus customers engage in exchanges with transaction-like features.

Second, in consensus with the TAM model, *actual usage* is positively impacted by the *attitude toward using* (Davis, 1993), which again substantiates the appropriateness of incorporating attitude theories in innovation adoption studies. Opposing the findings of Morris and Venkatesh (2000), the relationship is significant across all five age groups, whereby the participants older than 61 years are most strongly influenced. The generalizability for *age* thus underlines the robustness of the path. Astonishingly, *actual usage* in turn has a positive effect on *continuance intention*. As previously remarked, usually intentions impact behavior. The contrasting finding can be rationally explained by the investigated service being an innovation. Within the initial trial period an individual familiarizes himself with the innovation. Thus, his usage behavior could affect his intention to remain with the service. Hence, when merging the innovation adoption literature with the TAM model, it could be that intentions do not affect *actual usage* as traditionally suggested by the interlinked theory of reasoned action (Fishbein and Ajzen, 1975), theory of planned behavior (Ajzen, 1991) and technology acceptance model (Davis et al., 1989), but rather that *actual usage* determines intentions on grounds that an innovation is investigated.

Finally, the *attitude toward using* has a negative association with the *customer influencer value*, which corresponds to the findings of Anderson (1998) and Bowman and Narayandas (2001) that dissatisfied (heavy) users are most active in WOM activities. Remarkably, the link is solely significant for the below 30-year-olds and the age group between 30 – 40 years, which suggests that younger individuals are more likely to engage in WOM. The positive impact of the *level of episodic influence* on the *attitude toward using* and in turn the negative influence of the *attitude toward using* on the *customer influencer value*, underlines the significance of incorporating WOM from a receiver's and sender's perspective. As Gode and Mayzlin (2004) outline, WOM acts as an antecedent as well as an outcome of consumer behavior. Consequently, innovation adoption research should integrate both viewpoints as they affect an individual's behavior at all three high-level stages of innovation diffusion – the *pre-initial adoption behavior*, the *initial adoption decision* and the *post-initial adoption behavior* (Rogers, 1995). WOM becomes even more essential in a S-D logic context, as it resembles the foundational premise that actor-generated institutions and institutional arrangements coordinate value cocreation (Vargo and Lusch, 2015). The impact through this multi-agent network is frequently transmitted via WOM, because most beliefs provoking an attitude are induced by prior (informal) information available to the individual (Fishbein and Ajzen, 1975). Hence, WOM has a considerable effect on the uniquely determined value of the beneficiary.

6.1.2 Direct effects on the post-initial adoption behavior

Examining the direct links between the *determinants of perceived service value* and the *post-initial adoption behavior* in the second part of the model, merely three paths are found insignificant while the majority of nine links are significant, with one link in the opposite direction of its hypothesis.

As postulated, the *level of episodic influence* positively impacts all three *post-initial adoption behavior*. The younger age groups, below 30 years and 30 – 40 years, are most strongly prejudiced with regards to their *actual usage*, which points to the fact that they are more receptive to interpersonal exchange. When scrutinizing the link between the *level of episodic influence* and the *customer influencer value* in more detail, no significant results are found for any of the age categories. This insinuates that, for *age* to be a significant aspect, individuals first have to form an attitude, which successively leads to WOM activities.

Second, *organizational commitment* solely has a significant relationship with the *customer influencer value*. Nonetheless, this link is significant across all ages, which shows that identification with an organization and the willingness to be a member of it has a robust positive effect on the ensuing WOM behavior. This finding opposes the negative association between the *attitude toward using* and the *customer influencer value*. In line with Harrison-Walker (2001) it elucidates that despite an individual's attitude toward a certain service innovation, commitment to the overall organization positively impacts the WOM behavior.

Third, *perceived usefulness* positively impacts all *post-initial adoption behavior*. Remarkably though, only the age group below 30 years evidences a significant link between *perceived usefulness* and the *level of episodic influence*, which indicates once more that younger age groups are more likely to engage in WOM. Furthermore, the age groups between 41 – 50 and 51 – 60 years are most strongly influenced by *perceived usefulness* with regard to their *actual*

usage behavior, which resembles the finding by Yang and Jolly (2008) that usefulness is a critical motivator for baby boomers.

Finally, *service customization* has a positive impact on the *customer influencer value* and a negative effect on *actual usage*. Similar to *perceived usefulness*, the link between *service customization* and the *customer influencer value* only influences the below 30-year-olds, which evidences again that younger individuals are more likely to engage in WOM activities.

Unexpectedly, the second link denotes that with higher customization, *actual usage* decreases. There are two reasons that may explain this startling result. First, intuitively seen, customization makes the usage of a service more multifaceted. Especially, while consuming an innovation, individuals may categorize the service as more complex due to the various features to choose from. Cheung et al. (2000) substantiate that more complexity leads to less usage. Consequently, innovations that are still somewhat unfamiliar may be perceived as more complex and are thus less used. The second explanation for the negative association could be that participants' preferences are not adequately addressed by the customizable features of the online postbox, which leads individuals to dismay the innovation and make use of it less frequently (Franke et al., 2009). Dissecting the different age groups, there is support for the latter assumption as preferences are presumably heterogeneous across ages. Only the age groups of 41 – 50 and 51 – 60 years, the baby boomers, have significant negative paths between *service customization* and *actual usage* and appear strongly displeased.

6.1.3 Moderating effects of the internal and external environments

The effects of the internal and external environments on the direct and indirect links between the *determinants of perceived service value* and the *post-initial adoption behavior* reveal that only one link in the first part of the model and five links in the second part are significant.

In the first part of the model including the mediator, *tie strength* surprisingly weakens the effect of *perceived usefulness* on the *attitude toward using*. More specifically, an individual's social network has an adverse effect on the positive relationship between *perceived usefulness* and attitude. A plausible justification for this finding is once more the novelty of the scrutinized service. Foxall (1999) enunciates that whilst the consumer does not have accumulated an own set of experience for the service, he is likely guided by other internal or external influences (Mahajan et al., 1990). Murray (1991) corroborates that especially for service, individuals have more confidence in personal sources of their social network. Hence, when considering a novel service, customers might judge the innovation based on the evaluations of their personal ties rather than on their own *perceived usefulness*. Thus, *tie strength* weakens the individual's link between his own perceptions and his subsequent attitude. The same reasoning applies to a similar constellation within the second part of the model: *Tie strength* weakens the relationship between *perceived usefulness* and the *continuance intention*. Again, the strength of the social ties defers an individual from forming his subsequent *continuance intention* based on his own perceptions.

In another interaction assemblage, *competition* strengthens the relationship between *organizational commitment* and the *customer influencer value*. Basically, the bond between commitment and WOM from a sender's perspective fortifies with increasing *competition*. Even though this seems at first counterintuitive, it may be explained as follows. De Ruyter et al. (2001) evidence in a study about high-technology market relationships, that affective commitment is determined by trust and further relationship characteristics such as account

support, communication, co-operation and harmonization of conflict. According to Harrison-Walker (2001), Porter's et al. (1974) version of *organizational commitment* can be classified as affective commitment due to its attitudinal perspective. In economic theory, the moral hazard problem can be overcome by setting in place *competition* coupled with minimal feedback information as declared by Huck et al. (2012): "*Competition fosters trust*" (p. 195). Similarly within this study's context, increasing *competition* might heighten the trustful relationship of an individual with his respective service provider, which in turn grows his commitment. Finally, as corroborated by Harrison-Walker (2001), higher affective commitment leads to augmented levels of WOM communications and thus the justification loop closes with *competition* strengthening the impact of commitment on WOM behavior. Additionally, *competition* strengthens the positive association between *perceived usefulness* and *actual usage*. Analogously with the previous reasoning, trust has also been evidenced to increase *perceived usefulness* (Gefen et al., 2003). Once more, *competition* grows trust, which in turn heightens the *perceived usefulness* of a service, which has a positive impact on the *actual usage* as evidenced manifold by the TAM model (Davis, 1993; Szajna, 1996). Finally, confirming expectations, the *attitude toward using technology* strengthens the relationships between the *level of episodic influence* and *actual usage* and between *perceived usefulness* and *continuance intention*. An intuitive vindication is that the general *attitude toward using technology* possessed by an individual, reinforces and complements the knowledge gained through the *level of episodic influence* or *perceived usefulness* of the service. After the overall affect model scrutinized by Dabholkar (1996), the *attitude toward using technology* positively impacts the expected service quality, which in turn has a strong positive effect on the intentions to use a technology-based self-service option. Consequently, with increasing *attitude toward using technology*, the expected service quality heightens and the internal influences of the *level of episodic influence* are supplemented by the customer's

own experience and learning history (Foxall, 1998). Successively, the received WOM content, accompanied and fueled by the individual's positive learning history, leads to an amplified *actual usage* through "utilitarian" and "informational reinforcement" (Foxall, 1999, p. 146). Likewise, the reasoning can be applied to *perceived usefulness* and *continuance intention*. The association between the two constructs is strengthened as the positive impact of the current perception of usefulness is supplemented by a favorable service quality expectation, which in turn jointly leads to a growing *continuance intention*.

Astoundingly, the *need for interaction with a service employee* does not have any moderating effect on the links of the first or second part of the model. Subliminally, this may be explained by a high mean value for the *attitude toward using technology* ($\mu=6.09$). Similar to the suggestion of Parthasarathy and Bhattacharjee (1998), who argue that ease of use might be an artifact of old times due to evolving online service systems and their continued simplification, the innate *attitude toward using technology* might render the need for the presence of a service employee obsolete. Meuter et al. (2005) substantiate that the effect of *need for interaction with a service employee* on trial usage is mediated by consumer readiness, which comprises role clarity, ability, extrinsic and intrinsic motivation. Hence, the negative moderation effect of need for interaction may be obliterated within this study due to a high consumer readiness, superseding the traditional need for physical interaction.

6.2 Toward an applied view of service innovation

As explicated within the literature review on service innovation in division 2.2, Lusch and Nambisan (2015) suggest a broadened view of service innovation, developed on basis of the S-D logic (Figure 1). Their overarching framework is a milestone in the service innovation array as it reflects the network-centric, information-centric and value-centric foci of innovation. Additionally, it elides the discussion on whether to highlight or deemphasize disparities between goods and service by proposing a broad, synthesized approach of service innovation. Nonetheless, even though the broadness of the framework enhances generalizability, it also limits the practicality for organizations. Other authors such as Ordanini and Parasuraman (2011) have developed a more restricted conceptualization, but have only researched service innovation from a firm perspective, neglecting the *post-initial adoption behavior* of customers. Consequently, as a final endeavor, this investigation seeks to bridge the conceptual gap by integrating the findings of this study's model on *post-initial adoption behavior* with the broad conceptualization by Lusch and Nambisan (2015).

Table 12 – Integrating the broad view of service innovation by Lusch and Nambisan (2015) with this research’s findings

Tripartite framework (Lusch and Nambisan, 2015)	Post-initial adoption behavior construct	Synthesis
Service ecosystem (S-D logic: Actor-to-actor network)	<i>External environment</i> (Competition; Tie strength) <i>Internal environment*</i> (Attitude toward using technology)	All actors within a system shape their contexts, which collectively creates the service ecosystem. Hence, the <i>external environment</i> denotes effectual actors that (re)create structures and the <i>internal environment</i> defines in which way each actor shapes his surroundings.
Service platform (S-D logic: Resource liquefaction; Resource density)	<i>Perceived usefulness</i> ; <i>Service customization</i>	<p><i>Perceived usefulness</i> stands for the efficient exchange within a service ecosystem and demarcates the liquefying resources a service platform possesses. Within this study, the electronic postbox decouples information from its physical form and enables digital sharing. Thereby, a customer’s perceived usefulness entitles how well resource liquefaction is exercised.</p> <p><i>Service customization</i> displays how efficient and effective the service exchange on a service platform occurs. Individualized customization results in high resource density, as it mobilizes contextually relevant knowledge for particular situations.</p>
Value cocreation (S-D logic: Resource integration)	<i>Level of episodic influence</i> ; <i>Customer influencer value</i> ; <i>Organizational commitment</i> ; <i>Attitude toward using</i>	<p>Essentially, all actors, social and economic, are resource integrators and jointly cocreate value. The <i>level of episodic influence</i> denotes WOM activities from a receiver perspective. Thus, it demonstrates that even though the beneficiary uniquely determines value, the institutional arrangements have a considerable influencing effect.</p> <p>The <i>customer influencer value</i> in turn signifies WOM activities from a sender perspective. Hence, it symbolizes part of the institutional arrangements, however by no means exclusively.</p> <p>Resource integration appears as market facing, but also nonmarket facing, for instance as a private resource such as trust or knowledge. <i>Organizational commitment</i> represents such a private resource as it epitomizes trust of the customer into the service provider.</p> <p>Value cocreation turns the focus to activities that enhance resource integration, such as a customer’s <i>attitude toward using</i>. This construct mirrors the beneficiary and demonstrates that although a suitable service ecosystem and an exploitable service platform may be available, the beneficiary itself always uniquely and phenomenologically regulates value creation.</p>

* *Need for interaction with a service employee* is not included within the integrative framework as the empirical analysis rendered it as insignificant.

Table 12 reports the integrative amalgamation of the overarching framework by Lusch and Nambisan (2015) and this study's findings on *post-initial adoption behavior* of service innovation within a S-D logic context. The tripartite framework is enriched and made practically more feasible by the incorporation of nine constructs from this research's service innovation adoption approach. The remaining two constructs, *continuance intention* and *actual usage*, are interconnections within the proposed framework. More precisely, the degree and intention of an actor's involvement affects his exploitation of the innovative flexibility that is presented by the layered modular architecture within the service platform. This in turn guides value cocreation, which ultimately determines the degree of service innovation.

Naturally, the construct allocation within the framework of Lusch and Nambisan (2015) is by no means exclusive. For instance, besides for the service platform, *service customization* has an important function as an accommodation mechanism for different actors within the value cocreation module. Furthermore, other variables such as market facing resources or public resources are certainly beneficial to add for selected service innovations. For this study's electronic postbox, the applied model seems sufficient as it covers the essence of the S-D logic within the tripartite framework (Lusch and Nambisan, 2015).

Conclusively, the integrated model contributes to academia, as well as managerial considerations, by on the one hand containing the necessary practical applicability and on the other hand entertaining the stipulated generalizability and broadness of service innovation. Combining the findings of this research with the tripartite framework underlines the importance of including *post-adoption behavior* in service innovation models. Thereby, explicitly taking the consumer's perspective retrieves results that the service provider can leverage to improve his service innovation offerings. In the case of the electronic postbox, it is evidently of principal nature to explicate the innovation in detail to consumers, consider the dual perspective of WOM, foster firm commitment and cogitate different age groups.

6.3 Theoretical implications

Academics in the array of innovation diffusion theories have dedicated substantial efforts to describe the adoption behavior of goods. Nonetheless, in light of the paradigm change of the S-D logic by Vargo and Lusch (2004), goods are not in the primary spotlight anymore but rather function as a distribution mechanism for service. The present research aims to contribute to existing literature and generate new theory in the following ways:

First, this study is among the first to answer the call of Peres et al. (2010) to scrutinize service diffusion models. In consensus with Libai et al. (2009) and Shi et al. (2014), this investigation contributes to existing service diffusion works by taking into account customer attrition and the relational exchange of service as proposed by the S-D logic (Vargo and Lusch, 2004).

Second, considering the dynamics of service adoption and its inherent physiognomies, the antecedents of *post-initial adoption behavior* are explored. Especially within the context of the S-D logic, the relational aspect of exchange necessitates a futuristic thinking beyond the *initial adoption decision*, including the subsequent behavior of the beneficiary. Here fore, this study deepens the conjectural path taken by Dillon and Morris (1996) and seeks to integrate the notion of technology acceptance into service innovation diffusion theory. Theoretically, acceptance is subsumed under the academic umbrella of diffusion (Dillon and Morris, 1996). However, practically it has been neglected by most diffusion studies. Thus, this exploration deepens further research streams by merging the technology acceptance model of Davis et al. (1989) and Davis (1993) with service innovation diffusion.

Third, after examining the TAM model within a service innovation adoption context, this study reveals the remarkable finding that *actual usage* impacts *continuance intention*. Usually included vice versa, it evidences that when dispensing an innovation, a path should be appended in the hypothesized model that allows for effects from behavior to intentions. Fourth, the significance of consumer management in an increasingly networked society is

acknowledged by reconciling the dual perspective of interpersonal communication with innovation diffusion. Herewith, this research reacts to the connotation of Harrison-Walker (2001) to incorporate WOM from a sender and receiver perspective since it should be appreciated as an antecedent as well as an outcome (Godes and Mayzlin, 2004).

Fifth, this study extends the effort of Bhattacharjee (2001) to scrutinize the key drivers of consumers' *continuance intention* of B2C e-commerce service. While the author evidences that satisfaction, *perceived usefulness* and the interaction between *perceived usefulness* and loyalty incentives determine *continuance intention*, this research establishes that besides *perceived usefulness*, further the *attitude toward using* and the *level of episodic influence* arouse intentions.

Sixth, this inquiry generates newfangled insights through its interdisciplinary approach of mapping knowledge from the viral source domain to the target domain of service innovation adoption through disciplined imagination (Weick, 1989). Successively, it leverages the *double movement of reflective thought* by first engaging in inductive reasoning, followed by deductive hypothesis testing (Dewey, 1910). To the best knowledge of the author, it is hereby the first study that accomplishes to combine service innovation adoption thinking with the TAM model, consumer-decision variables such as WOM and commitment, auxiliary market-related moderators such as *tie strength* and *competition*, and lastly assimilates it in the S-D logic context by Vargo and Lusch (2004; 2008; 2015).

Finally, an integrative approach merging the tripartite framework for service innovation of Lusch and Nambisan (2015) with this study's findings is proposed, to simultaneously enlarge practical applicability for firms and adhere to the broad conceptualization of service innovation.

6.4 Practical implications

The goal of this research was to advance knowledge on service innovation adoption by scrutinizing the antecedents of *post-initial adoption behavior* in a B2C setting. Attaining this information is essential for organizations in order to improve their approach toward marketing and CRM, resulting in long-lasting, profitable relationships.

First, the findings of this study allow organizations to realize that the stage after the *initial adoption decision* of a service is principal. The subsequent behavior determines the profitability of current customers through their *actual usage* and *continuance intention*, but further also the opportunity of attaining new consumers through WOM activities. Here fore, the applied, integrated framework offers a flexible tool that can help managers scrutinize customers' *post-initial adoption behavior* for their service innovations.

Second, this research implicates that WOM as a *post-initial adoption behavior* is frequently leveraged when individuals have a low attitude toward the introduced service. Accordingly, it is important not to focus merely on how and with which implications potential customers receive WOM, but also on the kind of WOM send by current customers. Hereby, this investigation evidences that the dual perspective of WOM is most efficacious among younger users of the service. Organizations should therefore develop specific incentives for younger clients to spread positive WOM among their peers.

Third, the findings reveal that the customer commitment toward the organization is paramount because it has a convincing positive effect on the subsequent WOM behavior across all age groups. Hereby, commitment to the overall organization surpasses the negative consequences of a low attitude toward a specific service. Therefore, user commitment should be explicitly targeted via loyalty programs or tailored CRM incentives.

Fourth, *service customization* necessitates unambiguous attention as it negatively affects *actual usage* within this inquiry. Organizations should seek to heighten efforts on facilitating

the transition to online service and on explicating the advantageous features and value for the users. Furthermore, customizing service based on the preferences of different customer segments can potentially eradicate the adverse effect on usage behavior.

Fifth, the positive impact of the *perceived usefulness* of a service innovation on all post-adoption behavior ought to compel organizations once more to expressively outline the advantages and value of the proposed innovation. Marketers should focus on conveying the usefulness to the 41 to 60-year-olds, as they are particularly influenced by perceptions of practicality and expediency.

Additionally, this study evidences that the *need for interaction with a service employee* has no significant moderation effect, indicating that self-service options are becoming widely accepted and can thus be progressively leveraged by managers. Furthermore, the implications of this research are indifferent to *gender*, entailing that the stereotypical perception in which men are more receptive to technology and innovation is disappearing.

Seventh, this investigation recommends organizations to be transparent about competing offerings and explicate them relative to their own service. *Competition* has been substantiated to nurture trust, which in turn elevates *organizational commitment* and *perceived usefulness* of the reconnoitered service. Successively it results in an increase in *actual usage* and a positive *customer influencer value*.

Furthermore, as the general *attitude toward using technology* manifestly reinforces the impact of the *level of episodic influence* and *perceived usefulness* on *actual usage* and *continuance intention*, organizations should pursue to approximate and upraise customer segments with a relatively low *attitude toward using technology*. Once again, educating users on the service innovation and its advantages could positively influence *post-initial adoption behavior*.

Finally, this examination provides salient information with respect to the *continuance intention* of current users of a service innovation. Firms that consciously seek to minimize de-

adoption and churn must identify dissatisfied customers and rectify them. Therefore, it is of utmost importance to determine the factors influencing attrition before customers discontinue using the service. The *attitude toward using*, the *level of episodic influence* and *perceived usefulness* are all identified to have a sizable effect on the subsequent *continuance intention*, while *tie strength* weakens and *attitude toward using technology* strengthens some of these consequences.

6.5 Limitations and directions for future research

Some limitations may underlie this study that restrict its current explanatory power and may prove fruitful avenues for future research agendas.

A first limitation may be that this research's sample of customers from a Northern German bank cannot necessarily be generalized to other service contexts or to the banking industry as a whole. One way future research could bolster generalizability is by conducting a multi-sample analysis to compare studies across contexts (Vandenberg and Lance, 2000). Another manner concentrates on this study's applied, integrated framework for service innovation that can be individually adapted to fit different contexts.

Second, limiting the verdicts of this inquiry may be the omission of important constructs. Variables about user perceptions such as enjoyment and control could supplement the prevailing base of independent variables or may be included as interaction terms for existing constructs, for instance for customization to further the approach by Lee and Chang (2011).

Third, it is likely that the relative importance of the *determinants of perceived service value* fluctuates over time. The *post-initial adoption* phase does not have a definite completion term, however the perceived novelty of the service innovation weakens with the length of the relationship. Future research could explore, whether *service customization* still has a negative effect on *actual usage* at a later point in time when an individual has become more

accustomed to the different elements of the service. Possibly, customization first exerts a negative influence on usage behavior, which becomes gradually positive. Additionally, it would be noteworthy to investigate whether *tie strength* continues to weaken the effects of *perceived usefulness* on the *attitude toward using* and the *continuance intention* over progressing time intervals. According to Foxall (1999), with increasing learning history, a customer substitutes the evaluations of his social ties by his own experience. Hence, his own set of rules is increasingly guiding his behavior on future occasions (Foxall, 1998). Overall, how novel the perception of a service is and the resulting implications for *post-initial adoption behavior* could prove an inspiring direction for future research.

A fourth potential shortcoming in this research is common method bias. One questionnaire is used to examine all constructs, which perchance leads to inflation of the relationships between the variables. Future research could employ a mixture of research techniques, split questionnaires or investigate a longitudinal study with multiple sample points to overcome this deficiency.

Finally, the measurement of *actual usage* may only partially capture the true meaning of the construct due to the self-reported estimates. Nonetheless, considering that the remaining constructs are all investigated through subjective self-reported estimates, an objective measure might distort results by not relating to the user's intentions any longer. Szajna (1996) introduced a more objective measure of *actual usage* for technology acceptance, which stipulates a thought-provoking application for this study's model as a future research direction.

7. Conclusion

The models which contemporarily ground the fundament of strategy development, innovation management and marketing were largely developed during the nineteenth century – a time in which the proliferation of goods was the crucial point of reference. Conversely, the beginning of the twentieth century has seen a remarkable shift from transactions to exchanges and from a producer orientation to one of the consumer. Collaboration, connectivity and continuous relationships are at the heart of deliberation. However, with the paradigm change to a new dominant logic, current models necessitate re-specifying or entirely new concoctions of ingredients to still be valuable appliances.

The present study endeavors to partly seal this aperture by inductively generating theory for a novel model through interdisciplinary domains mapping. Additionally, this research pursues to test the contrived model for its real-life applicability and pertinence for strategy formulation and marketing tactics. Thereby, it evidences that a more appropriate model includes, but is not limited to, three different *post-initial adoption behavior* with four antecedents, which all yield meaningful implications for academia and organizations. First, the *continuance intention* of a customer is positively determined by his *attitude toward using*, the *level of episodic influence*, *perceived usefulness* and remarkably by his *actual usage* behavior. Second, the consumer's *actual usage* is impacted in a positive manner by his *attitude toward using*, the *level of episodic influence* and *perceived usefulness*, and in a negative mode by *service customization*. Finally, the *customer influencer value* is negatively affected by the *attitude toward using* and positively stimulated by the *level of episodic influence*, *organizational commitment*, *perceived usefulness* and *service customization*. Besides the core model, other situational factors such as *age* and the respective environments evoke consequential results and should be amalgamated for a successful service strategy adoption in the new era of the S-D logic.

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