COMPLEX SERVICE OFFERINGS:

A THEORETICAL EXPOSITION AND EMPIRICAL INVESTIGATION

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The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled

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and hereby certify that, in their opinion, it is worthy of acceptance.

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ABSTRACT

It is generally acknowledged that not all services are alike, still little has been done to distinguish between service offerings of different varieties. While some service offerings are simple and others complex, how they differ is not yet understood. This dissertation addresses what distinguishes complex services from simpler services, why an inquiry into complex services is needed, and how a knowledge of complex services can inform research. In order to address these questions a new organizing framework for categorizing services is developed. This framework helps to make sense of service offering heterogeneity. A description of the service offering types belonging to the framework is presented to illustrate why inquiry into complex services is needed. In order to demonstrate how complex services may be used in empirical research, a model and hypotheses is built to test complex service contexts' potential as a new domain of fruitful research. This study found that customers' perceptions of role ambiguity are potentially negatively impacted by service complexity. This research also demonstrates that customers' perceptions of role ambiguity is affected both by the breadth and depth of participation by service coordinators, a role unique to complex service contexts.

Keywords Services framework, Complexity, Service Rhythm, Interdependence, Complex Services

CHAPTER 1

Are All Service Offerings Alike?

It is difficult to overstate the growth of service industries over the last half century. According to the CIA World Factbook (CIA 2015), services account for 77.6% of the US GDP. We have also observed a corresponding boom in the prevalence of services-related research over that same time period. A wide assortment of offerings fall under the broad category of services. To some degree, what constitutes services remains unclear. Most definitions of services focus on the intangible nature of the offering. The American Marketing Association's definition notes that service products are often difficult to identify and that most products are partly tangible and partly intangible (1995). Thus, there does not seem to be a bright line that demarcates between the domain of traditional goods and that of services. There is, rather, a continuum, which makes delineating the domain of services quite difficult. To complicate the matter further, there seems to be considerable variance even among those offerings that are generally acknowledged as services and this variance cannot be explained by tangibility alone.

Diversity of Service Contexts

Although prior research has done much to further our understanding of service offerings, service providers, and service customers, there remains an opportunity to build on the existing services literature, because many unexamined assumptions that underlie that literature. Identifying the assumptions that do not hold for all conditions and types of service offerings is of particular interest for this research. For instance, assumptions that are suitable in simpler services contexts (e.g. only two parties in the exchange) may not be appropriate for those that are more complex. While most researchers acknowledge that not all services are homogeneous, there has been little progress made in the services literature to make sense of the heterogeneity and provide a framework to help distinguish between services of different varieties.

This is evidenced by the types of service contexts that have been studied in the services literature. Much of the prior services research has focused on service settings where the service delivery is neatly encapsulated. In these encapsulated service settings a dyadic view works well. We have learned much about these types of service encounters. Not all service encounters are simple dyadic relationships, however. Some encounters require that the customer engage in a series of dyadic interactions with different service providers and other

encounters are even more complex as they involve the concurrent participation of multiple service providers (Solomon, Surprenant, Czepiel, and Gutman 1985). In these contexts, the assumptions and limitations of the dyadic view come to light, specifically, failing to recognize the factors outside the focal service provider that contribute to customer experience (Gummesson 2008) and to account for the critical need to coordinate multiple service providers (Gittell 2002).

Beyond the Dyadic View of Services

Although we have been well-served thus far by the scholarly attention on simpler dyadic service encounters, it is becoming progressively more apparent that dyadic conceptualizations are inadequate for studying the dynamics, processes, and outcomes of collaboratively created value. Scholars have suggested that the implied "assumption of ceteris paribus in other relationships, which underlies much of the extant dyadic research is an unrealistic one" (Wathne and Heide 2004 p. 73).

Consider those service offerings that are comprised of interrelated services which are delivered by multiple service organizations in conjunction with each other. Collectively, these individual services comprise an integrated service offering from the customer's perspective. In these service contexts, the delivery of diverse, discrete component services must be successfully integrated

to achieve high service quality and customer satisfaction. Examples of integrated services offerings include hospital services, new home construction, funerals, vacations, and weddings. Although there are analogous complex, integrated services in business markets (e.g., trade shows, special promotional events, enterprise software development), this dissertation will focus on the business to consumer realm.

In some cases, customers purchase all interrelated services from a single provider, who in turn performs the services directly or coordinates the acquisition of some component services from affiliates or sub-contractors. Often customers have the option to choose whether to acquire services from a single, fully integrated provider or from multiple providers. For example, when building a new home, a customer may deal with a general contractor who integrates and offers all component services, some of which the contractor provides and others that are performed by subcontractors. Other customers may opt to deal directly with a preferred architect, painter, landscaper, etc. However, in some industries integrated one-stop providers are rare and the customer must take responsibility for the selection and purchase of services from multiple providers. These customer integrated services are less well understood.

Multi-provider service offerings present customers with an array of new challenges. First, the customer must take a more active role in the coordination of the service delivery by multiple service providers. Second, as these complex events may not occur often, the customer has little to no experience in the coordination role. Because of this, the customer may seek assistance with the buying-plus-coordination role. Some customers choose to partner with a third party service coordinator (e.g. event planner, general contractor, travel agent) that can guide them through the process, assist with selection and integration of providers, avoid hidden pitfalls, and ultimately help the customer obtain a more satisfactory service experience. This service setting is particularly worthy of attention because a narrower dyadic view would not capture the influence of third parties such as these.

Objective and Organization of This Dissertation

Though it is intuitively clear that not all services are alike, it is less clear what underlying dimensions may clarify how they differ. An investigation into more complex service settings is particularly relevant now because “in our modern-day global economy, service systems have significantly increased in complexity, often involving networks of service firms, customers, and evolution of offerings” (Zeithaml, Bitner, and Gremler 2009 p. 251). What, then, distinguishes complex services

from simpler services? Why is inquiry into complex services needed? And how can a knowledge of complex services inform research?

In this dissertation, I will address these and related questions. During this journey, I will explore two deep-seated assumptions in the services literature that are implicit in the vast majority of previous research surrounding service domains. Relaxing these two assumptions challenges some of the fundamental tenets that underlie the extant service literature, suggesting that a departure from the prevailing view of service encounters is warranted. Investigation of these previously neglected service contexts provides a new opportunity for meaningful services research.

In Chapter 2 of this dissertation, I begin to explore *what distinguishes complex services from simpler services*, and *why insight into complex services is needed*. I discuss how we got to the present state in services research, paying particular attention to service contexts that vary from the paradigm that underlies most prior services research.

In Chapter 3, I identify new service roles not previously described in the existing academic literature. The goal of this chapter is to offer a new organizing framework for categorizing services that will better accommodate and account for service settings that vary from previously well-researched service contexts. This new service

framework identifies gaps in our present knowledge and models of services. Identifying gaps, in turn, aids in the pursuit of augmenting the existing services literature by delineating the domains of services research. Subsequently, I identify domains that may prove to be fertile arenas of investigation.

In Chapter 4, I builds on the insights presented in the previous chapters and demonstrate *how a knowledge of complex services can inform services research* by developing a theoretical model to investigate some unique elements of complex services. I explore the effect of service complexity on customer role ambiguity. This chapter also examines the implications of the involvement of a service coordinator, a role overlooked in prior services research. This serves as an example empirically of how the complexity of service settings may be explored both in terms of the data collection method and the scales used to measure relevant constructs. Chapter 4 is thus an initial exploration of the under-researched context of complex services.

Finally, in Chapter 5 I offer a recap of what has been learned in this dissertation.

CHAPTER 2

Evolution of Services Thought

I begin my analysis by mapping the evolution of services thought. I present the path and progression of services thought in order to better appreciate what has already been done and to improve our grasp of what has not yet been properly researched. From this vantage point, I am better able to survey the landscape and appreciate the course that has led us to where we are now, including our assumptions. Subsequently, I describe the two dimensions that identify under-researched services contexts: service resource fragmentation and customer demand irregularity. After I discuss these factors and their implications, I develop a new service categorization framework and identify the context of complex services.

My analysis of the evolution of services thought will be couched in a descriptive framework of actors, their roles, and resources that draws heavily on role theory. Role theory originated as a theatrical metaphor (Biddle 1986) and has been developed to study the behaviors that are characteristic of actors within contexts (Biddle 1979). It has been a useful framework to describe service encounters (e.g. Hartline and Ferrell 1996; Ng, Plewa, and Sweeney 2016; Singh 1993; Solomon et al. 1985).

Applying a role theory perspective, service delivery is accomplished through the activities of engaged actors who utilize resources in various roles (Biddle 1986; Solomon et al. 1985). An *actor* occupies a social position and is expected to learn and enact certain practices in interactions with other actors (Biddle 1986). An actor can be either an individual, such as a specific customer, or a collective, such as a service organization (Solomon et al. 1985). In this dissertation, I use the term “service organization” to refer to any actor on the supply side of a service episode, and “customer” to refer to any actors on the buyer/user/consumer side of the service episode.

Resources are the factors and capabilities an actor has the capacity to utilize (Vargo and Lusch 2004), whether tangible, like equipment and structures, or intangible like expert knowledge and skills. The actors may employ and combine resources through activities and interactions with other actors for the purpose of creating value for themselves and/or others (Merz, He, and Vargo 2009; Vargo and Lusch 2004). Activities conducted by actors may be thought of as services so long as the activities create value for one or more actors (Vargo and Lusch 2004).

Roles are a particular set of recurring or routine activities that result from established social positions between two or more actors (Biddle and Thomas 1966; Solomon et al. 1985). Roles establish

normative expectations that prescribe appropriate behaviors for actors (Biddle 1986). Actors are able to gauge their own behavior as compared to the predicted behavior of others in their role (Rose 1962; Solomon et al. 1985). A role "provides claimants and incumbents with the means … to pursue interests," and "a role is the nexus of these resources and the key necessary to access them" (Baker and Faulkner 1991. pg 284). Roles may vary depending on the specific social positions and specific network structures. Throughout this dissertation, I will identify and define various service roles as they become relevant to the discussion.

Foundational Services Research: The Focal Service Provider as Value Creator

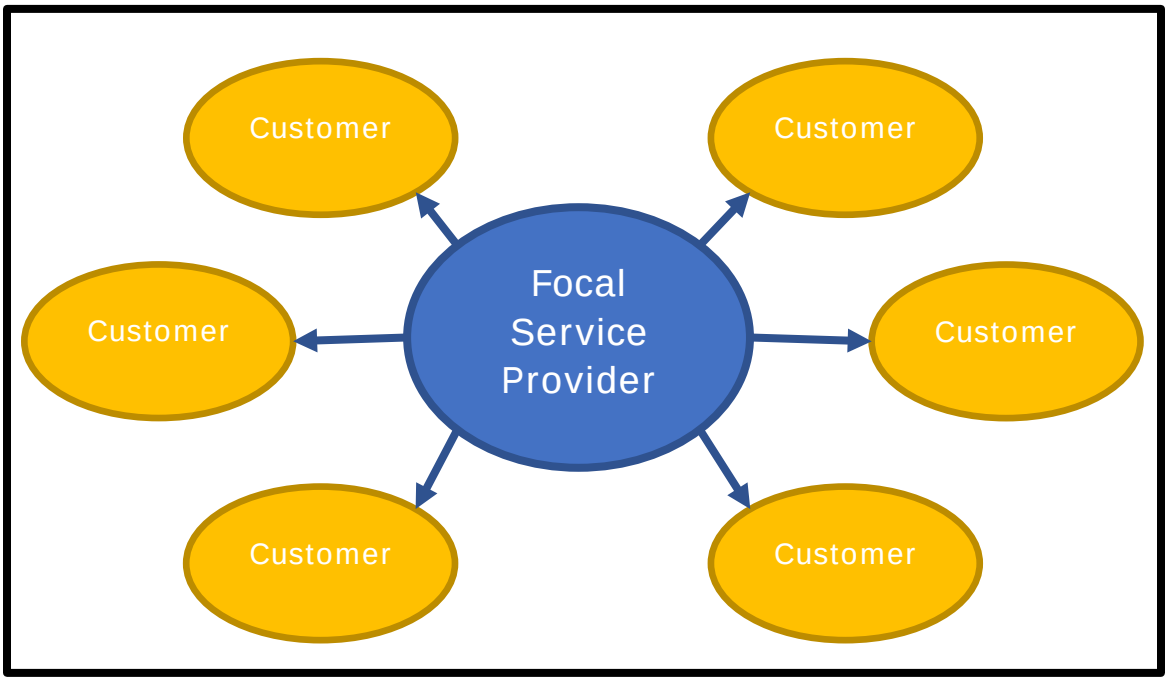
The first era of services thought was focused largely on the contrast between products and services as scholars sought to describe and conceptualize service-related constructs (Fisk, Brown, and Bitner 1993). This stage of research was particularly concentrated on the service provider and primarily focused on service organizations on the supplier side of transactions. Implicit emphasis was placed on the service organization(s) that directly interfaced with the customer regarding the design, nature, and enactment of the service delivery. I identify this category of service provider as the *focal service provider* (FSP). Through the FSP-customer interface, the customer obtains the

means to identify the focal service provider(s), to observe or experience the service offering presented, and to order, pay for, and receive enactment of that service offering.

Consistent with the neoclassical economics tradition (e.g. Hunt 1999), the dominant paradigm is as follows: this era of services research viewed value as created in the production phase (Merz et al. 2009). The focal service provider was viewed as *the* unilateral value creator, actively developing and providing valuable service bundles that a variety of customers passively purchase and consume (see Figure 1.) This view was once so prevalent that it treated focal service providers “as if they act on a static consumer” (Solomon et al. 1985, pg 101). This supply-centric paradigm has been referred to by many names, including manufacturing logic (Normann 2001); old enterprise logic (Zuboff and Maxmin 2004); or goods-dominant logic (Vargo and Lusch 2004; Vargo and Lusch 2008a).

Thus, early services research focused principally on improving the service organization or supply side of service production, with an implicit emphasis on focal service providers. This perspective did not consider finer distinctions in the roles played by service organizations.

***Figure 1**: The Unilateral Value Creation Perspective*



Service-Dominant Logic: The Customer-Provider Dyad as Value Creator

The next era of services research began to emerge as the prevailing view started to shift from a nearly exclusive emphasis on the focal service provider to a consideration of the integral roles of both customer and service provider(s) in the customer-provider dyad. A prominent source of this new perspective was the emergence of service-dominant logic (Vargo and Lusch 2004). Although earlier services researchers had acknowledged that customers have a role to play in service settings (e.g. Chase 1978), service-dominant logic elevated and more fully explicated the critical nature of the customer's

role (Shah, Rust, Parasuraman, Staelin, and Day 2006; Vargo and Lusch 2004). Furthermore, because service-dominant logic describes tangible goods as only being vehicles for the provision of service, the provider cannot unilaterally create value but rather can only offer value propositions that provide the potential for value (Flint 2006).

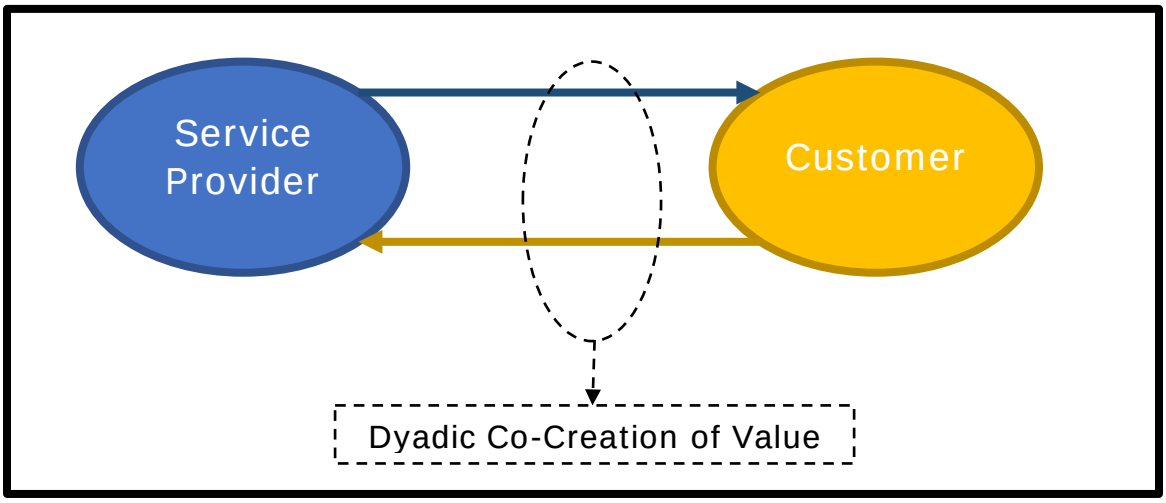
In its early formulation, service-dominant logic introduced a dyadic perspective to the services literature, emphasizing the need to view the relationship between the focal service provider and customer as an ongoing and interactive set of experiences and activities performed by both actors in the service process (Vargo and Lusch 2008b). This era of services research is therefore characterized by value co-created by the focal service provider and the customer (see Figure 2.) This view represents a significant departure from the previous paradigm, which viewed the focal service provider as the sole value creator.

In this perspective, value is not created by the focal service provider alone, but rather in conjunction with the customer. The customer is *always* involved in the production of value (Vargo and Lusch 2004) through the consumption and use process (Lusch and Vargo 2006). To illustrate this value-in-use perspective, consider that an unsold service offering provides no value until it is consumed, not because of a deficiency in the supply side of the equation, but because

without use no value is realized (Gummesson 1998). The value realization is a function of the consumption of the service alone, but this consumption is facilitated by other actors and roles.

The role of the customer is not limited to consumption activities alone, however. The customer also contributes to value creation through co-production. Co-production has been defined as participation in the creation of the core offering itself (Lusch and Vargo 2006). Auh, Bell, McLeod, and Shih (2007) describe co-production as constructive customer participation, noting that co-production requires meaningful, cooperative contributions to the service process. Co-production occurs through shared innovativeness, co-design, or shared production of related goods, and it can occur with customers and any other partners (Lusch and Vargo 2006). Co-production, therefore, recognizes the active involvement that customers have with actors filling other roles in production activities in shaping the core offering *before* consumption or value-in-use. In many ways, co-production is the acknowledgment of the customer-controlled resources that serve as inputs to service provision. Because customers are enmeshed in the service provision process (through co-creation of value and co-production), they can both aid or impair the successful delivery of the service.

***Figure 2**: Dyadic Value Creation Perspective*



Service Value Networks: An Emerging Services Paradigm

The dyadic view of the service encounter was an innovative departure from the previous supplier-centric paradigm and is in fact a valid and useful depiction of relatively simple service systems. The dyadic view emphasizes the critical roles of the focal service provider and customer, but it implicitly ignores what happens beyond that dyad: hence, the dyadic view fails to consider the complementary and supportive roles additional actors perform in more complex service encounters. Ultimately, the dyadic view is limited in its ability to describe and address more complex service settings comprised of additional actors occupying other roles beyond customer and focal service provider. For instance, service offerings that require more resources than a single service organization can provide cannot be

addressed in a purely dyadic model. Although some pioneering services researchers recognized long ago that “not all service encounters are simple dyadic relationships” and that “some may involve a series of dyadic interactions, while others are still more complex and involve a number of different actors” (Solomon et al. 1985, pg 100), only recently has this perspective gained traction in the literature.

Vargo and Lusch (2008b) noted that they initially focused on exchange between two parties, but tried to express that value co-creation is realized by actors interacting and exchanging within networks. It is important to recognize that many other service organizations beyond the focal service provider contribute to value creation, as value co-creation frequently arises through coordination of complementary service actors’ efforts. The customer experience is affected not just by focal service providers that “own” the customer interface, but also by other service organizations behind the scenes that support the service creation and delivery along the value chain (Edvardsson, Tronvoll, and Gruber 2011; Vargo, Maglio, and Akaka 2008). Other service scholars consequently have begun to accommodate the influence of actors beyond the customer and the single focal service organization involved in service provision in their research (e.g. Gittell 2002). Sampson (2012) points out that service

processes frequently cross entities to address the customer's needs. A new paradigm was needed to account for the importance of the coordination of service providers both within and across organizations to support customer satisfaction (Gittell 2002).

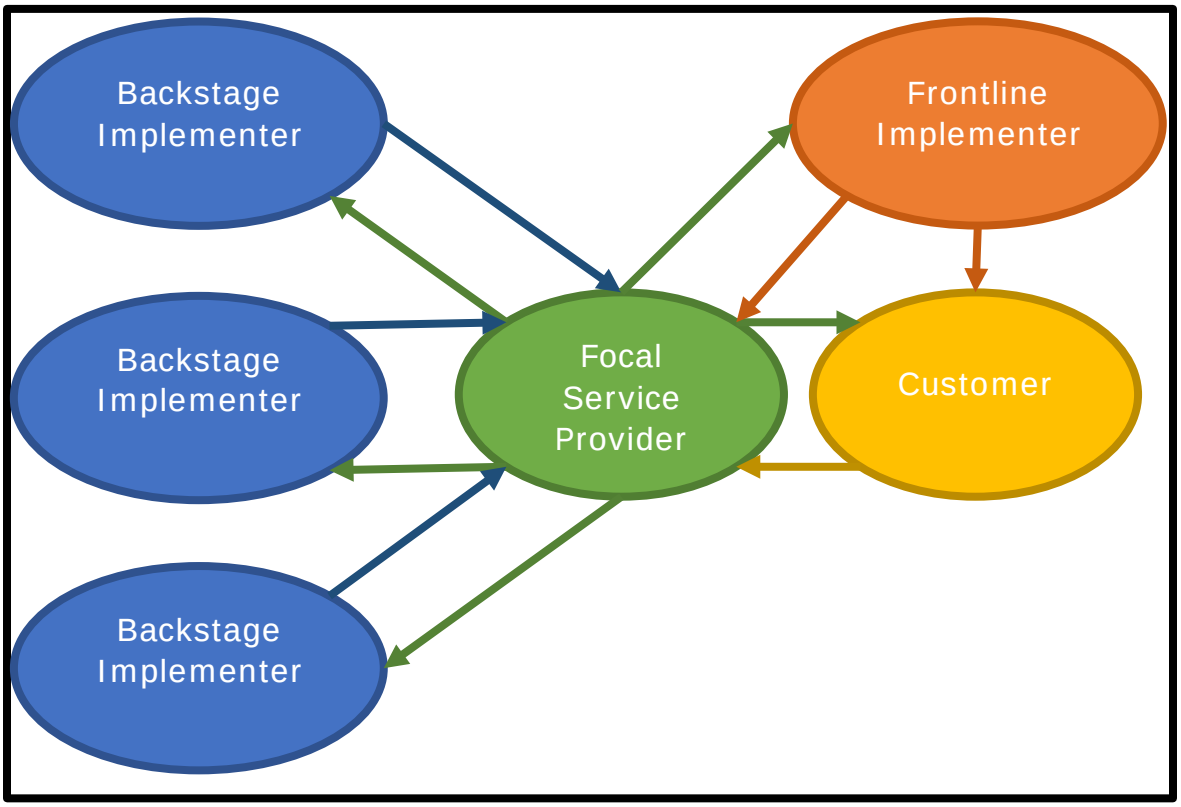
From a social roles' perspective of value networks, actors participate in value creation by adjusting their roles in ways that help them create value relative to their own particular contexts (Edvardsson et al. 2011; Lusch, Vargo, and Tanniru 2010). Since what is a value creating activity in one context may not be valued in another, value networks are not static and may be reconfigured depending on the needs of the situation. They are driven by the interactions between multiple actors in evolving roles that can be drawn upon to create value, for themselves and for others, in particular contexts.

If the focal service provider is capable of fully providing the resources and services desired by the customer, the service network may comprise only the customer and the focal service provider. Often, however, a focal service provider assembles a network of coordinating service actors to implement a portion of the resources or services devoted to value creation with a specific customer. These service "implementers" do not formulate a services strategy or services creation plan in conjunction with the customer, but rather they implement the strategy or plan devised by the focal service provider. I

use the terms frontline implementer and backstage implementer, mirroring the terminology used to delineate the roles of employees within the operations of a single service provider (e.g. Goffman 1959; Singh 2000; Zomerdijk and Voss 2010).

A *frontline implementer* is a service actor that has a defined role interfacing with the customer to perform a subset of the overall service provision under the direction of the focal service provider. For example, when a sub-contracted implementer delivers and sets up equipment for a banquet under the auspices of the focal service provider, the caterer, the customer may be unaware that the delivery person is not an employee of the caterer. A *backstage implementer* is a service actor who has a defined role interfacing with the focal service provider and/or other affiliated service organizations to perform a subset of the overall service provision under the direction of the focal service provider. Examples include all service sub-contractors that do not interface with the customer (e.g. event setup, janitorial and cleanup services, catering). Empirical studies in the dyadic paradigm have largely disregarded the involvement of frontline and backstage implementers, leaving unanswered the question of what roles these actors play in value creation processes.

***Figure 3**: Supply Network Value Creation Perspective*



Analysis of Literature Review

For the first two eras of services research, the assumption has been that the totality of service resources requisite to produce a specific service offering are contained within a *single service organization.* This service organization, according to this assumption, then uses those resources to create and deliver the service offering. To illustrate, consider the description of a service encounter offered by Surprenant and Solomon (1987), who describe it as the dyadic interaction between the customer and **the** service provider firm

(emphasis added to emphasize singularity). This assumption has been so prevalent that it is “at the core of many service models and our definitions of key concepts such as service quality” (Tax, McCutcheon, and Wilkinson 2013, p.454). Another assumption exists regarding the regularity of customer need. The assumption is that service providers always have the potential for *enduring relationships* with customers, thereby implying an opportunity for future service episodes. Although in many service contexts these two assumptions are appropriate, there are other service contexts that violate one or both assumptions. When contemplating potential service contexts in which these assumptions do not hold, we become aware that some familiar service contexts have not been appropriately understood in the literature. Given that a fundamental drive of this chapter is to resolve what distinguishes complex services from simpler services, these two assumptions merit further investigation.

The evolution of services research too may be thought of as a trend toward broadening the unit of analysis, gradually expanding from a micro service provider focus to a macro network focus. The initial service provider-centric paradigm was therefore not necessarily mistaken, but rather was focused singularly on one service provider role in the exchange (Gittell 2002). The more expansive views take into account that service providers are embedded in customer-provider

dyads; those dyads, in turn, are in some cases part of a larger context with an extensive set of actors comprising a service creation-and-delivery network.

Since it may be possible that a single service organization cannot unilaterally deliver a service offering, the broadening of perspectives allows us to question the appropriate unit of analysis. The question is not as simple as it may seem, since one perspective may not dominate the other in the sense that it is always the appropriate view. The situation appears to be somewhat more nuanced. Not every possible set of service offerings a customer purchases necessitates a broad network perspective. I propose that the dyadic view indeed is the appropriate unit of analysis much of the time, but not in every situation. In this section I will endeavor to address the question: Under what circumstances would a dyadic or network view be appropriate versus inappropriate? In the following chapter, I suggest that it is a matter of two factors: (1) Interdependence vs. Independence of service resources, and (2) Consolidation vs Fragmentation of service offerings. I will discuss both in turn.

CHAPTER 3

Toward a Service Categorization Framework

Dyadic or Network Unit of Analysis?

When are service-networks not just the sum of their dyadic parts? Gummesson points out that “service is not created just by the supplier and the customer … [it] is created in a network of activities involving a host of stakeholders” (Gummesson 2008, p.16). Nevertheless, it stands to reason that if networks were nothing more than the sum of the individual dyads, then a network perspective would offer little additional value over a more parsimonious dyadic model other than to describe the backdrop on which the service is coproduced. Service networks, then, must be either more than or less than the sum of the parts to necessitate a network perspective. What then may cause this suppressing or enhancing effect? In order to answer this question, we must identify the tie that binds individual dyadic service encounters into a macro service network.

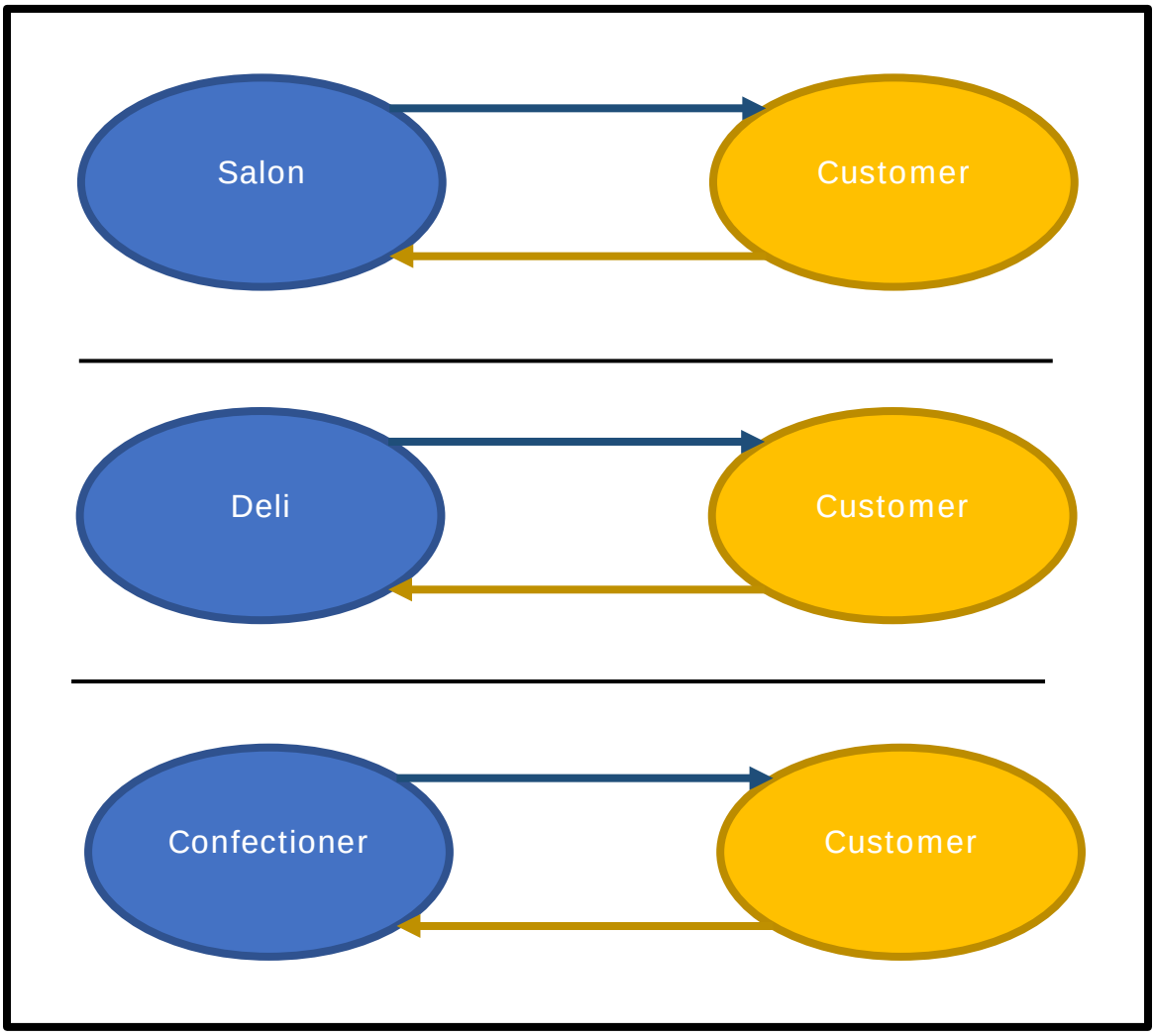
Interdependence vs. Independence

An initial connection between two service offerings may be, in one case, a common customer need, but this alone is a weak tie. Service offerings are interdependent when the post-purchase evaluation of one service offering is implicitly entwined with the

service performance of another service offering. One means of identifying independent service offerings is that they cannot be easily evaluated separately. Consider the delivery of cold food from a local restaurant by an independent delivery service such as Uber Eats. Does blame for the poor quality rest with the restaurant or the delivery service? The customer cannot readily determine the culprit without additional information. In contrast, when service offerings can easily be evaluated separately, they are independent. For instance, a customer may go to an ice cream parlor for dessert after a visit to a restaurant for dinner. Both establishments satisfy a collective customer need (i.e. hunger), but the two service encounters remain largely independent of one another despite the cursory connection of proximity and similarity in service offerings. The customer can readily evaluate the service quality of the dinner without factoring in the ice cream, and vice versa. Accordingly, linking independent service encounters together into a macro service perspective does not appear to provide any additional insight thus violating the law of parsimony. More detrimentally, it may indeed muddy our view of these independent dyadic service encounters. The unrelated service episodes have little to no influence on each other, even if the service episodes are delivered in a temporally or spatially proximate manner. Under circumstances of service independence, the broader perspective yields

no additional insights. Lacking linkages between the services offerings, the service network would simply be a loosely-bound collection of individual dyadic service encounters not justifying a holistic appraisal, such as when a customer visits a salon, followed by picking up dinner at a deli, and purchasing a gift at a confectioner (see Figure 4.).

***Figure 4**: Independent Dyadic Service Transactions*



To justify a holistic appraisal, then, a strong bond is needed. In service settings where a service organization must work collaboratively with another service organization to create a collective service package for the customer, focusing on the relationship between one service provider and its customer captures only part of the story (Gittell 2002). These service settings extend beyond the two actors involved in a dyadic service encounter. The interdependence of service offerings

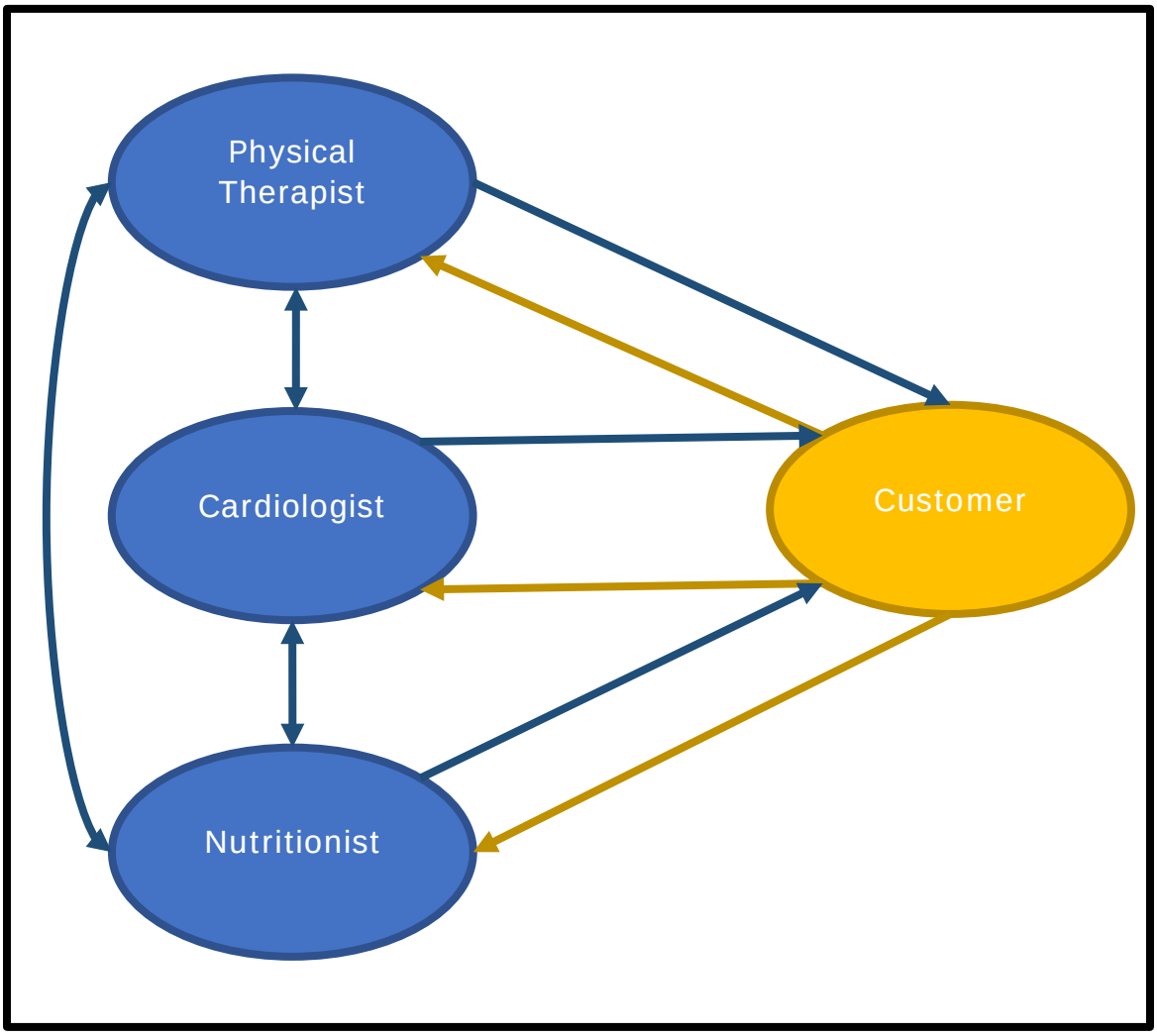
creates a situation in which the outcomes for different service organizations are affected by each other's actions. The potential to be affected by other service organizations or the potential to affect other service organizations is a bond that links the collection of services into service delivery networks (Gittell 2002). The linkage between service offerings strengthens when there is greater interdependence between those offerings.

To illustrate this point, consider the example of a vacation on a cruise ship. A customer may purchase airfare to the point of embarkation, ground transportation to the cruise ship, tickets for the cruise itself, excursions at port stops, and potentially many more services depending on the customer's resources and preferences. Each customer may select a potentially unique set of component service offerings to be included in the total package, and each service offering may potentially be delivered by different service organizations (e.g. American Airlines, Royal Caribbean, Uber, etc.). These cruise-related service offerings, despite being performed by different organizations, are linked in a meaningful way such that a service failure in one offering can undermine performance of another. This idea is more clearly understood by conducting a thought experiment, what would happen to a tour of a port city if the cruise ship is delayed in its arrival? This circumstance would affect the tour guide's ability to

deliver their service, and consequently the quality of the service the customer receives could be undermined (e.g. the tour may need to be expedited and omit some sights in order to meet the new timeline).

Or consider a patient recovering from a heart attack (See Figure 5.) The cardiologist in charge of the patient's care prescribes rehabilitation and convinces the patient and spouse to engage in nutritional counseling. The service performances of the cardiologist, physical therapist and nutritionist all are intertwined in impacting the patient's future health. Poor performance by one of these health service providers would undermine the effectiveness of the other providers.

Figure 5: *Interdependent Service Transactions*



In order to appreciate the customers' evaluation of their service outcomes from the service encounters (e.g. along axes of satisfaction, service quality, etc.), one would need to account for these interdependencies within the system of service offerings. Often to the customer, the various services are not described as discrete service encounters at all, but rather as intertwined components of a greater macro service encounter. For example, the customer is encouraged to

consider a comprehensive “cruise vacation” or the cardiologist offers the patient a multi-faceted “recovery plan.” In contexts satisfying this description, each of the individual service offerings is part of a greater whole, which is better evaluated at a larger macro network level because of the interdependence between the component services. In these types of service settings, analyzing the individual services provided to the customer as stand-alone and separate service encounters is an oversimplification of what actually occurs; this reductionist thought process ignores the influence that the performance of one service has upon another. A macro perspective is more suitable.

Those service offerings that are not interdependent with one another, however, are appropriately evaluated as dyadic. From this point forward, I will focus on service settings that have some level of interdependence that thus are better examined using a broader network analysis.

Interdependence does help illuminate a possible factor important in distinguishing the appropriate unit of analysis for different varieties of service. It does not, however, tell the full story. In the following section, I discuss another factor to consider: that of service fragmentation.

Service Fragmentation vs. Consolidation

Customers have a vast array of needs that they seek to fulfill via interactions with focal service providers. Service fragmentation versus consolidation refers to the extent to which individual service providers offer a narrow set of related services or a diverse collection of less closely related services. When services are fragmented, the customer must transact business with several individual, specialized providers. Historically, service fragmentation was dominant, as service providers only specialized in a narrow array of closely related services. In earlier eras, a consumer must visit a bakery, a butcher shop, and a green market to acquire bread, meat, and vegetables. Service consolidation is the process of moving from dispersed service offerings to amalgamated service offerings. Over time, consolidation emerged as grocery stores began to integrate bakery, butcher shop, and green market in a single organization.

Sometimes, more consolidated providers become more dominant in terms of market share, and at other times more fragmented providers become more dominant. Recently, the marketplace for home communications services appears to be consolidating. Whereas at one time one needed to go to separate service organizations to purchase mobile phone, home phone, and internet communication services, now, various consolidated focal service providers offer these service

bundles. Through economies of scope, a broad assortment can create customer value by offering convenience and ease of shopping. As the assortment increases, variety-seeking customers will perceive greater utility (Kahn and Wansink 2004; McAlister and Pessemier 1982), consumers with uncertain preferences will perceive they have more flexibility in their choices (Kahn and Lehmann 1991), and it is more likely that the customer will find the offering they desire. The emergence and big box retail, and strength of on-line “everything store” retailers like Amazon is evidence of the power of consolidation and large assortment size has in certain markets. Research in the retail literature suggests that getting assortment right is difficult. It is determined by (1) *environmental factors* such as competition and economic conditions, (2) *firm constraints* such as budget and space, and (3) *customer preferences* such as desire for flexibility and preference instability (Mantrala, Levy, Kahn, Fox, Gaidarev, Dankworth, and Shah 2009). This suggests that, even if environmental and firm constraints are favorable for consolidation, due to heterogeneous customer preference, customers often can select a consolidated service provider or continue to patronize more fragmented, specialized service providers.

Service Networks: Interdependent Service Provision and Fragmented Service Offerings

By jointly considering the interdependence of service provision and the fragmentation vs. consolidation, we gain insight into when a network perspective is the appropriate level of analysis. If services are independent, network analysis offers no additional value. When multiple service offerings are interdependent, however, the fragmentation or consolidation of the service delivery becomes more critical. Even when interdependent services are involved, however, if a consolidated solution is available in the marketplace, a dyadic view is appropriate *for the customer that does business with that consolidated focal provider*. The novel insight here is that if a customer combines fragmented service resources from multiple service organizations in order to satisfy her interrelated needs, then a *service delivery network implicitly exists for that customer* whether or not the providers are aware of it. It is only when the provision of service offerings is interdependent and fragmented the services offered are that the service network is the appropriate unit of analysis (See Table 1).

***Table 1**: Appropriate Unit of Analysis*

	Interdependent	**Independent**
Fragmented	Network	Dyadic
Consolidated	Dyadic	Dyadic

For some customers with diverse but related service needs, the marketplace of focal service providers remains highly fragmented. The onus is on the customer to find, select, and combine disparate but interrelated services into her own complex service acquisition network. Consider an individual living in a rural area who has suffered a heart attack. This individual needs a variety of interdependent services that must to be integrated for optimal service performance: diet modification, cardiac rehabilitation, general exercise, medications, and medical services from multiple types of doctors. She is unlikely to find a consolidated focal provider that can offer all of these services conveniently and competitively, as some of these services are frequently consumed while others are more infrequent and hence are not as likely to be present in a rural community.

Note, however, that it is the customer's point of view that is essential. Even when a consolidated focal service provider is available, a customer may elect to obtain a set of interdependent service offerings from multiple distinct specialized service providers. Rather

than patronizing a single integrated wedding services provider, for example, a couple may choose to select distinct services from diverse providers such as a venue, caterer, florist and photographer. For this couple, a perspective focusing on a set of customer-provider dyads would be unable to capture the complexity of the interrelated services. A service network perspective provides greater insight.

As the extent to which service provision is fragmented in the delivery system impacts the relevance of a service network view, I discuss various illustrative but not exhaustive factors that impact service fragmentation.

Drivers of Service Fragmentation

Resource Scope

All service offerings require resources in order to deliver the service offering, but there is substantial heterogeneity in the resources required to deliver different service offerings. Scope addresses the range and diversity of resources required to deliver required service offerings, ranging from narrow to broad (more diverse) collections of resources. To meet a customer's need for a haircut, for instance, requires a single venue, relatively few physical resources such as scissors, chair, mirror, etc. and a single person to schedule and provide the service. In contrast, meeting a customer's need for

maternity services requires a complex set of venues such as doctor's office for pre-natal visits, a delivery room and labor room, various physical goods such as pre-natal vitamins, materials for use during labor and delivery, and diverse service personnel at the doctor's office, pharmacy, and hospital. In comparing the need for a haircut with the need for maternity services, it is apparent the latter is far broader in scope than the former. Or, focusing only on maternity services, consider the difference in scope of resources required for a home birth with a midwife attending versus a typical hospital birth.

Or consider how the scope of resources required may vary within a travel context. One customer may desire a spa, room service, concierge, and lodging to be part of her vacation. Another customer may desire those same services plus live shows, tours, a casino, and sporting events to be part of his vacation. The latter customer's travel needs exhibit much greater scope than the former's. The broader the scope of a customer's needs, the more challenging it is for any one service organization to possess within their organizational boundaries all the resources required by that customer. Although many hotels have the capacity to unilaterally deliver dining, lodging, and spa services, a much smaller set of resorts have the resources to also provide live shows, tours, casino experiences, and sporting events.

Holding all else constant, the greater the number of diverse resources needed to deliver a service offering, the greater the likelihood that the customer will interface with more than one service provider in order to obtain the required service. Broader scope is associated with greater fragmentation of service provision.

Customer Heterogeneity

Customer-need heterogeneity is the degree to which needs differ across customers. Customer heterogeneity impacts the scope of services required, but also may be manifest even if the scope of services demanded is similar. Two customers who both want lodging, dining, and spa services can nevertheless have vastly different demands, such as when one wants a modern hotel, gourmet French cuisine, and a deep array of spa services, while the other seeks a quaint historic inn, rustic regional dinner, and a simple manicure. Although the scope of the services demanded is similar, the ability of a single service provider to satisfy both customers' needs is questionable. A greater variety of resources must be on hand for "off the shelf" solutions to match disparate customer preferences. Customer-need heterogeneity increases the variety and amount of resources required to deliver service offerings.

Customers not only vary in their needs, but also in their expertise and abilities. Mills and Morris (1986) suggest that customers

contribute differing levels of information, knowledge, skill, or effort to the service process. Customer resource heterogeneity is the degree to which customers' resources available for co-production differ from each other.

When customer needs and resources are highly heterogeneous, identifying differences among customers requires a more comprehensive understanding of customer information (Von Hippel and Katz 2002). More idiosyncratic customer information is needed in order to design, produce, and deliver the offering in a context of customer heterogeneity. Therefore, general customer heterogeneity in a marketplace can contribute to fragmentation in service offerings.

Service Organization Specialization

Customer heterogeneity often leads to heterogeneity of supply. Under the condition of customer heterogeneity, it may be possible to view the total market as a set of submarkets, with each having its own unique demand. This is the basis for market segmentation. Market segmentation is a state of demand heterogeneity such that the total market demand can be disaggregated into segments with distinct demand functions (Dickson and Ginter 1987).

Competing service firms may have different perceptions of the market segment structure of a market that exhibits demand heterogeneity. Because perceptions of segments may provide a basis

for a given marketing strategy. Each firm's assessment of this demand heterogeneity will be unique. The accuracy of the firm's perception of market segmentation is a critical determinant of its competitive advantage. If the service offering were a commodity, all alternatives would be equal. The prevalent condition however is one in which all offerings are not perceived as equal. This condition is a state of offering differentiation or heterogeneity of supply (Dickson and Ginter 1987).

The availability of specialized service organizations tends to encourage other service providers to more toward greater specialization, thereby encouraging further service fragmentation. Consider the diversity of potential funeral related services, many of which require different sets of resources. Some funeral homes choose to specialize, developing and devoting resources to address very specific customer needs. Their strategy is to offer greater depth to address a narrower set of customers' needs (e.g. Sky burial, Green burial, Jazz funeral, or Jewish funerals) rather than a broad set of offerings to serve all possible needs of all customers. In order to satisfy idiosyncratic customer needs, service organizations may respond by targeting smaller niches of customers. Thus, customer heterogeneity is one driver of service organization specialization.

Production of diverse types of service offerings often requires a greater variety of specialized service resources. The value network behind many service offerings consists of suppliers of specialized resource inputs, manufacturers of complementary products, and providers of complementary services. In conjunction with focal service provider specialization, there is greater availability of specialized backstage service implementers, such as logistics, human resources, customer support, and after-sales services. Similarly, service organizations have moved toward outsourcing elements of service offerings that they once provided internally (Ostrom, Bitner, Brown, Burkhard, Goul, Smith-Daniels, Demirkan, and Rabinovich 2010). Service organizations have both become more specialized and, concurrently, increasingly reliant on allying with other specialized service organizations in order to gain access to their fully realized specialized service resources. The enhanced ability to collaborate and coordinate with other specialized service organizations can facilitate the fragmentation of value chains and greater specialization (Gittell 2002).

In response to these drivers of specialization, service organizations have increasingly elected to limit the range of their own operations and move toward specialization. This can be framed in a make or buy decision. The service organization opts to restrict the

owned service resources (make), outsourcing non-core resources to other firms (buy), stemming in part from the notion that it is good to concentrate on the firm's core competencies. By concentrating on their core value-creating competencies, a service organization develops greater need to network with other service organizations.

Increased specialization among service providers makes it more difficult, and consequently less attractive, for service organizations to own a broad set of dedicated specialized service resources. Similar to economies of scope, economies of scale influence the structure of the service delivery system. The economies of scale afforded by specialization increase the appeal of contracting with a backstage or frontline implementer to contribute to the creation or delivery of the total service offering. Similarly, greater specialization creates the opportunity for a more specialized organization to serve as a collaborator with another service organization. Rather than have specialized resources that are not fully utilized, it is more efficient for service specialists to deploy their resources across various focal service providers, more fully deploying the otherwise underutilized capacity of the service resources. Thus, the availability of service specialists is associated with greater fragmentation of service provision.

Information Accessibility

In our modern information age, information is highly accessible for most service interactions. Many technological innovations have made possible a generalized dissemination of information that was previously unavailable to the general public. Search and information technology have allowed customers greater access to service resources that were once only available to service organizations. For example, a consumer in Casper, Wyoming, seeking to acquire a highly specialized service such as a Scottish bagpipe band is more likely than ever before to be able to find one and contract for services. Information and communication technologies have increased the ease with which customers can search for and compare service offerings.

The availability of information, coupled with an enhanced ability to communicate with disparate service organizations, has enabled customers to more actively participate in value-creating activities. Greater information accessibility facilitates customers' abilities to select and assemble their own service networks (Lusch and Vargo 2006). It has empowered customers to be able to pick ''dynamic packages'' (Piccoli, Brohman, Watson, and Parasuraman 2009) that meet individual preferences, rather than forcing customers to select among preprogrammed service offering bundles delivered by a focal service provider's alliance and consequently limited to a fixed set of

available service resources. Information availability, too, has played a significant part in the fragmentation of service provision.

Despite the greater general availability of information, high quality information of all types is not yet widely available to customers. In situations in which information is readily available or accessible, customers still often rely on a focal service provider to assemble and coordinate the resources necessary to obtain the desired service offering. For example, a person requiring cancer treatment is likely to rely on his primary oncologist to assemble the team of diverse providers best suited to maximize positive service outcomes.

These and other factors provide rationales for why despite the push for consolidation there are countervailing-forces that promote specialization and fragmentation of service provision. When service offerings are fragmented but interdependent, the service resources required to create the services desired by the customer are inherently possessed by multiple service organizations. Therefore, I now consider the issue of how these resources must be integrated to enable value creation.

Resource Integration

The necessity of resource integration is driven by the need for coordination between interdependent actors and the resources they control (Gittell 2002). Resources possess potential value, but that

value will only be realized when actors integrate and operate on them during a resource integration process (Vargo and Lusch 2008b). Resource integration is an actor's efforts to combine and utilize resources to create and realize the intended value (Vargo and Lusch 2008b). In the absence of integration, parties in the service system are autonomous and consequently retain complete latitude over their own decisions. Low-integration relationships are ones in which in which coordination of resources is done by the means of market mechanisms alone (e.g. price). In these cases, each service actor is free to make their own decisions with little to no constraint provided by other actors. In contrast, high integration constrains service actors to a limited set of decisions, requiring the coordination of multiple service actors.

If information sharing, resource combination, and collaboration are needed between actors for successful service delivery, as when service provision is interdependent, integration is required. A purposeful arrangement of the service production and delivery of all the services comprising the total service offering is needed. This arrangement involves the combination, coordination, and communication of service-related activities. Complete integration is easiest when a single service organization owns or controls all requisite service resources. However, such a consolidated offering may

be unavailable or, even if available, may not meet the needs of many customers in the market.

There are market situations in which no competitive consolidated provider exists that offers all required interrelated, interdependent services. In these situations, the customer must assemble the set of focal service providers and coordinate the service acquisition from those providers. A rural resident recovering from a heart attack, for example, may out of necessity assemble her own customized, fragmented service delivery network by contracting separately with specialist providers such as the local dietitian, the regional hospital's cardiac rehabilitation service, a local gym, a local pharmacy, her previous primary care doctor, and her new cardiologist at the regional hospital where she was transported after the heart attack.

The key insight here is that when services are interdependent and fragmented, successful service creation and delivery requires that the resources and services offered by disparate service organizations be integrated. However, this vital integration function can be performed in various ways, as I discuss below.

The Structure of Service Networks

In the discussion of fragmentation and its drivers, I have hinted that service networks may be organized very differently from each other, even for similar service offerings. The integration of

interdependent service resources may be performed in a variety of ways, resulting in various structural arrangements. Edvardsson et al. (2011) note that in designing service systems it is necessary to pay attention to the actors' positions, roles, and social interactions within their social structures. The customer's position within a social system and their role represent resources, which should be included when designing resource constellations to facilitate the realization of value propositions (Edvardsson et al. 2011).

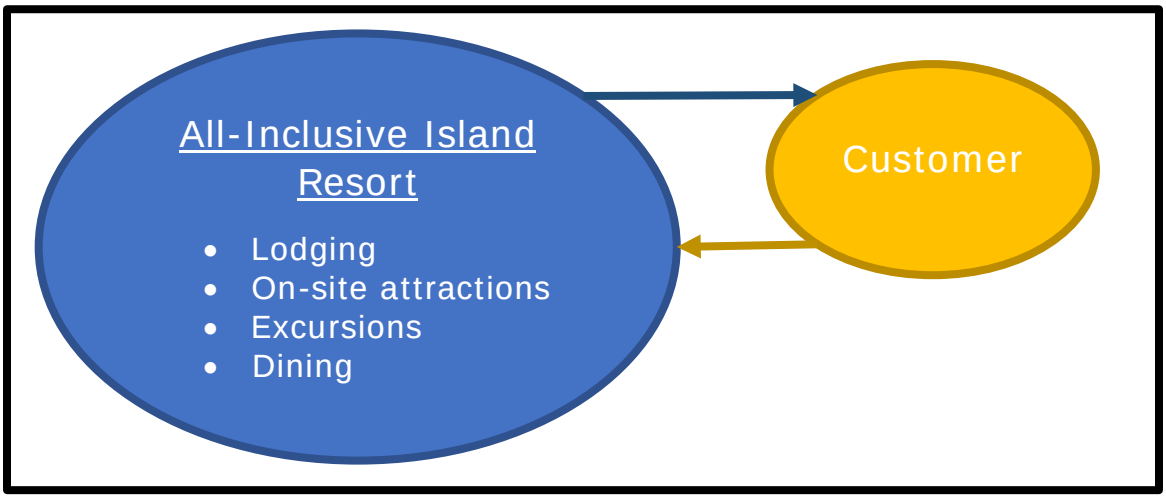
I will now describe the organization and implications for service actors of three prototypical ways in which these service networks may be structured: Comprehensive Focal Service Provider, Nexus Provider Service System, and Customer-Assembled Service System.

Comprehensive Focal Service Provider

The least complex structure is the *comprehensive focal service provider*, in which all the resources that are needed to deliver the total service offering demanded by the customer are housed within a single organization. The single, comprehensive service organization unilaterally delivers all aspects of the supplier-side service offering and thus represents a consolidated offering. In a "make or buy" framework the comprehensive focal service provider only "makes". This structure is more likely to occur when a relatively limited number of resources (i.e. in a small scope operation) are required in order to produce and

deliver the complete service offering. The comprehensive focal service provider, such as an all-inclusive island resort, is a one stop solution for the customer (see Figure 6).

***Figure 6**: Comprehensive Focal Service Provider*



Nexus Provider Service System

Service organizations often find it difficult to be a comprehensive provider. Despite the resource and specialization limitations inherent in individual organizations, a focal service provider can partner with service implementers that possess complementary resources to create a *nexus service system*. The focal nexus service provider organizes a network of collaborating backstage implementers and/or frontline implementers, performs the integration of the diverse service organizations, and provides the "face" of the nexus service system for the customer. Much like a typical retailer, nexus focal service provider

acts as an intermediary and offers an assortment of offering cultivated from select suppliers. Collaborators in this network combine their efforts, thereby creating a more comprehensive service package offered by the focal nexus service provider than any of the collaborating organizations could offer alone.

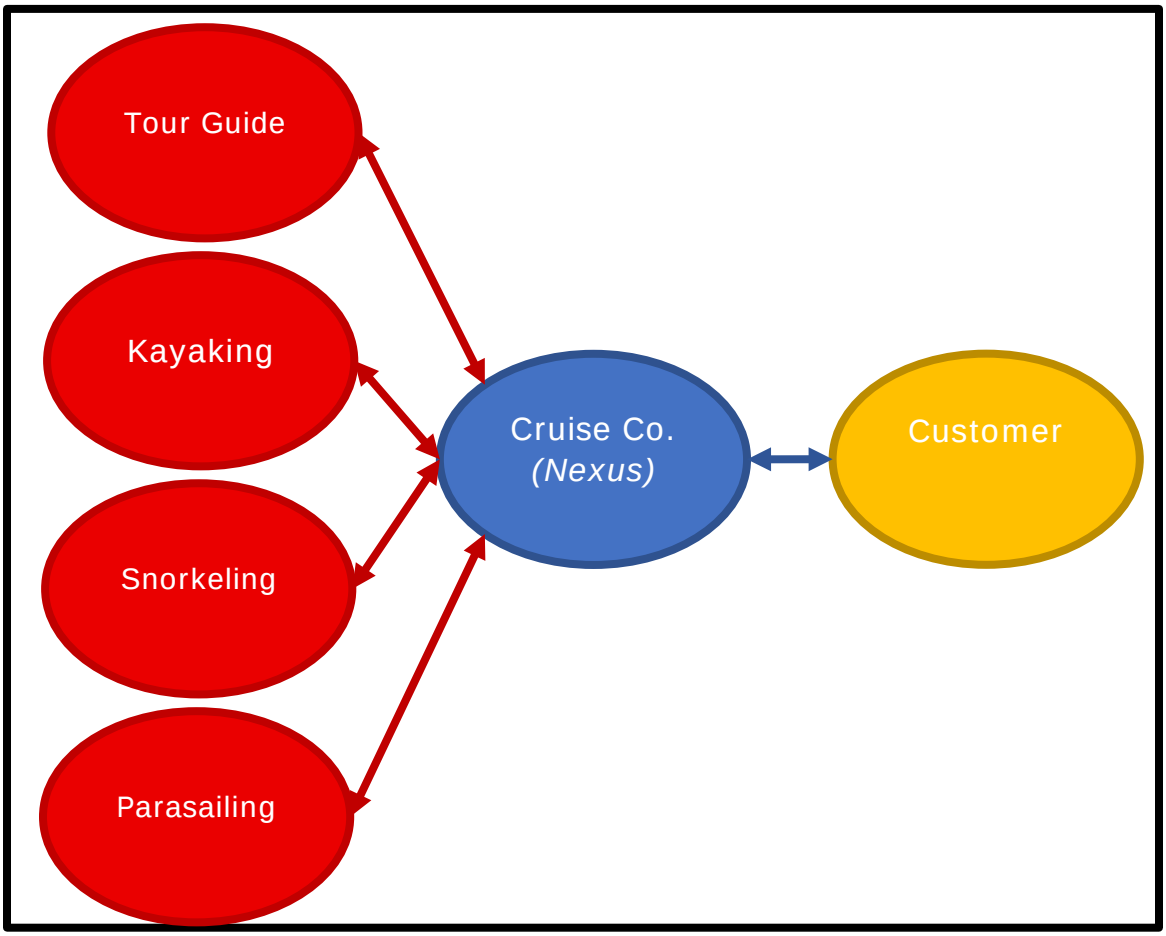
For example, customers seeking a cruise vacation may contract for services with a specific cruise line, the focal nexus service provider, and then glean services from the network of affiliated service implementers assembled by that cruise company. The customer may patronize an on-ship restaurant featuring menus designed by a marquee chef sub-contracted as an implementer, then visit the casino operated by a frontline implementer partner. The family selects tours offered by the cruise line, which are provided by contracted frontline implementer partners. Excursion setup and cleanup provided by a backstage service implementer. Photo services are provided by a partner that provides both frontline and backstage services. Shows are provided by yet another collaborating service implementer. The cruise line selects, assembles, and plots the overall service strategy for all cruise-related service elements, whether enacted by the cruise line's own employees or by partner-implementers.

The customer chooses among the preprogrammed portfolio of services offered by the cruise line, often oblivious to precisely which

service organization provides the various component services and to the complexities the cruise line faces in coordinating the diverse actors comprising the nexus service system. The nexus focal service provider acts as an intermediary between the customer and associated service implementers (See Figure 7). From the customer's perspective, she interfaces with the focal nexus service provider, the cruise line, and its personnel. If something goes wrong in service execution, the cruise line bears the consequences in customer reactions, regardless of which organization was actually responsible for the implementation failure.

The nexus focal service provider creates value for the customer by offering a broader array of diverse service offerings than the service organization could deliver on its own. Multiple, diverse service offerings are available and integrated by the nexus provider, enabling the customer to obtain an expanded set of desired component services in a single service package, rather than having to contract for each of those component services separately with a variety of focal providers.

***Figure 7**: Nexus Focal Service Provider Network*



Customer-Assembled Service System

Customers may have many reasons to *elect* to perform the service integration function, but in some cases the customer has no choice. When no comprehensive focal service providers and no nexus service systems are available, customers must self-assemble service systems to obtain the related component services required to satisfy their needs. In these customer-assembled service systems, the

customer is required to more actively participate in service production activities.

To appreciate the difference between the customer's self-assembly structure and the previous two arrangements, the situation must be viewed from the customers' perspective. The same set of service resources may be required to provide the customer with the myriad desired component service offerings, but the nature of the integration and the differences in service system structure have very different implications from the two aforementioned service network structures for the roles of the actors in the system. Consider three customers that obtain the same set of component vacation services—cruise, spa services, and in-port tours. The first customer obtains those services from an all-inclusive cruise company, an integrated focal service provider that offers all those services via its own employees. The second customer obtains those services from a nexus service system, in which the cruise line provides the core cruise service and also integrates additional services provided by allied service implementer partners. The customer interfaces with the cruise line to obtain the spa services and in-port tours the implementer offers under the cruise line's auspices, albeit for an additional charge. The third customer interfaces directly with a focal cruise service provider, with a focal spa service provider that operates a branded facility on

ship for which the customer must pay additional charges directly to the spa company, and with a variety of different focal in-port tour providers that the customer independently selects and contacts. In the third example, the customer is responsible for coordination of the various component services. Coordination is the extent to which different actors in the service system share information and resources in accomplishing a collective set of tasks (Van de Ven, Delbecq, and Koenig Jr 1976).

In some cases, the exact same service organizations may be integrated and coordinated by a self-assembling customer and by a focal nexus provider for other customers. In cruise ports, for example, it is not unusual to find a specific tour company serving as an implementer in a nexus service system but also offer the same tours directly to self-assembling customers. However, in the customer-assembled service system, all integration responsibilities and coordination risks are borne by the customer. For example, if the customer-selected tour breaks down and fails to return the passenger to port in time to board the ship prior to departure, it is the customer's responsibility to make their way to the next port; whereas if the nexus service system's tour breaks down, it is the cruise line's responsibility to ensure that the customer is returned to the ship.

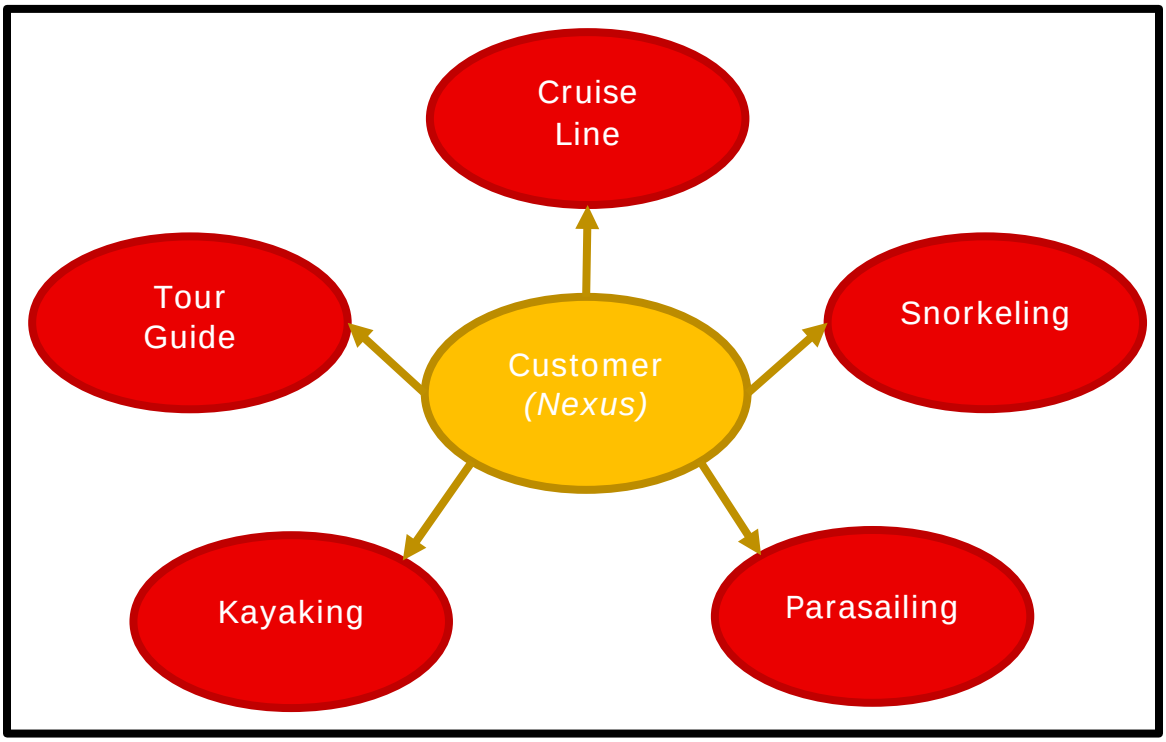
The lead service integrator role requires the customer to take a unique structural position in the service system. In this customer-assembled service system, the customer occupies the central node, which places additional role expectations on the customer. Network centrality is the interconnectedness between the actor and other actors in the network (Freeman 1978). Centrally located actors tend to have higher access to others and a larger number of people who are willing to share resources with them; they also tend to possess unique social advantages for acquiring resources (Cross, Borgatti, and Parker 2001; Mehra, Dixon, Brass, and Robertson 2006). Centrality also implies greater control over resources (Lee, Cotte, and Noseworthy 2010). Structural positions with higher centrality generate greater social power than do positions of actors residing in the network's periphery (Smith and Fink 2010). In the customer-assembled system, more customer involvement is needed, by virtue of their structural position, compared to the comprehensive provider or nexus service systems where the customer's structural position is in the periphery.

This customer self-assembly system is not a shift in unit of analysis from micro to macro as was the shift from dyads (comprehensive) to networks (nexus), but rather this is a shift in the structure of the network. This shift occurs when the customer rather than the position of a focal nexus service provider occupies the central

node. From the customer's ego network perspective, the customer's role and activities in the comprehensive focal service provider system and the nexus focal service system function much like any other dyadic service encounter. In a nexus service system, the customer transacts business with the focal service provider. Even if the customer is aware that multiple service organizations (backstage or frontstage) are involved in implementing services within the system, the customer views that collection of service organizations and resources as a bundled, multi-component service offering assembled and provided by the focal nexus service provider. All the other service providing actors are subsidiary.

However, as depicted in Figure 8, when the customer holds the nexus position, she must interface with many focal service providers. As service resources are dispersed across various service organizations, the customer must acquire information about potential service providers, select the desired focal service provider for each component service, and then act as the integrator of those component services. The customer in the self-assembled service network must coordinate the service delivery of the various focal service providers, knowing the time requirements and resource interdependencies relevant for the total service acquisition network.

***Figure 8**: Customer Self Assembled Network*



Why may customers be motivated to "do it themselves" and assemble a service network? Customers act as a resource integrator in order to achieve a given objective (Lusch and Vargo 2006). The first explanations proffered by theorists and managers for why customers may willingly expand their role were primarily economic (Fitzsimmons 1985). Just as when self-service gasoline was first offered, priced at a discount compared to full service, the customer may be motivated to self-assemble a service system in order to avoid compensating a nexus provider for performing the integrator role.

Beyond economic considerations, an early study investigating the factors that sway a consumer's choice between do-it-yourself and full-service options revealed that time, control, effort, dependence, efficiency, human contact, and risk affect consumer decisions (Bateson 1985). Of these factors, perceived time required and perceived control of the situation were found to be the most important choice criteria (Bateson 1985). Thus, time and control may also influence customers' willingness to expand their roles in resource integration.

In a preprogrammed service solution, the customer has little control over the specific service resources and participating implementers. Some customers desire more control over the selection of service actors that produce and deliver their services while others have greater resource flexibility. For example, some consumers are content to opt for limited option HMO health insurance plans that offer lower cost but restrict coverage to a small set of "in-network" providers, while other consumers are willing to pay more for a health insurance plan with a larger network of providers and greater consumer discretion over which providers to patronize. Further, customers have their own resources such as talents or abilities that may be applied in the service creation process (Jaakkola and Alexander 2014). For instance, a customer with a unique flair for design may choose to select all materials and components from a

range of various focal service providers in a home remodel. Another customer may hire an interior designer to assist in selection of materials and to serve as the solitary customer interface, thus a focal nexus provider in assembling the network of service implementers.

Another manifestation of control is the accuracy of customer preference matching through customization. Customers play an important role in determining the quality of the services that they receive (Jaakkola and Alexander 2014). Customers' active participation can help guarantee quality and improve the odds of goal fulfillment through greater customer control over the service production process. Customers with unique preferences are less likely to be satisfied with standard offerings and hence more motivated to participate to create a better preference match. Active participation by customers allows them to direct service activities and specify their particular predilections. Effective participation from customers can increase the likelihood that their own needs are met and the benefits sought are realized.

Another factor that encourages greater customer integration is the narrow framing of early decisions. Narrow framing occurs when customers make a purchase decision without considering the entirety of the total set of related services required. Read, Loewenstein, Rabin, Keren, and Laibson (1999) found that individuals confronted with a set

of decisions tend to make decisions serially rather than in the aggregate. Because of this tendency, customers are prone to fail to account for any interdependence of current decisions with future decisions. Consumers may simply approach the various needed service offerings as discrete decisions without considering how initial decisions may limit subsequent choices. Only later do consumers become aware of the interdependence between the decisions (e.g. compatibility). Considering a set of interrelated service options as a concurrent, integrated decision making may lead to a very different emergent service system. For example, booking an island resort without considering which airlines service that destination may result in a sub-optimal outcome compared to considering the pros and cons of resorts offered at destinations served by one's preferred airline versus at destinations where one cannot use frequent flyer miles to purchase air travel.

When the customer acts in the lead service integrator role, she has the flexibility to choose a set of focal service providers to enact component services. Any focal component service provider may be unaware of the identities and activities of the other focal component service providers in the customer-assembled service system. Although some information may flow between service organizations without any prompting, often customers must motivate or explicitly manage the

information-sharing process across providers. As interdependence among component services become more pronounced and interfaces among component service providers increase, it becomes progressively more unclear which service provider(s) earns acclaim for service excellence or bears ultimate responsibility for service failure. The customer may be unaware of her own role in providing insufficient integration and coordination, and a self-serving bias makes it likely that the customer will place blame on the service provider(s) rather than on herself (Bendapudi and Leone 2003).

Learning the Customer Role

Social roles are a particular set of recurring or routine activities that result from established social positions between two actors (Solomon et al. 1985). Any particular role is prompted by a cluster of social cues that guide and direct an individual's behavior in a given setting (Solomon et al. 1985). An actor who occupies a social position is expected to learn and enact certain practices in their interactions with those of another role. Adherence to an anticipated role promotes role congruence or alignment of role expectations and role enactment for both parties. Actors are socialized into roles through repeated exposure to and interaction with others, which leads to the development of expectations based on the actions of another and the reactions of others to one's own behavior. Role socialization gives an

actor the ability to predict the behavior of fellow actors in the same role, thereby enabling comparison between one's own behavior and fellow actors' behaviors. For instance, in many service settings, customers and frontline service employees (FLEs) both have knowledge and expectations about what the customer should and will do, about what the FLEs should and will do, and how the two parties will interact with each other as well as others.

For customers to adequately address and potentially satisfy their needs, they must first have a clear idea of what those needs are and how to accomplish the means of fulfilling those needs. Customers must also understand the link between their own participation and inputs with the corresponding efforts of others aiding in accomplishing the goals (Kahn, Wolfe, Quinn, Snoek, and Rosenthal 1964). Because customers and service providers alike have roles that are embedded in the larger service acquisition network, the degree of clarity present in customers' minds regarding individual members' roles in working toward meeting the goals has an impact on the effectiveness of service delivery outcomes (Gladstein 1984).

When making decisions under uncertainty, a question that arises is whether the customer should utilize their imperfect knowledge to decide on the action to take (i.e. exploit), or whether the customer should try out something new (i.e. explore) to gain more knowledge.

The resulting explore-exploit dilemma is common to many decision making scenarios (Kaelbling, Littman, and Moore 1996). The explore-exploit dilemma is therefore the trade-off between (a) trying something new in the hope of a better reward, and (b) risking disappointment, or worse, failure.

The assumption thus far has been that there is an opportunity for actors to explore options and become socialized in their roles. For decisions in repeated task contexts, optimality assumptions are a reasonable approximation, but for rarely encountered tasks or tasks that are complex there is reason to doubt that people can behave optimally (Meyer and Hutchinson 2016). We will see, in the following section, a factor that can influence the prospects for customer role socialization. I will discuss the implications of service need regularity on both the customer and service provider sides of service episodes.

Service Rhythm: Regularity of Customer Need

Service Rhythm and Customers

Service rhythm is the pattern of service need. Service rhythm regularity is the degree to which the customer's need for a specific service occurs at a predicable interval. A regular service rhythm is patterned repetition. Many types of services are needed and purchased at predictable intervals, although with highly varying frequency. For

example, a specific consumer may schedule house cleaning services weekly, hair salon services every two months, automobile service quarterly, a visit to a dental hygienist twice per year, a regular eye examination annually, and a furnace tune-up every other year. Although the length of the interval for each service varies greatly, the predictability of needing the service again in the future, and at a specific point in time, is very high.

The service provider is aware that there is the potential for future business and an ongoing service relationship with the customer. In order to maximize the potential for future customer patronage, the focal service provider has powerful motivation to ensure the customer is satisfied and, consequently, more likely to return to the same provider the next time the same services are needed.

The potential for repeat patronage is one of the most critical safeguards against service provider opportunism and negative customer outcomes. For example, a service provider with a significant sunk investment relies heavily on a continuous stream of returns to amortize the hostage investment in the long term. Even though opportunism may be profitable in the short term, the service provider risks permanent loss of a stream of price premiums once detected (Mishra, Heide, and Cort 1998). In other words, if a customer detects impropriety by a service provider (e.g. poor service quality, bait and

switch), they do not return to that service provider. Implicit in all this is that there is an opportunity for repeat business that would be jeopardized if the service provider behaves opportunistically.

The vast majority of services research has occurred in service contexts where the customer demand has a regular pattern or rhythm. In service contexts with a regular rhythm, it is defensible to assess customer loyalty by repeat patronage and positive word of mouth (e.g. Auh et al. 2007; Lam, Shankar, Erramilli, and Murthy 2004; Liu and Yang 2009). Multiple service provider options emerge to serve the regularly-occurring customer needs. A customer returning to the same focal service provider when there are viable alternatives available signals satisfaction with services received and attitudinal loyalty, in addition to the demonstrated behavioral loyalty. Word of mouth from an existing customer in these contexts is very powerful, not just as an indicator of that customer's depth of loyalty, but because that advice has the potential to alter the future purchasing behavior of *other customers* who also have high need regularity for those same services. This ability of current customers to impact potential customers who have *effective demand* is the second critical safeguard against service provider opportunism and negative customer outcomes. If a service failure occurs in a regularly rhythmed service, the focal service provider is highly motivated to implement an effective service

recovery, for that provider can lose not only that customer, but also other current or potential customers as well due to the customer's negative word of mouth.

Service contexts operating to meet customer needs on *irregular* rhythms have received significantly less research attention than those with regular rhythms. A notable exception is a burgeoning research stream on extraordinary/uncommon experiences (e.g. Bhattacharjee and Mogilner 2013; Sussman and Alter 2012), but these studies tend to be on-line or laboratory experiments based on hypothetical behavior rather than reporting actual behavior. Despite the relative paucity of research, there are many important services contexts in which the customer has low need regularity and an associated high unpredictability of demand. We will consider several examples. Although many customers take vacations during similar weeks each year, they may choose a cruise vacation infrequently and unpredictably; there is uncertainty when they may take another cruise and, if so, precisely where that would be. Many health care services involve low need regularity as one cannot predict if one's child will have influenza or appendicitis and suddenly need unexpected treatment. When arranging for funeral and end-of-life services, one may anticipate needing to do so again at some point in time, but if and when are highly uncertain. When purchasing wedding-related services,

it is normally uncertain if or when such services may be needed again, whether for one's self or for a family member.

Customers rely on their past experiences of exploration in deciding which focal service providers to patronize in the future (e.g. Fornell, Johnson, Anderson, Cha, and Bryant 1996; Garbarino and Johnson 1999). However, individuals in the market for an irregularly-needed service typically have little or no past exploration experience, which has several implications. Firstly, customers of irregularly-needed services have not been socialized in the customer role for that service. This unfamiliarity makes fulfilling the customer role very challenging. Role ambiguity is uncertainty about role definition, expectations, responsibilities, tasks, and behaviors involved in one or more facets of the task (Kahn et al. 1964). Kahn et al. (1964, p.73) further state that role ambiguity "is a direct function of the discrepancy between the information available to the person and that which is required for adequate performance of his role". Unlike customers, service providers are afforded many chances to learn their role. For the customer of irregularly rhythmed services, role ambiguity and, information asymmetry are high.

A customer may also perceive higher risk when purchasing irregularly rhythmed services, as the customer is less likely to have relevant and timely personal experience and is also less likely to

personally know trusted others who have had relevant and timely personal experience. These purchase decisions follow an exploit strategy, but without the relevant exploratory knowledge to do so. For this reason, prospective customers often engage in more extensive personal investigation of the service provider's offerings when possible. They also seek information from more indirect, impersonal sources than word of mouth, such as requesting references from contemplated providers for the names and contact information of customers previously served, and examining social media and online reviews for information about potential providers. Word of mouth scholar Jonah Berger writes, "consumers should be particularly likely to use word of mouth to acquire information when decisions are risky, important, complex, or ridden with uncertainty" (Berger 2014, p. 594). Certainly, the internet and social media have extended the reach of a customer's indirect, impersonal word of mouth (Kozinets, De Valck, Wojnicki, and Wilner 2010; McQuarrie, Miller, and Phillips 2012; Trusov, Bucklin, and Pauwels 2009).

When consumers do not have all the information about the source of word of mouth communications, they tend to draw inferences about the source (Kahneman and Frederick 2002) or the offering (Kivetz and Simonson 2000), using whatever information they can find to help them interpret the information at hand (e.g. time,

distance, similarity). For example, when reading online reviews, consumers are more strongly influenced by reviews written by those who are geographically proximal (Forman et al. 2008). Another type of distance also is a factor: social distance is the degree to which an individual perceives a lack of intimacy with dissimilar individuals (Simmel 1964). When social distance increases, individuals become less likely to trust the communicated information (Suzuki 1998). Given the infrequent and often highly consequential nature of many irregularly needed services, positive word of mouth from indirect, impersonal sources is likely to be given less weight than direct word of mouth from trusted others (Bansal and Voyer 2000) and the customer's own personal investigation of focal service providers.

However, it is likely that recent, negative word of mouth from social media sources or online reviews will be much more impactful for customers contemplating an irregularly needed service than for repetitively purchased ones. The risk is too high for many of these types of services to dismiss any type of negative input.

Service Rhythm and Service Providers

Providing irregularly rhythmed services, therefore, offers a number of challenges for focal service providers. Focal service providers of these types of services face major challenges in developing relationships with customers. The service provider must be

present in the customer's consideration set whenever the customer needs or desires these irregularly-purchased services, but there is low predictability of when those services may actually be needed, if ever. To complicate matters further, even if a customer is supremely satisfied with the focal service provider and the service quality received, it is highly uncertain if or when that the customer will have need of similar services in the future. Repeat business, even from a satisfied customer, is unpredictable and perhaps will never occur. Therefore, satisfaction may be better measured for its effect on others rather than for the repeat business it generates.

There are reasons to discount the ability of customer-to-customer information exchange to influence purchase intentions in these irregularly rhythmed services. Even fervent, positive word of mouth from the most highly satisfied customers fails to influence other customers' behavior for several reasons worthy of our attention. For instance, the heterogeneity of preferences can negate some of the value of personal positive word of mouth. A strong positive recommendation from a friend with vastly different tastes and budget will render the positive word of mouth less effective. In this vein, more recent word of mouth may be given greater weight than more outdated information, the older review being less similar (more socially distant) than the recent.

The timeliness of customer-to-customer information exchange may have a further effect on service customer decision making and subsequent choice. Although a customer of irregularly rhythmed services may happily tell many others about her great experience, most of those others will not have an effective demand for those services in a timely manner. For example, my friend may rave about the surgeon who removed her son's appendix, but unless I or someone I know has a need for surgery, I have no ability to act on my friend's positive word of mouth such that the service provider receives subsequent business.

Even direct, personal, positive word of mouth from a trusted friend with highly identical preferences, although it may be helpful for the prospective customer in evaluating her own preferences, may still be useless for the original service provider. For example, favorable recommendations about wedding services providers can only generate positive outcomes for providers if those who hear and give credence to the report are (a) in the market for those services and (b) their need for service is in the geographic area served by that provider. Thus, although direct, personal word of mouth that is relevant and timely will have a great impact on prospective customers of highly irregularly-rhythmed services, this type of word of mouth often is not available. Unfortunately for prospective customers of many irregularly-needed

services, often few or no parties in their network of associates have relevant, timely information to offer.

The impact of personal, direct, positive word of mouth is undermined by the low likelihood that others in the satisfied customer's immediate network of associates have effective and timely demand for the same services. Since people have more weak ties than strong ones, they may actively seek information from stronger ties but may end up acquiring more information from weaker ties because they simply interact with them more frequently (Berger 2014).

Although highly satisfied customers may offer glowing online reviews, the impact on prospective customers' decisions concerning whether or not to do business with the focal service provider will be limited. On the other hand, because of the risk, highly negative reviews may be given substantial weight by prospective customers, despite their indirect, impersonal, and anonymous nature. The unfamiliarity of the customer with their role in the service creation process makes it less likely that he will understand his needs fully and effectively articulate those needs to the provider, thus enhancing the probability of service failure despite a service provider's best efforts. Given the nature of many irregularly-demanded services, there is little opportunity for a conscientious service provider to attempt to implement an acceptable service recovery program.

Thus, the focal provider of irregular rhythmed services has great incentives to provide satisfactory service quality, to minimize service failure, and to strive to enact a satisfactory recovery when failure occurs, thereby minimizing the likelihood of negative personal word or mouth and online reviews. However, providing truly excellent service, though it may highly satisfy the focal customer, is unlikely to generate significant additional future business for a focal service provider compared to providing simply satisfactory service. Therefore, providers of these types of services may be tempted to aim for acceptable rather than exceptional service quality, as the additional cost investments required to produce exceptional service may not provide an adequate return.

This type of behavior is more likely to occur when there is substantial information asymmetry between the customer and focal service provider. Information asymmetry occurs when one actor has information the other desires but does not have (Bergen, Dutta, and Walker 1992). The extent of information asymmetry between actors in a service system differs with the characteristics of the services consumed. This effect can be examined by differentiating services in terms of the mix of search, experience, and credence qualities (Darby and Karni 1973). Search qualities can be examined, experienced and evaluated prior to purchase (Nelson 1970). These attributes are

associated with tangible components of services, such as the physical features and layout of facilities, the quality of the equipment, service providers' attire, and facilitating goods (e.g. presentation material). Experience qualities are assessable only after the purchase of a service offering or during its consumption (Darby and Karni 1973; Nelson 1970). Experience qualities include attributes such as taste, convenience, safety, security, speed, reliability, level of comfort, and a service provider's attention to the needs and feelings of customers during service delivery. Credence qualities are intangible attributes of the service offering that customers may be unable to evaluate even after the purchase and consumption of a service (Darby and Karni 1973). Credence qualities include attributes such as the degree of service providers' professionalism and knowledge and the advantages of certain repair or medical care procedures over other procedures.

When irregularly rhythmed services are high in credence and/or experience qualities, information asymmetry between customer and focal service provider creates a great hidden action problem for the customer because of the comparative opacity of the actions exerted by service providers (Bergen et al. 1992). Should they choose to do so, service providers are able to engage in activities that benefit themselves to the detriment of customers. The second problem is hidden information, as service providers have access to information

about their own operations that is not available to customers. The customer is unlikely to have direct, relevant experience with the service offering and its relevant domain, is unlikely to have information from personal associates with direct relevant service offering experience and, if the service is high in credence and/or experience qualities, is unlikely to be able to effectively evaluate the provider's service offerings even upon extensive investigation. These circumstances maximize the potential for service provider opportunism (Singh and Sirdeshmukh 2000).

Irregularly rhythmed services thus present a host of problems for customers and service providers alike. Given this consideration, it is surprising that service regularity has failed to attract research attention. The hope is that the identification of this research gap can be the catalyst for addressing this deficiency. In the next section, I will address how service need regularity may be used to help identify and develop those research contexts that have been overlooked thus far.

Interdependent Service Framework

Both service fragmentation and service rhythm offer insights into the nature of services, but when combined, they together provide a means of identifying and grouping services into useful categories, and thus helping us address what distinguishes complex services from simpler services. In order to do so, a demarcation needs to be made

between those services that appear at the different ends of these spectra.

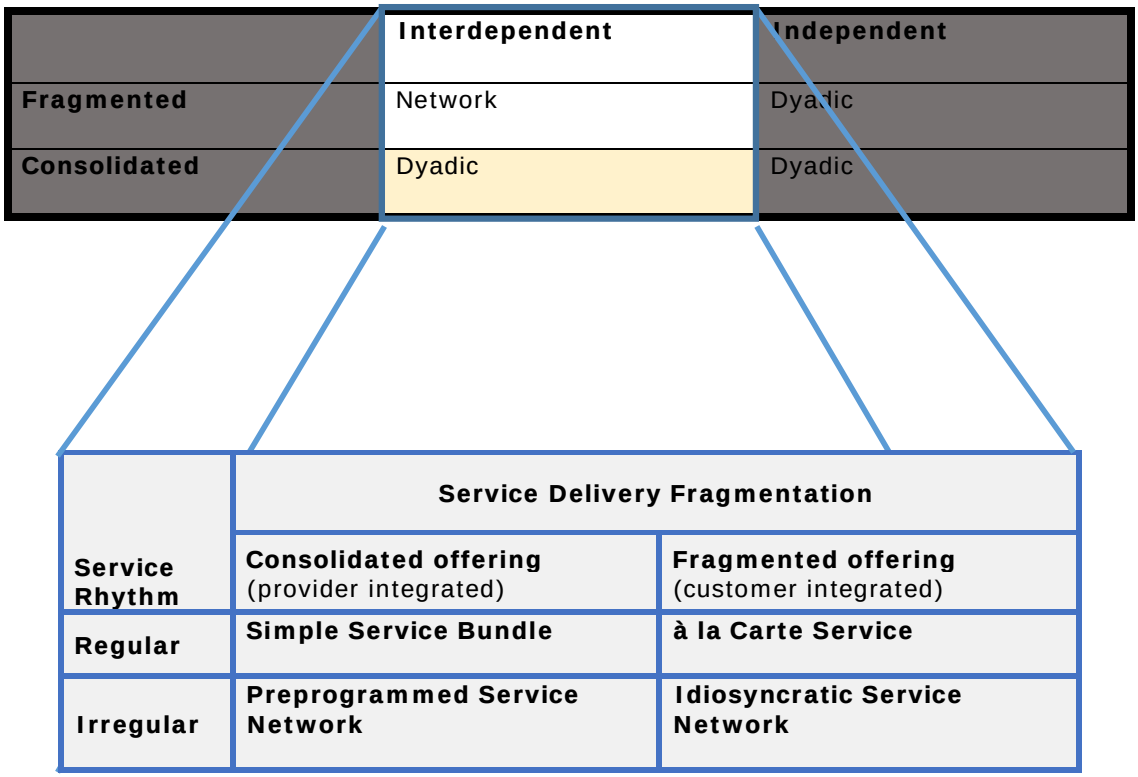
Entities along the dimension of service consolidation and fragmentation can be grouped by the number of customer interfaces. If a customer must interface with just one service organization, then from the customer perspective, this service episode is dyadic. From their perspective, all the supply side service activities are coordinated without the customer's involvement in facilitating the exchange. I identify this state as the consolidated condition. If, however, the customer must interface with more than one service provider to satisfy her needs, then the situation belongs to the fragmented end of the scale. From the customer's perspective (though not from the service providers' perspective), both comprehensive-service and nexus service providers belong to the consolidated end of the spectrum, because in both cases the customer need only interface with one service organization. By providing this classification, I do not mean to imply that there are no differences between comprehensive-service and nexus service, merely that the two are similar in this aspect from the customer's perspective.

The distinction between regular and irregular service rhythm is less distinct. There is not the same bright line that is available for consolidation and fragmentation. The important factor is that customer

need is not patterned. It is characterized by its uncertainty. If the next occasion of need cannot be predicted, then we have a high degree of service rhythm irregularity. If, however, the next need occasion is predictable with a modest degree of accuracy, then this service need is regular.

With these distinctions, I am now able to distinguish different service systems through which customers acquire complex, multi-component services varieties, as depicted in Figure 9. The description of these four quadrants should help demonstrate why inquiry into complex services is needed, by illustrating the differences between these service varieties.

Figure 9: *Service Configurations for Multi-Component Interdependent Services*



Service Bundles: Regular and Provider-Integrated

When customer demand for complex, multi-component services is regularly rhythmed, the customer may quickly become fully proficient in performing their role in the service encounter. This proficiency would manifest itself in improved customer decision making. When the customer opts for a provider-integrated service bundle, the customer is required to do less in their role as the provider performs the resource integration. Structurally, the service is often

delivered by a single comprehensive-service provider. These are the service settings are most commonly studied in the academic literature.

Think of the hotel that offers lodging, dinning, spa, and other services in house. A service bundle allows the customer to only interface with one organization in order to satisfy a wide variety of needs, simplifying the customer's role. The predictable pattern of service also ensures that there is less risk in the service transaction, since service providers would endanger repeated future transactions if they did not satisfy the customer.

Examples of these service bundles are plentiful. For example, home communication service providers frequently offer television, home phone, mobile phone, and internet from one organization. Even if these service offerings are actually produced and delivered by different service organizations, the customer need not be concerned about the coordination of service production, since the resource integration role is fulfilled by the nexus service provider. Since the billing cycles for these services are typically monthly, there are many opportunities for the customer to learn from previous cycles and better perform their role. Similarly, insurance is frequently bundled. Insurance policies as diverse as home owner/renter, automobile, life, disability and other policies are frequently available from the same organization.

à la Carte Services: Regular and Customer-Integrated

Some customers choose to obtain regular, complex multi-component services from a web of focal service providers, what I term a la carte services. This requires not only more customer participation, but also an expanded customer role in service selection and integration. When the demand occurs regularly, however, the customer typically becomes familiar with this expanded role over time through repeated exposure. Customers may elect to avoid a service bundle provider for various reasons. In contrast to the home communication bundle example, the customer may not require all the services offered. Even if all services are consumed, a customer may have preferences that are best satisfied by a plurality of service providers rather than by a single integrated service provider (e.g. a preferred high speed ISP doesn't offer cellular service). In these cases, it is the customer's responsibility to make sure that the services are compatible with each other. For instance, if a customer chooses to decouple insurance, there are more opportunities to have duplicate coverage or gaps in coverage, both of which may cause problems for the customer. Other examples of ala carte services include repeated business travel and consumer financial services (e.g. retirement planning, brokerage, retail banking, and consumer credit).

In contrast with service bundles and à la carte services, the other two service categories do not occur at regular or predictable intervals, as they address infrequent customer needs, they are subject to a novel set of circumstances in each instance.

Preprogrammed Service Networks: Irregular and Provider-Integrated

Because of the customer's inexperience in dealing with an irregular, complex service need, the customer may opt to minimize the difficulty and effort by interacting with only a single organization that offers a preprogrammed service network that promises to satisfy the customer's complex service needs. Preprogrammed service offerings can be described as consisting of solutions where the customer defers to a focal service provider that selects and integrates the resources comprising the complex service offering. Regardless of whether a full-service provider or a focal nexus provider offers the preprogrammed service offering, the customer need only interface with a single organization.

In these preprogrammed service networks, the service organizations comprising the service delivery network often become familiar with each other and establish routines. Even though a specific customer may not consume the service bundle again, the service delivery network may become more formalized through repeated

interactions and offer preprogrammed packages that appeal to needs of significant segments of customers. Examples of preprogrammed, irregular, complex service bundles include cosmetic surgery (surgeon, anesthesiologist, surgery center/hospital, etc.) or a personal vacation to an all-inclusive resort.

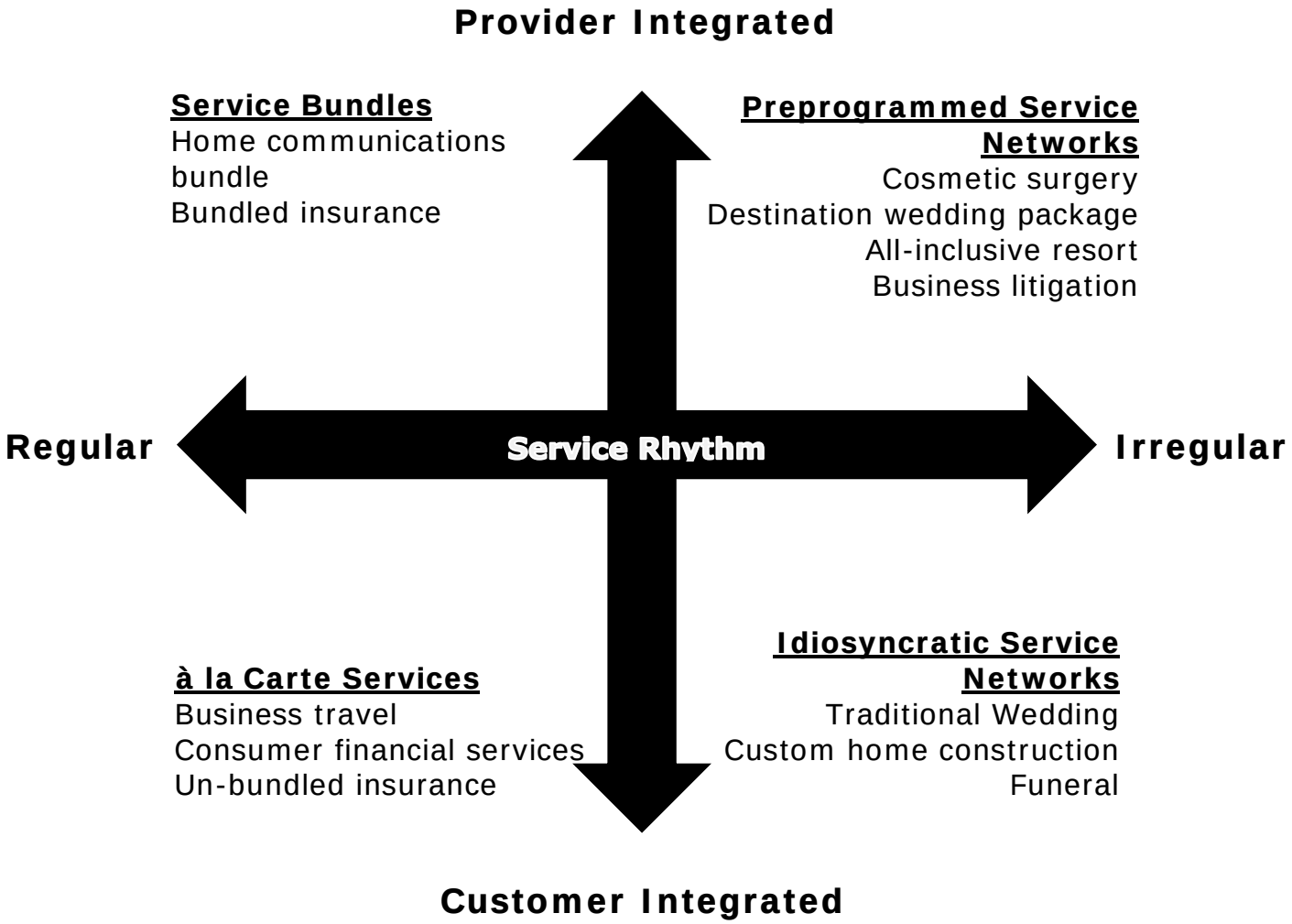
Idiosyncratic Service Networks: Irregular and Customer-Integrated

On the other hand, some customers choose to deal with an irregularly or seldom-acquired complex service by self-integrating various focal service providers that each produce component services into an idiosyncratic service network that can satisfy the customer's needs. In other cases, the customer may be forced to develop an idiosyncratic network, if no preprogramed service offering is available. These idiosyncratic service networks are comprised of interdependent but uncoupled service resources that together satisfy an irregular rhythmed customer need.

Idiosyncratic service networks are the most challenging of the four service systems identified in Figure 9 for both the customer and for the service organizations. The customer must perform the resource integration role without the benefit of repeated exposure to learn how to perform this expanded role. As these idiosyncratic networks are non-standard and highly customized, they often entail a novel set of

circumstances and interdependent customer needs. Each service provider within the service delivery network must understand its unique role and how its services mesh with those of other providers in the network. As the network is composed of multiple service providers that may have never participated together in an idiosyncratic network previously, and may never all be assembled together again, incentives exist for component service providers to be short-term oriented and perform adequately rather than superlatively.

***Figure 10**: Interdependent Service Framework*



What has Prior Services Research Studied?

Many difficulties arise when attempting to catalog and categorize previous research in terms of the fragmentation and service rhythm dimensions. As noted in Figure 10, one cannot simply place a given service industry within a specific category, for the concept of the organization and integration of complex services cuts across service industries. For instance, airlines have been studied regularly (e.g. Agustin and Singh 2005; Liu and Yang 2009; Wagner, Hennig-Thurau, and Rudolph 2009). For some customers, such as frequent business travelers, air travel may be regularly-rhythmed, suggesting that it is on the patterned end of the service regularity spectrum. In contrast, for other customer, such as leisure travelers, the irregular end of the spectrum better describes the air travel need. Further, it is possible to craft plausible scenarios where air travel is interdependent, but it is equally possible to craft scenarios where it is independent. As prior research studies have not captured or measured these factors, it is impossible to determine if the customers who participated in airline services research had irregular or regular demand and if their air travel was independent or entwined with other related travel services. The same is true for studies focusing on other service industries—there is insufficient information to glean insights regarding the regularity of demand and interdependence of service offerings and provision.

This is not to suggest that it is not possible to glean anything from examining previous services research. Researchers often study a single service context, or multiple unrelated industries to test their hypotheses. Even if multiple service contexts are explored, there is no effort to link them into a macro service perspective. Looking again at airline travel, it is easy to see that vacations, for instance, are not the primary unit of analysis. The vacation is appropriately viewed as a network. This consideration suggests that a broader macro view is not often employed in services research. Without a broader unit of analysis, it would be difficult to tell the difference between services that are fragmented or consolidated, because the research is too myopic, choosing the narrower frame. Thus, the effects of fragmentation or consolidation are lost in the research. Since the narrower view does approximate consolidation, it is safe to say that the effects of the fragmentation end of the scale in particular are not well understood.

Conclusion

The purpose of this chapter was to answer the questions: What distinguishes complex services from simpler services? and Why is inquiry into complex services needed? In an effort to address these questions, I explored how we got to the present state in services research and identified service contexts that do not fit into the

paradigm underlying prior services research. In this chapter, I explored two deep-seated assumptions in the services literature that prevail in the vast majority of previous research in services domains.

The first assumption was that the service resources used to produce a specific service offering are contained within a *single service organization.* This assumption has led previous research to focus almost exclusively on dyadic service encounters. The second assumption I explored concerned customer need regularity, the assumption being that service providers always have the potential for *enduring relationships* with customers, thereby implying an opportunity for future service episodes. Also implicit in this assumption was that customers have opportunities to learn their roles.

Although in many service contexts these two assumptions are appropriate, there are important service contexts that violate one or both assumptions. When contemplating potential service contexts in which these assumptions do not hold, we become aware that some familiar service contexts have not been appropriately studied. Accordingly, I developed an organizing framework for categorizing services that accommodates for service settings that vary from previously well-researched service contexts. In particular this framework answers what distinguishes complex services from simpler

services, it being their fragmentation and the regularity of the service rhythm.

I also described the different types of service delivery systems that represent the four quadrants of the framework. These descriptions help to illustrate why inquiry into complex services is needed by highlighting the differences between the various service contexts.

For services researchers, this service framework can help identify gaps in our present knowledge and models of services. The framework is thus a step toward addressing how a knowledge of complex services can inform research. In the next chapter, in order to further demonstrate how complex services may be used in empirical research, I build a model and hypotheses to test its potential to identify a new domain of fruitful research.

CHAPTER 4

An Investigation of Service Complexity

In chapter 3, I have identified what distinguishes complex services from simpler services and have begun to elucidate why inquiry into complex services is needed. The purpose of this chapter is to provide some evidence of how a knowledge of complex services can indeed inform research. I do this by conducting a novel empirical study investigating the effect of service complexity on consumers and service providers. The consequences of service complexity to the customer are potentially wide ranging, but before we can appropriately explore and address what the outcomes of complexity are, we must first better understand what makes a service offering complex.

What is Service Complexity?

Despite services often being described as complex, adequate investigation into what makes a service complex has not been undertaken in the academic services literature. An enhanced description of service complexity itself will help us to both better appreciate what it is and open the path toward understanding its potential influence. To this end, in the previous chapter, I described a framework for classifying complex services and the service delivery networks that arise to produce those services. Service offerings that

are purchased with a regular service rhythm and are provider-integrated I described as service bundles. As the service needs become more irregular or when services are acquired by integrating fragmented service providers into a delivery network complexity becomes manifest and previous research on services becomes less applicable. I will now turn my attention to unpacking why these varieties of services are complex by exploring the underlying dimensions of service complexity.

Implicit in the discussion of fragmentation is the concept of service scope. There must be multiple components or resources of the service offering which can be of decoupled or there can be no fragmentation. If, for instance, only a basic unitary service resource is sought by the customer, few resources are needed to deliver that basic service and there are no component services that could be split and offered by different service providers. It is hence fundamental that the scope of the complex services and the diversity of resources necessary to deliver the associated component services is sufficiently large for fragmentation to be possible. This is not to suggest that all services with more or more diverse resource requirements will invariably become fragmented, only that multiple service resources are a necessary precondition to enable fragmentation.

Scope here refers to what is to be done rather than who is to do it, but there are “who” implications as well. In a travel context, scope would refer to aspects concerning dining, transportation, lodging, spa, excursions, etc. rather than the service organizations charged with delivering the myriad services (e.g. Delta, Marriott, Olive Garden, etc.). As the scope of service resources comprising the service system grows, so too does the potential for multiple service providers to be involved in the service delivery, but does not imply that it necessarily will do so. The increased scope of the service system makes it more challenging for any one organization to possess all the necessary resources required within their organizational boundaries. Consequently, services can become more fragmented and entail a diffused or decentralized network of service providers. Thus, these service offerings are delivered by multiple service organizations working in concert to provide the related service activities. The complexity of this situation necessitates the use of a network unit of analysis.

When the number of actors involved in the production and delivery of a service system grows, the subsequent challenge of administering the network of service providers also grows. An increase in the number of separate service organizations, corresponds to an increased need for coordination and communication across

organizational boundaries. In interdependent service delivery systems like these, the performance of one portion of the total service offering has some influence on the activities of another component service provider. The greater the number of linkages among component services, the more opportunities there are for complications in the performance of one component service to negatively impact the performance of the performance another component service. This interdependence necessitates an increase in coordination between component service providers.

Since these service systems are comprised of multiple interdependent service components, effective delivery of these disparate service functions requires the combination, coordination, and communication of service related activities. In the absence of this integrating activity, component service providers behave autonomously with wide-ranging latitude over their own decisions, despite their interdependence. This autonomy undermines the collective service performance of the service system and the customer's satisfaction with the complex service purchased. In provider-integrated service systems (service bundles and preprogrammed service networks), a focal service provider takes on the integration role, but in customer-integrated service systems (a la

carte services and idiosyncratic service networks), the customer must serve as the unifying connection between the various service actors.

In customer-integrated systems, the customer must find, select, and coordinate various component service organizations. Often in a customer-integrated system, a focal service provider will provide multiple components within the scope of the complex service network (e.g. Royal Caribbean provides lodging, dining and evening entertainment), in some ways representing a hybrid integration arrangement, but the customer must still interface with other focal service providers for other components in the complex service network (e.g., independent port tours, local restaurants, ground transportation). The customer bears ultimate responsibility for ensuring effective integration among those disparate service providers.

Notice that *scope*, *interdependence*, and *customer integration* are all needed to describe the fragmentation aspect of the complexity of the service delivery system. If scope is low, the other dimensions collapse. The same is true of the other two dimensions: e.g. if services are not interdependent, then there is no need to worry about scope or customer integration. Service complexity is comprised of the scope, interdependence, and customer integration of the service system. However, there is one more characteristic that needs to be factored in when considering service complexity: the regularity of service needs.

Service systems are affected by time. Zeithaml et al. (2009, p. 250) suggested that “when services are delivered or co-created with the customer over a long period…their complexity increases”. It is worth emphasizing that this observed positive relationship between time and complexity is an indicator of complexity, not its cause. On average the greater the complexity of service, the longer the time over which the service offering is considered, selected, designed and delivered. Services that require greater preparation and planning necessitate longer lead times.

However, holding the other elements of a complex service constant, reducing the *time frame* in which that complex service is acquired enhances the complications of complexity.

The compressed time frame from active planning to service delivery diminishes the customer’s ability to prepare for contingencies. If the performance of all component services within a complex service system must fit in a narrow time window, the challenge of handling multiple service production activities concurrently increases. There is also greater potential for a negative spillover effect of one service activity upon another, because when services are performed concurrently a service failure in one component service can cascade to other concurrent or subsequent component services.

Complexity and Potential Service Failure

A service failure is an instance of service performance that does not meet the customer's expectations (Zeithaml et al. 2009). While perceived product failure is inherent in many purchase situations, services in general are riskier because they are difficult to sample, and consequently they must be purchased with less information (Zeithaml, Parasuraman, and Berry 1985). This consideration, coupled with service offerings' intangibility, heterogeneity, perishability, and inseparability, leads to higher risk perceptions in service contexts (Mitchell and Greatorex 1993; Murray 1991).

An assessment of risk is not complete without an evaluation of both the probability and the magnitude of potential negative outcomes. I submit that more complex services are both more likely to have a service failure and that the consequences of service failure are of greater magnitude, thus representing a greater risk to the consumer.

Probability of Service Failure

There are several reasons to suspect that complex services have a higher probability of service failure. Firstly, the irregular timing of customer need of these services may reduce the service provider's incentive to expend the extra effort to assure top quality service. A service provider may view the service as a one-time transaction rather

than an enduring relationship and, consequently, whether service is outstanding or fails, the impact on their future business is limited.

Discrepancies in expertise between the two parties afford an opportunity for an assortment of principal-agent problems (Bergen et al. 1992) or mismatches in the actions that make the two parties better off. Singh and Sirdeshmukh (2000, p. 151-152) suggest that “if information was symmetrically distributed, market mechanisms would keep opportunism in check [but] in the presence of asymmetrical information, the probability of opportunistic behavior increases.” Because customers cannot directly observe service providers behaviors, service providers are able to engage in activities that benefit themselves to the detriment of customers (Bergen et al. 1992). Understanding this agency problem is especially important for more complex services because service providers have more and better information about the quality of the services they provide. This asymmetry could change the service provider’s motivation to assure high quality service or lead them to act opportunistically.

Secondly, interdependence between components of a complex service increases the likelihood of a service failure in one part of the service delivery impacting others: there is a danger of spillover from one service function to another such that service failure for one actor can cascade and affect many services. These service firms often have

little control or influence over their service network peers. For example, in a home remodel, flooring installation often cannot take place until walls are painted. Painters, in turn, are dependent on demolition and construction crews. It is easy to see how a mishap in demolition could cascade and impact the ability of other service providers to deliver their portion of the total service offering and thus undermine customer satisfaction with the entire complex service.

Magnitude of Service Failure

Service failures are not only more likely in complex service contexts: the impact of a failure is more consequential. Since complex services have irregular service rhythms, for any given customer they may be momentous occasions (e.g. a wedding), highly charged with emotion and thus of great significance to the customer. For a service provider, there is not an opportunity for service recovery, since the time to satisfy the customer's expectations may expire before the recovery can take place. A service failure in these contexts therefore may be highly detrimental and impossible to recover given their irregular service rhythm.

Complexity and Service Actors' Role Implications

Given the high risk associated with complex services, it is imperative that all actors in the service system know what their roles

are and how to perform them in order to minimize the risk. Since there may be role ambiguity implications for actors in complex service contexts, I will turn my attention now to discussing and reviewing the relevant role literature.

Goal and Process Clarity and the Impact of Service Complexity

Sawyer (1992) reconceptualized role ambiguity as comprising two distinct constructs: goal clarity and process clarity. Goal clarity reflects the extent to which actors understand their overall goals and objectives (Sawyer 1992). Process clarity represents the extent to which actors comprehend the procedures that must be followed in order to achieve goals and objectives (Sawyer 1992). For customers to adequately address and potentially satisfy their needs, they must first have a clear idea of what those needs are and also understand how to accomplish the means of fulfilling those needs. Customers must also comprehend the link between their own participation and inputs and the corresponding efforts of others aiding in accomplishing the goals (Kahn et al. 1964).

How is a customer's goal and process clarity impacted by the complexity of complex services? There is some evidence that when customers participate in co-created service recovery, they are more likely to report higher levels of role clarity (Dong, Evans, and Zou 2008). Yet in irregularly service contexts customer are not often given

this opportunity to develop role clarity in this manner. When dealing with more complex products, consumers require greater decisional effort in evaluation (Johnson and Payne 1985) and thus are more likely to resort to simplifying heuristics, often reducing the effectiveness of decisions (Bettman, Luce, and Payne 1998). Keller and Staelin (1987) showed that as the number of attributes and alternatives increase, consumer decisional effectiveness is also reduced. Complexity also impacts customers' ability to identify their own objectives. Customers must first be aware of their preferences and be able to express them (Simonson 2005). The challenge is that preferences are often by how options are framed at the point of decision (Bettman et al. 1998; Slovic 1995; Yoon and Simonson 2008). Given a wide assortment of options available in complex service contexts, customer preferences are likely only a local optimum at best (Huffman and Kahn 1998). As the complexity of the service system increases, the customer's ability to articulate preferences diminishes.

Complex service offerings inherently entail multiple combinations of component services and thus possible paths to accomplishing the customers' ultimate service goals. Payne, Bettman, and Johnson (1993) suggested that an increased number of alternatives increases cognitive load and biases in consumer decision making processes. For instance, a bride may want a beautiful wedding but may be unsure

how to best accomplish that goal. Would it be better to spend more for the venue or more on the decorations and flowers? Both may aid in accomplishing a beautiful wedding, but both are vying for the same fixed budget, and therefore there is a tradeoff. Likewise, a bride may want to invite all her family and friends but may also desire to have the closeness and intimacy of a smaller wedding. These preferences are conflicting desired end states. Uncertainty in the customer's mind may arise because of negative relationships among desired outcomes in situations where achieving one desired outcome conflicts with the achievement of another desired outcome. Complexity increases customer uncertainty by enlarging the pool of potential paths to a desired outcome.

This suggests that as scope, interdependence, customer integration, and time constraints increase, the customer's goal and process clarity decrease. Given these considerations, I hypothesize that

> **H_1:** As service complexity increases, the customer's (a) goal clarity and (b) process clarity decreases.

While goal and process clarity are both desirable and may be affected by service complexity, they may not do so independently of one another. It is expected that there is a relationship between these two role ambiguity constructs. Goal clarity pertains the strategic

objective that a customer wants to achieve. Process clarity however pertains to the tactics to achieve that objective. Process clarity therefore is concerned with the comprehension of specific resources and routines to achieve sub-goals that support the achievement of the overall or global goal. A memorable dialog between Alice and the Cheshire cat in Alice's adventures in wonderland helps illustrate the relationship.

> "Would you tell me, please, which way I ought to go from here?'
> `That depends a good deal on where you want to get to,' said the Cat.
> `I don't much care where' said Alice.
> `Then it doesn't matter which way you go,' said the Cat."(Carroll 1865, p.75)

The underlying principle in this passage is that it is important that one first address where you want to go (goal clarity), as only then can one address how to get there (process clarity). In our case the lack of goal clarity would be a limiting factor on customer's process clarity such that the goal clarity "where" must come before the process clarity "how". This would not be a bidirectional effect. One would expect that one cannot achieve process clarity without goal clarity, but one may have goal clarity without process clarity. Stated differently, goal clarity may not cause process clarity, but it is not possible to achieve process clarity without goal clarity because it is subordinate to it. Given this, I hypothesize that

H_2: As the customer's goal clarity increases, the customer's process clarity also increases.

Clear goals lead to improved performance because they aid in constructively directing the attention of actors in the service delivery team (Locke and Latham 1990). Because customers and service providers alike have roles that are embedded in the larger service delivery network, the clarity of individual members' roles in working toward meeting goals has an impact on the effectiveness of service delivery outcomes (Gladstein 1984). Goal clarity facilitate actors' connections to fellow coproducers. When all the members of the service delivery network are provided clear goals, they communicate more effectively with each other, which in turn serves to integrate each of their tasks with those performed by others. Mutual understanding helps in the emergence of a shared understanding of the customer's own goals, the overall goals of the service network, and the processes needed for accomplishing the relevant collective tasks. When all actors in a service delivery network are certain about the successful completion of their own goals, the team's objective is more likely to be accomplished (Larson 2010).

Hence, it is possible for goal clarity to operate beyond the individual actor level (Gladstein 1984), such that a high level of goal clarity indicates that service network actors as a whole clearly

understand their subgoals and the connection between their work and the overall delivery network objectives. Furthermore, when the actors are able to understand the connection between their own subtasks with that of the collective task, they are less likely to engage in social loafing, which can be caused by low identification with collective goals (Liden, Wayne, Jaworski, and Bennett 2004). Service actors' motivation to contribute to the realization of collective outcomes is enhanced when members have developed a clear vision of the individual contributions needed to attain high levels of collective performance (Griffith, Fichman, and Moreland 1989). Through interactions between actors, a service delivery network develops shared beliefs regarding its general capabilities (Ford 1996). Complex-service-network actors with a clear understanding of their own tasks and the connections between their tasks and collective goals are likely to experience smooth coordination with teammates, which increases efficiency. Coordination also serves to increase social integration within the team and enhances members' ability to realize expectations.

A customer's own goals for a complex service offering are the basis for forming the collective goals. It is important that a customer have a clear vision of their goals so that they may articulate their wants and desires to the service providers. Else service providers have

do not have a means of addressing their idiosyncratic needs. Therefore, I propose the following:

> **H_3:** As the customer's goal clarity increases, the service provider performance also increases.

Service Coordinators as an Information Source

Beatty and Smith (1987) observed that customers are likely to engage in a more intensive information search when buying complex products. After recognizing a need and prior to making purchase decisions, consumers consult internal or personal sources of information (Murray 1991). However internal information is often lacking or completely unavailable in complex service contexts because irregular service rhythms provide few opportunities for consumers to gain experience and expertise, unless this customer engages in ongoing information search (Bloch, Sherrell, and Ridgway 1986) related to a high level of enduring product involvement (Richins and Bloch 1986). Learning does happen, but it is often too late to affect the service outcomes. Customers also obtain information about offerings from other actors (Bansal and Voyer 2000). One important source of information in complex service contexts is the service coordinator specialist.

Despite all the challenges complex service offerings present, costumers do not have to rely entirely on their own resources to fulfill

the customer role. Since consumers may also obtain information about offerings vicariously (Bansal and Voyer 2000), a consumer may be able to acquire expert advice in those situations when information is not readily available or easily deciphered (Darby and Karni 1973). Expert third parties exist to assist customers who elect to integrate their own customized service delivery networks. I call these expert third parties service coordinators such as event planners, interior designers, and travel agents. Together, the customer and service coordinator form a unit that comprises the customer side of the service transaction and ultimately co-creates the customer role.

The effect of service coordinator involvement in the service systems is manifold. Service coordinators' influence on customers can be broken down in two categories. Firstly, there is their effect on improving the ability of the customer to fulfill their role in the complex service. Secondly, they reduce the customer's exposure to the complexity of the service system. The service coordinator involvement can be evaluated in terms of its depth and breadth. I will discuss each in turn.

Customers may use a service coordinator as an advisor from which the customer can supplement their knowledge and receive assistance in decision-making. In this capacity, the service coordinator fills in missing information, helps evaluate options, and serves as a

sounding board. Service coordinators help the customer better perform their role, but this improvement is contingent on the nature and quality of their communication with each other. Ring and Van de Ven (1992) note that information exchange enables parties to build trust by demonstrating norms of equity and fair dealing. Willingness to share information and parties' readiness to do so effectively demonstrate trust in the other party to behave fairly (Dyer 1997; Dyer and Chu 2003).

I propose that service coordinators can affect customer goal and process clarity in two ways. The first is through information exchange. Through their interactions, service coordinator and customers iteratively exchange their knowledge about needs and solution requirements. Both parties then can recombine their complementary knowledge in potentially imaginative ways. Integrating this novel knowledge produces superior offerings that increase the likelihood of customer satisfaction.

Information Exchange Quality

The quality of the information exchanged between the customer and service coordinator is significant, because without the other party's information, the ability to perform the actor's role is hampered. Information exchange quality is the degree to which the information

exchanged between parties in the service system meets the needs of its actors.

To date, there is no consensus on the dimensions comprising effective communication or information exchange quality, but nevertheless a number of researchers have identified several important characteristics of information quality. A review of the relevant research in the communications and marketing literatures reveals that the factors most often employed are frequency, formality, and duration of the information exchanged (Berger and Calabrese 1974; Mohr and Spekman 1994; Mohr, Fisher, and Nevin 1996). Yet these dimensions fail to fully describe the quality of information exchanged. These factors describe the process of arriving at information exchange, but frequency, formality, and duration do not ensure that the quality of the information exchanged is high. As a result, they may only be correlated with high quality information exchange, and they may not the cause or a reliable indicator of the quality of the information itself, rather being only a reflection of the process of communication.

From the accounting, operations, and information systems literature, we can see potential additional factors of information quality. Neumann and Segev (1979), working within information systems, studied four information characteristics: content, accuracy,

recency, and frequency. McGowan (1998), in accounting argued that information is perceived to be useful when the information is readily accessible, accurate, timely and relevant. Petersen (1999), in operations, measured information quality by currency, accuracy, and completeness. Many of these dimensions better reflect the attributes of the information itself rather than the exchange.

Information exchange quality, as I conceptualize it, is a higher order construct that is comprised of relevance (the extent to which information exchanged is useful, applicable, and timely), completeness (the extent to which information exchange is comprehensive and includes all information needed), and complementarity (the extent to which each party shares unique information to exchange, thus minimizing the duplication of information and maximizing the coverage of all relevant information). I will discuss each of these in turn.

Information Relevance

The relevance of information exchanged has been used in some communications research. Relevance, here, refers to the extent to which information exchanged is useful, applicable, and timely to the decision making process. Mohr and Spekman (1994) note that for communication to be effective it must be full of meaning. The relevance of information exchanged is concerned with whether the information exchanged is task related or non-task related. Task related

encounters are related to the purchase and consumption of goods and services and include, for example, referrals and product recommendations. Non-task related information, however, is not directly related to the purchase and consumption of the service: for example, pleasantries and personal anecdotes. Relevant information is also timely. Timely responses are more valuable because they help the information seeker to quickly reduce the large set of possible beliefs about the potential service offerings to a smaller set, thereby reducing uncertainty levels. The same information, arriving too late, will not be as valuable or relevant.

From the service coordinator's perspective, customer input of relevant information will help better tailor the total service offering's requirements and ensure that the project tasks relate positively to outcomes (Moenaert and Souder 1996). More specifically, relevant information will better describe the customer needs such that service system members can integrate them into the specifications of the total service offering (Hoyer, Chandy, Dorotic, Krafft, and Singh 2010). Compared with other knowledge sources, feedback provided by customers often offers a better match with the project tasks and is available when needed. Service offerings that closely match customer preferences increase the likelihood of customer satisfaction and the prospect of offering adoption (Henard and Szymanski 2001).

Moreover, knowledge which is closely related to the project's goals and tasks increases learning outcomes for the service coordinator. Research on the absorption of external information and organizational learning demonstrates that knowledge created with external sources such as customers must relate to and overlap with prior knowledge; only then can service organizations recognize the value of the new knowledge and assimilate it (Cohen and Levinthal 1990).

Information Completeness

Private information may be withheld for various reasons including confidentiality, mistrust in the exchange partner, or reluctance to share sensitive information. Information shared with strategic omissions is not false or inaccurate, but it may be misleading nonetheless. In any event, incomplete information fails to fully achieve its purpose, which is enabling role performance. For example, if a customer hires a travel agent but withholds information concerning the customer’s budget, that travel agent will be hampered in their ability to find travel services that match the customer’s needs. Similarly, if the travel agent does not share information on resorts that pay a lower commission rate, the customer may not find the appropriate destination for her preferences.

Information completeness is the extent to which information exchange is comprehensive and includes all information needed. It

plays a part in the capacity for communications between customers and in service providers' ability to perform their respective roles. The assessment of completeness can only be made relative to the contextual demands of the information user. Information exchange may be complete as far as one party is concerned, but incomplete in the eyes of another.

Information Complementarity

The complementarity of information exchange is the extent to which each party has and shares unique information to exchange, thus maximizing the coverage of all relevant information. Since all parties are dealing with some degree of incomplete information, the extent to which the other party in the information exchange augments the existing information that party already possesses is a fundamental characteristic of information exchange complementarity. Complementary resources result in better capabilities when combined than if only one is present or if they are managed independently (Milgrom and Roberts 1995; Moorman and Slotegraaf 1999). The non-redundant information that each party contributes is what improves the ability of the other to perform their role. In a successful information exchange, the information exchange partner is able to eliminate deficiencies in their knowledge and thereby bolster each party's ability to achieve the customer's goals.

Customers often possess ideas and insights that greatly differ from the ones present inside a firm (Franke, Schreier, and Kaiser 2010). Through their interactions, firms and customers iteratively exchange their knowledge about needs and solution requirements (Von Hippel 2005). Both parties recombine their complementary knowledge in new ways and develop novel offerings. Customers, thus, are enabled to develop new offering ideas to better match their needs (Franke and Piller 2004).

If the information exchanged is of a high quality, it may enhance the customer's goal clarity and process clarity. With greater information quality, the customer can makes better choices about service offerings and the providers that deliver them. Thus, information exchange quality may be the key to improving customer goal and process clarity in complex service settings. Consequently, I hypothesize that

> **H_4:** The greater the information exchange quality between the service coordinator and customer, the greater the customer's (a) goal clarity and (b) process clarity for the total complex service offering.

Service Coordinator Participation

Information exchange quality may improve customer goal and process clarity in complex service settings, but how service coordinators affect information exchange quality is also worthy of

attention. Service coordinator involvement in service production activities may be analyzed in terms of its depth and breadth. I will explore the effect of service coordinator depth of participation and then examine the effect of breadth of service coordinator participation

Depth of participation is the degree of service coordinator involvement in one service activity. A wedding planner, for instance, may be deeply involved in a limited set of wedding related service activities (e.g. venue, catering, and music), but none or only limited involvement in others (e.g. photography, hair and makeup, transportation). It is expected that those service activities that the service coordinator is deeply involved in will require more dialog between the customer and service coordinator. The greater the depth of involvement in a specific component of service provision, the more the service coordinator can help the customer by engaging in discussions concerning that component service. If the coordinator is more deeply involved in a component service, they are able to assist the customer in making better decisions about service providers. The service coordinator augments the customer's knowledge about the factors that affect service quality. If the service coordinator is only superficially involved, there is less of an incentive for the service coordinator to thoroughly examine arrangements and options. Thus the effect of service coordinator depth of participation on customer

goal and process clarity may be limited by their ability to first positively influence information exchange quality. Because without a depth of service coordinator participation, there is less incentive to engage in information exchange, since that effort may be placed elsewhere.

> **H_5:** The greater the average depth of service coordinator participation in the total complex service offering, the greater the information exchange quality between the service coordinator and customer.

Breadth of service coordinator participation may also influence the customer, but this influence occurs through a different mechanism than information exchange quality. Breadth of service coordinator participation is the scope of service coordinator involvement across the full range of service activities comprising the service event. The more of the individual component services in a total service offering that a service coordinator is aware of and involved in, the better the service coordinator can plan and accommodate for contingencies among these elements. Service coordinators can then help to integrate component service functions and coordinate and communicate between service providers. Breadth of service coordinator participation, therefore, may suppress some of the negative effects of service complexity on goal and process clarity, ultimately improving the customer's service outcomes.

H_6: The breadth of service coordinator participation in the complex service offering will suppress the negative influence of service complexity on the customer's (a) goal clarity and (b) process clarity for the complex service offering.

Service Coordinators and Service Providers

Customers may seek out the advice from other customers. Word-of-mouth (WOM) is communication transferring information from one customer or group of customers to another customer that has the potential to change preferences, purchase behavior, or interacts with others. WOM has been shown to have a strong influence in many contexts, leading to changes in judgments, value ratings, and the likelihood of purchase (Arndt 1967; Bone 1995). WOM also reduces functional, time-related, financial, psychological, and social risks (Roselius 1971). Receiving positive WOM reduces risk during customer alternative search and evaluation (Woodside and Delozier 1976).

On the one hand, some research suggests that customers of complex services may rely on WOM more than those in less complex service settings. As "when people are less aware or less knowledgeable about products, they are more likely to rely on [WOM] interactions" (Libai, Bolton, Bügel, De Ruyter, Götz, Risselada, and Stephen 2010, p. 273), so too may customers of complex services with a never-before-experienced or irregularly-rhythmed need. In addition, "the magnitude of the effect of [WOM] interactions on

purchase behavior will be larger for products that are highly visible, easily tried, or symbolic of an identity that is important to a customer" (Libai et al. 2010, p. 273). Complex services are often associated with seldom-occurring, important events or experiences.

On the other hand, the heterogeneity of customer preferences and the diversity of component services negates some of the value of WOM. To further complicate matters, the lessons learned from one specific complex service may not transfer to a similar complex service in another service purchase context. For instance, if a wedding florist is particularly excellent, a friend of the bride living in another area cannot utilize the knowledge effectively because of the distance. This consideration suggests that customers in irregular service contexts have a more difficult time identifying the services and specific service providers that can meet their preferences and WOM from fellow customers is less likely to be helpful given the uniqueness of each complex service event or experience.

Positive WOM by customers may be an indicator of satisfaction or service quality. Yet the effect of that WOM on the actions of other consumers may not be as impactful as it appears on the surface. In service contexts with irregular service rhythms any customer is highly uncertain if or when that they will have need of similar services in the future. Repeat business, even from a satisfied customer, is

unpredictable and perhaps will never occur. Therefore, satisfaction may be better measured for its effect on others rather than for the repeat business it generates. Given that a satisfied customer is potentially limited in their impact on a service provider's future business, but that provider can lose not only that customer, but also other current or potential customers as well due to the customer's negative word of mouth. With this in mind, the service provider will be avoiding dissatisfied customers more than seeking highly satisfied ones.

Referrals from customers are not the only positive WOM that may be generated in a service delivery system. Word-of-mouth may play an even greater role when it is not communications between customers but referrals from service vendors to customers. Service providers share information within their social networks, indicating the reputation of potential and current partners (McCarter and Northcraft 2007). Unlike the transactional nature of the service provider-customer relationship, service providers' relationships with each other are more enduring. The existence of these networks create powerful pressure for service providers to behave within the confines of relevant norms and expectations. Macaulay (1963) discusses the powerful effect of informal conversations between professionals, suggesting that it is often more influential on behavior than formal contracts. Service

providers concerned about their reputation will be less likely to participate in unethical behavior. If a service provider were to act unethically, it is likely this behavior would be detected by other experts and information passed throughout the network, thereby damaging the reputation of the offending firm (Granovetter 1985; Provan 1993).

Service coordinators in particular may play an especially powerful incentive-aligning role in a service delivery network. Service coordinators are often involved in complex services earlier in the process than other service providers, and since a primary function of service coordinators is to give advice, they are often highly influential in the selection of service providers. Because of service need irregularity, a service provider may not expect to see a customer again, but they are likely to expect to work with a service coordinator again. Therefore, I propose:

> **H_7:** The greater the vendor's expectation to work with a service coordinator again, the greater the service provider performance.

In Figure 11, I present the conceptual model of customer clarity in complex service contexts. It visualizes the effect of service complexity, service coordinator participation, and information exchange quality on customer goal and process clarity. I propose that service coordinator participation has two paths to reduce customer role

ambiguity. First, service coordinators suppress the negative effects of service complexity through the breadth of their participation. Second, service coordinators directly improve customer role clarity through information exchange with the customer. Information exchange quality is proposed to be positively influenced by the depth of service coordinator participation.

Figure 12 features my proposed model of service provider performance and customer dissatisfaction in complex service settings. This model operates at a different level of analysis than that in Figure 11. While Figure 11 is a more global view of the complex service, Figure 12 is a more narrow dyadic view of customers and service providers embedded in the larger complex service delivery network. It visualizes the effect of customer goal clarity and service coordinator involvement on the customer's service outcomes. Specifically it proposes that a factor outside of the customer's control, that of service provider expectation of future business with service coordinator, can influence customer outcomes. It suggests that the customer-service provider dyad is influenced by larger network factors that are often missed in a purely dyadic focused model.

Figure 11: *Model of Customer Clarity in Complex Services Contexts*

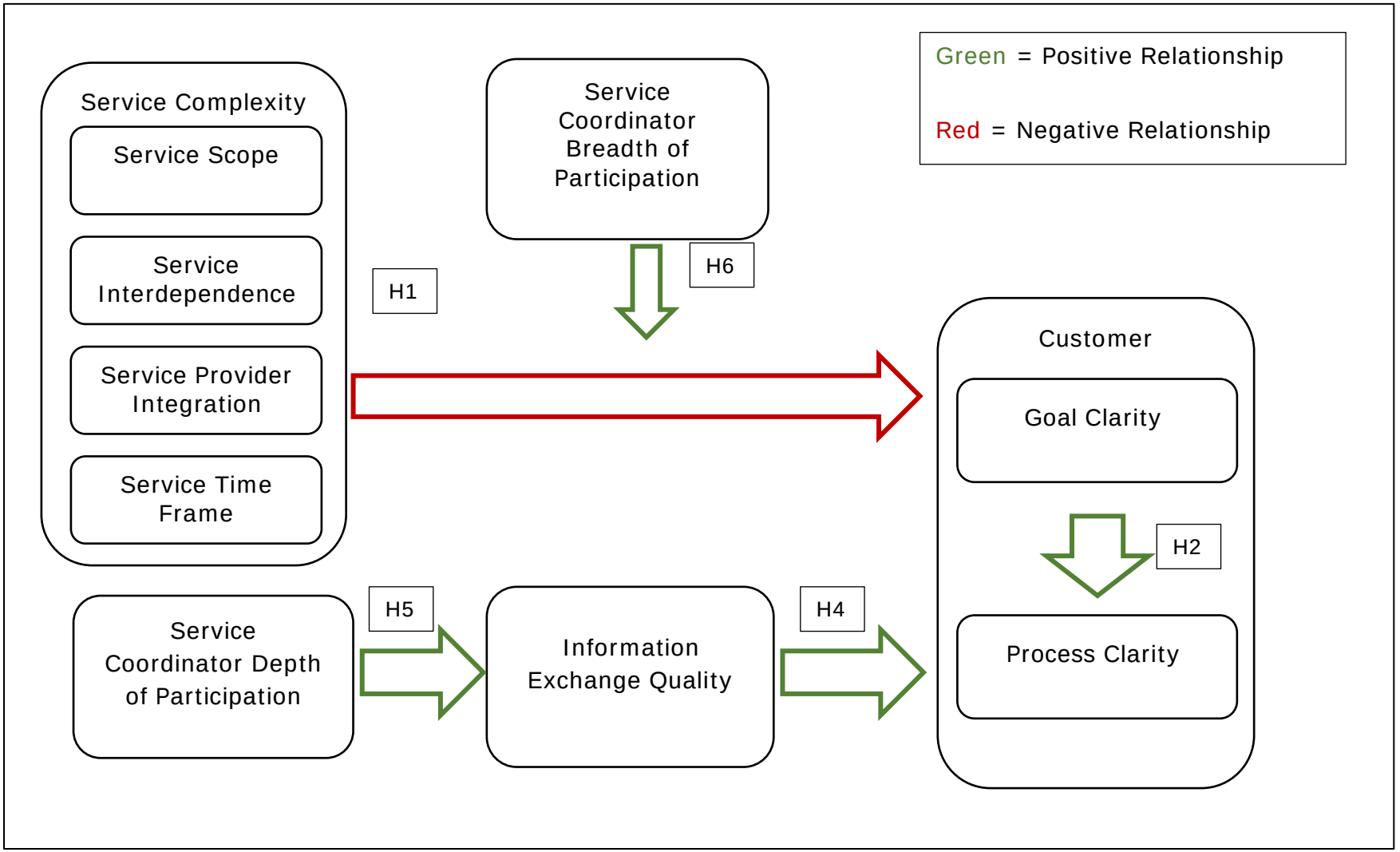
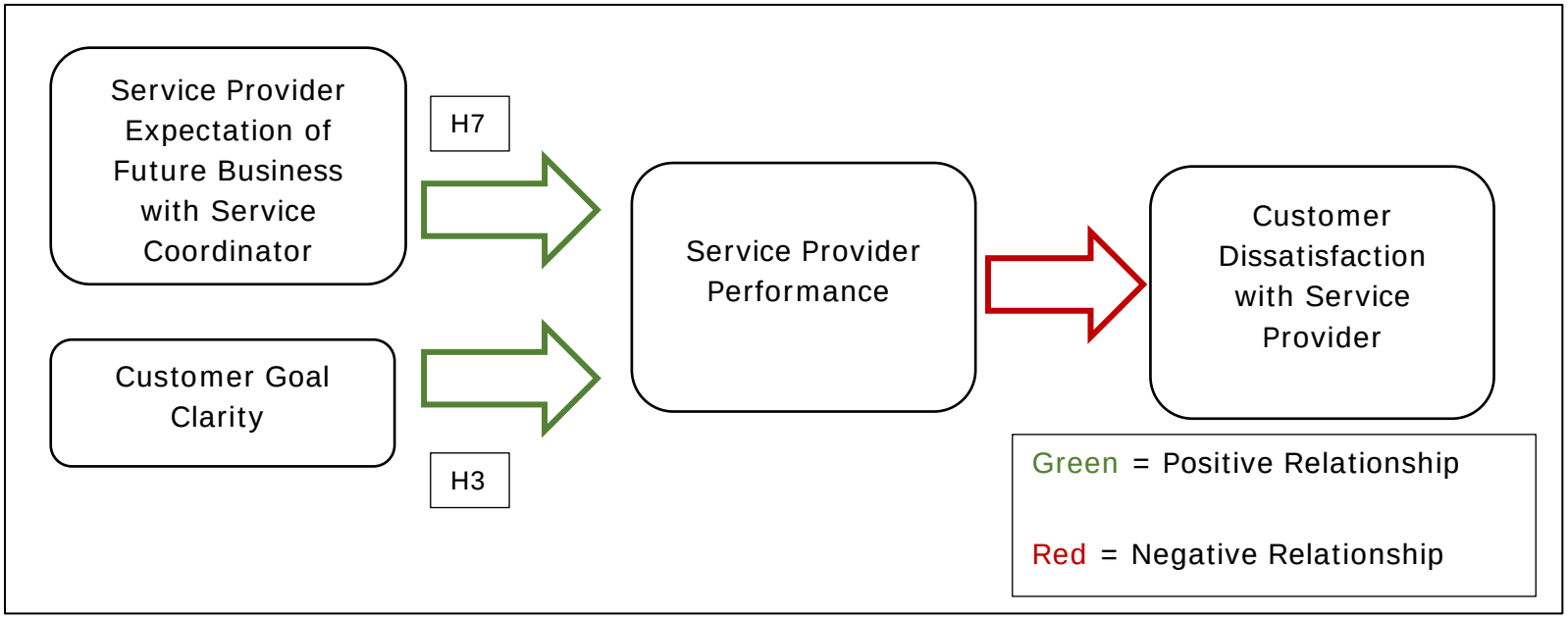


Figure 12: *Model of Service Provider Performance*



Research Method

Sample

To test the proposed model, I conducted a multi-stage online questionnaire of brides-to-be and their service providers using Qualtrics. The wedding context was chosen because it is a prototypical example of a complex service offering (having both irregular rhythm and fragmented delivery).

Bride Sample

The first stage of the data collection included a pretest for the questionnaire, following which 21 recently married brides were excluded from the final sample. Minor changes were made to the wording of scale items based on the results. Following the pretesting stage, I emailed the questionnaires to 3000 brides-to-be. Of the 3000 emails, 187 were found to be invalid email addresses. Another 34 receiving the questionnaire indicated that they were not engaged to be married and therefore should not have been included on the original list. 163 of those who received the email opted out of further contact. It is strongly suspected that many of these recipients may not have been engaged to be married either and thus did not qualify for the study. An error rate of 10% is expected on commercially available lists

like these. The total of 384 omitted participants, a 12.8% error rate, is therefore not out of line with this expectation.

The sampling effort generated a total of 301 responses. Due to excessive missing values, 96 responses were removed. I thus obtained a final total of 205 usable bride responses, for a 7.8% effective response rate. Details regarding several bride sample demographic variables are provided in Table 2. Hypotheses 1, 2, 4, 5 and 6 as depicted in Figure 11 are tested using the bride-to-be sample (n = 205).

***Table 2**: Bride Sample Characteristics*

	Minimum	Maximum	Mean	Std. Deviation
Age	18	64	30.36	8.03
Budget	$300.00	$75,000.00	$14,723.77	$13,009.15
Guests	4	450	114.75	76.95

Because of the low response rate, and in order to help establish the suitability of the data collected, I tested for evidence of nonresponse bias. Five days after the initial email, I followed up with another invitation to participate in the study. The procedure prescribed by Armstrong and Overton (1977) revealed no significant differences in means for key items of interest between respondents who were early (i.e. those who responded within the first five days) and late (i.e. those who responded after the follow up).

Service Provider Sample

In the bride-to-be questionnaire, respondents were asked to provide contact information for as many as three of their wedding service providers. Specifically, brides-to-be were asked to share venue, catering, and florist information. If one or more of these three were not hired, photographer contact information was requested. This effort resulted in a list of 215 wedding service providers. I then emailed questionnaires to those wedding service providers. The sampling effort generated a total of 54 responses from 40 weddings. I thus obtained a response rate 25.1% among service providers.

Hypotheses 3 and 7, as depicted in Figure 12, are tested using matched data from bride-service provider dyads (n = 54). The focus here is on the performance and customer reaction to specific service providers embedded in that bride's wedding services network.

Measure Operationalizations

I attempted to use multi-item measures for all constructs where possible. I also utilized established existing scales and revised them to a wedding context wherever possible. Because many of the constructs in the model where new and due to the lack of established scales, I developed or adapted some measures. In all these cases, I used the prescribed scale development procedures to generate the measures (Netemeyer, Bearden, and Sharma 2003). I started with a

comprehensive literature review and interviews with wedding planners, florists, travel agents, and funeral directors. I then pretested the revised scales with recently wedded brides.

Details regarding the items, source, and measurements are provided in Table 3.

***Table 3**: Measure Operationalization*

	Response Options or Anchors
Customer Process Clarity (B) Sawyer (1992)	very uncertain/ very certain
1 How we should allocate our time and effort across the tasks and activities	
2 Which tasks and activities we should handle ourselves	
3 The best way to do the tasks and activities that we are handling ourselves	
4 Who is handling the tasks and activities we aren't handling ourselves	
5 The sequence in which all tasks and activities need to be completed, regardless of who is handling them	
Customer Goal Clarity (B) Sawyer (1992)	very uncertain/ very certain
1 My goals for our wedding events	
2 What I want our wedding events to "say"	
3 The type of wedding events I want to have	
4 My vision for each wedding event	
Service Complexity (F)	
***Service Scope* (B)**	
What elements below will be provided for, created for, or related to your wedding events: Venues, Catering, Wedding Cakes, Floral, Venue Decoration, Music, Photography, Videography, Lighting, Hair Styling, Makeup, Salon & Spa Services, and Transportation Please check all events below that are part of your wedding celebrations: Pre-wedding rehearsal &/or dinner, Marriage Ceremony, Primary Reception or Party, 2nd Reception or Party, 2nd Ceremony, and Other	Check all that apply
***Service Time Frame* (B)**	
About when did you hire or sign a contract with your first wedding vendor?	Month & Year dropdown
***Service Integration* (B)**	
Who is providing the following elements for your various wedding events (ceremony, reception, banquet, etc.)?	Family, Friends, Us; Only One Vendor; or Two or More Vendors
***Service Interdependence* (SP)**	
Which of the following vendors' performance is interrelated with yours? Venues, Catering, Wedding Cakes, Floral, Venue Decoration, Music, Photography, Videography, Lighting, Hair Styling, Makeup, Salon & Spa Services, and Transportation	Check all that apply: Our performance affects their performance; Their performance affects our performance

	Response Options or Anchors
(Global)Perceived Service Complexity **(B)** Considering all the events that are part of my wedding, my wedding is [Complex / Simple (r); Very Complicated / Not Complicated (r)]	
Service Coordinator Participation (B) Fang, Palmatier, and Evans (2008) How deeply has your wedding coordinator been involved or will be involved in selecting, organizing, or managing the following elements of your wedding events? Venues, Catering, Wedding Cakes, Floral, Venue Decoration, Music, Photography, Videography, Lighting, Hair Styling, Makeup, Salon & Spa Services, and Transportation	Not Involved/Very Deeply Involved
Information Exchange Quality (F)	Strongly Disagree/Strongly Agree
Relevance **(B)**	
1 The information the coordinator provides is insightful and relevant to my particular situation.	
2 The information the coordinator gives me is often too late to be useful. (r)	
3 The information the coordinator provides is very relevant to my specific needs and desires.	
4 The coordinator promptly answers my questions.	
5 The coordinator proactively provides useful information before I specifically ask for it.	
Completeness **(B)**	
1 I volunteer my thoughts about all aspects of my wedding, whether or not the coordinator asks my opinion.	
2 I provide only the information necessary for the coordinator to do his/her job. (r)	
3 I am honest with the coordinator about my preferences.	
4 I proactively share every concern I have about my wedding with the coordinator. (r)	
5 I share only the information the coordinator specifically asks me for. (r)	
6 I share accurate information about my budget with the coordinator.	
Complementarity **(B)**	
1 The coordinator offers many ideas I would not have thought of myself.	
2 The coordinator often provides information that I already know or don't need. (r)	
Customer Expertise (B) Sharma and Patterson (2000)	Strongly Disagree/Strongly Agree
1 I knew a lot about all the services that are involved in wedding events	
2 I understood almost everything about the choices that have to be made in planning wedding events	
3 I considered myself an expert in wedding events	
4 I was aware of the factors to consider when hiring wedding vendors	
Vendor Performance (B)	
1 Performance was [far below / far above] my expectations (r)	
2 Provided [very high / very low] quality service	
3 [Always / never] considered my wedding a priority	

	Response Options or Anchors
Customer Dissatisfaction (B) How satisfied are you with your overall experience with (your vendor)	Completely Satisfied/Completely Dissatisfied
Vendor Expectation to Work with Service Coordinator Again (SP) How likely are you to work with this wedding planner again?	Very Unlikely/Very Likely

(r) indicates reverse-scored item; **(F)** indicates formative dimensions; **(SP)** indicates Service Provider as source; **(B)** indicates Bride as source

Service Complexity

Service Complexity is a higher order construct with multiple dimensions (Podsakoff, Shen, and Podsakoff 2006), each of which represents an important aspect of the construct (Bollen and Lennox 1991). Service complexity is modeled as a formative measure, as each dimension captures a separate domain of the service complexity construct that may vary independently of the other dimensions. When constructs are conceptualized as formative, the indicators or dimensions are not interchangeable. The distinction between reflective and formative indicator models can be generalized to higher order factor structures (MacKenzie, Podsakoff, and Jarvis 2005). In the case of a second-order construct, the multiple first-order dimensions can serve as formative indicators. The first-order dimensions are not interchangeable, because each dimension captures a unique aspect of the construct domain. Accordingly, in line with the recommendations of MacKenzie et al. (2005), I model Service Complexity as a second-order formative construct with formative first-order dimensions: Service Scope, Service Time Frame, Service Integration, and Service Interdependence.

Service Scope was measured as the count of different services within the complex service event. Brides-to-be were asked to indicate "What elements below will be provided for, created for, or related to

your wedding events?" from a list including Venues, Catering, Wedding Cakes, Floral, Venue Decoration, Music, Photography, Videography, Lighting, Hair Styling, Makeup, Salon & Spa Services, and Transportation. Additionally, they were asked to "Please check all events below that are part of your wedding celebrations" from a list including Pre-wedding rehearsal &/or dinner, Marriage Ceremony, Primary Reception or Party, 2nd Reception or Party, 2nd Ceremony, and Other. Service Scope is the sum of both categories.

Service Time Frame is the length of time the customer has been actively planning the service event. Brides-to-be were asked "About when did you hire or sign a contract with your first wedding vendor?" as an indicator of active planning. The number of months from that stated time to the month of the survey represented the Service Time Frame.

Service Integration is the number of distinct service provider entities and organizations involved in the production and delivery of the complex service event. The logic is that the more service providers that are involved in the event, the greater the event of integration required. Note that in this case, I also include non-commercial service providers including self-provided services and those services provided by family and friends. Service Integration was measured by asking brides-to-be to indicate who was responsible for providing each of the

services identified in the scope measure from three choices: Family, Friends, Us; Only One Vendor; or Two or More Vendors. These responses were used to compute the number of service provider organizations. These selections were treated as mutually exclusive. If a bride-to-be indicated “Family, Friends, Us” or “Only One Vendor” then 1 was added to the service integration count. However if “Two or More Vendors” was selected then 2 was added to the service integration count.

Service Interdependence is the degree to which the successful completion of a component service is impacted by or has an impact on the performance of other services comprising the complex service event. Each vendor was presented with the list of services in the wedding event, as indicated by the bride-to-be in her survey. The service provider was asked “Which of the following vendors' performance is interrelated with yours?” and could indicate with a checkbox if: “Our performance affects their performance” or “Their performance affects our performance” for each of the other service providers indicated by the bride-to-be were included in the wedding. If neither of these were applicable, the service providers were to leave the boxes unchecked. A vendor has greater knowledge than customers regarding the extent to which there are interdependencies with other service providers. As this was measured at the vendor level, rather

than the wedding level, I transformed the responses to a wedding level indicator by taking the mean vendor reported interdependence for each wedding. Given that I only received 54 responses from 40 of the 205 weddings this meant that there was a substantial missing data problem.

Service Coordinator Participation

Service Coordinator Participation is the breadth and depth of the service coordinator's involvement in the complex service event. This construct follows the approach used by Fang, Palmatier, and Evans (2008) in their measure of customer participation. Breadth refers to the scope of service coordinator involvement across the full range of service activities comprising the service event. It is measured as the percentage of the total number of services purchased for the overall service event that the service coordinator was at least minimally involved in. If brides-to-be indicated that wedding planners were at least “Superficially Involved” or in other words they did not indicate that wedding planners were “Not Involved” then this counted toward the service coordinator breadth of involvement. The depth is the degree of service coordinator involvement in each specific service activity. I operationalized this construct by asking the brides-to-be how deeply their wedding planner has been involved in each of the component services the comprised that specific wedding. The

responses ranged from “Not Involved” to “Very Deeply” on a six-point scale. The average depth of the service activities that the service coordinator was at least “Superficially Involved” in was used at the depth measure.

Information Exchange Quality

Information Exchange Quality is a higher order construct modeled as a formative measure, as each dimension captures a separate domain of the IEQ construct that may vary independently of the other dimensions. Accordingly, in line with the recommendations of MacKenzie et al. (2005), I model IEQ as a second-order formative construct comprised of three first-order dimensions--relevance, completeness and complementarity.

Customer Dissatisfaction

I frame this variable a customer dissatisfaction because of the nature of complex service events and service provider motivation. Because of the nature of complex service events, I theorize that the incentive structure for participating service providers emphasizes avoiding customer dissatisfaction rather than focusing on attaining maximum customer satisfaction.

Customer Expertise

To rule out alternative explanations, I include Customer Expertise as a control variable using a four-item, six-point Likert scale

adapted to a wedding context. A high score on these scales represents a high level of expertise prior to active wedding planning. It is expected that customers with greater expertise would also have greater goal and process clarity.

Analyses

Measurement Model Testing

Analysis of Reflective Measurement Scales

Because I used newly developed and adapted scales for some of my constructs, I first conducted an individual exploratory factor analysis for each construct measured using reflective items. I did so to help establish the unidimensionality of the construct measures. The results are shown in Table 4.

In the initial EFA many the reverse coded items loaded on the same factor. This was a cause of concern, but is not unheard of. In their study exploring the usefulness of negative polarity items, Herche and Engelland found that positive and negative polarity items loaded on separate factors (1996). Their conclusions suggest that reverse coded items degrade a measure's unidimensionality (Herche and Engelland 1996). While the motivation to avoid any possible positive response bias by using negative polarity items is a laudable one, it may be that respondents in this case were not symmetric in their

responses to the negatively framed items. An exploration of data quality seems appropriate.

The completeness dimension of IEQ is illustrative in this instance. This scale initially was comprised of six items (see Table 5). Of the original six items two were negatively framed and four positively framed. The means of the positively framed items were: 4.527; 5.545; 4.436; 4.891. While the means of the negatively framed items were: 3.255, 3.036 before reverse coding. If straight line answering were an issue we would expect the means of the negative framed items to be more in line with positively framed ones. This suggests that respondents were aware of the negative framed items and responded in a manner appropriate for that negative frame. Even though the respondents seem to be aware of the reversed polarity, the responses to negatively framed items have greater variance than those that were positively framed. This pattern follows for the other constructs in the model that included negatively framed items. Recognizing this does not resolve the measurement issue, but does suggest that the remaining items reflectively capture the latent construct and are not a product of straight line responses.

Following the guidelines of Hair, Sarstedt, Ringle, and Mena (2012), I further tested the psychometric properties of the scales by evaluating the reliability of the items and scales, and the convergent

and discriminant validity of the constructs (using SmartPLS 3.0). To assess item reliability, I examined the loading of each item on its corresponding construct. Any items that did not exceed the minimal .70 loading on the theorized factor or that had to load strongly on the intended factors with no unusual or high cross-loading with another factor greater than .40 were deleted from the measurement scales. Table 5 shows the factor loadings and indicates which items were dropped.

***Table 4**: EFA Results*

	Factor 1 Loading	Factor 2 Loading
Customer Process Clarity		
How we should allocate our time and effort across the tasks and activities	0.820	
Which tasks and activities we should handle ourselves	0.798	
The best way to do the tasks and activities that we are handling ourselves	0.722	
Who is handling the tasks and activities we aren't handling ourselves	0.784	
The sequence in which all tasks and activities need to be completed, regardless of who is handling them	0.852	
Customer Goal Clarity		
My goals for our wedding events	0.789	
What I want our wedding events to "say"	0.795	
The type of wedding events I want to have	0.833	
My vision for each wedding event	0.818	
Information Exchange Quality		
Relevance		
The information the coordinator provides is insightful and relevant to my particular situation.	0.835	
The information the coordinator gives me is often too late to be useful. (r)[1]	0.427	
The information the coordinator provides is very relevant to my specific needs and desires.	0.898	
The coordinator promptly answers my questions.	0.841	
The coordinator proactively provides useful information before I specifically ask for it.	0.771	
Completeness		
I volunteer my thoughts about all aspects of my wedding, whether or not the coordinator asks my opinion.	0.623	
I provide only the information necessary for the coordinator to do his/her job. (r)		0.541
I am honest with the coordinator about my preferences.	0.774	0.340
I proactively share every concern I have about my wedding with the coordinator.	0.611	
I share only the information the coordinator specifically asks me for. (r)		0.895
I share accurate information about my budget with the coordinator.	0.472	
Customer Expertise		
I knew a lot about all the services that are involved in wedding events	0.823	
I understood almost everything about the choices that have to be made in planning wedding events	0.910	
I considered myself an expert in wedding events	0.803	
I was aware of the factors to consider when hiring wedding vendors	0.763	

Vendor Performance	
Performance was [far below / far above] my expectations (r)	
Provided [very high / very low] quality service	0.999
[Always / never] considered my wedding a priority	0.982

(r) indicates reverse-scored item

Extraction Method: Maximum Likelihood. Rotation Method: Promax. Values below .3 were suppressed

Table 5: Measurement Properties of Multi-Item Reflective Measures

	Factor Loading	Mean	S.D.
Customer Process Clarity			
How we should allocate our time and effort across the tasks and activities	0.859***	5.02	1.155
Which tasks and activities we should handle ourselves	0.844***	4.82	1.176
The best way to do the tasks and activities that we are handling ourselves	0.780***	5.122	1.179
Who is handling the tasks and activities we aren't handling ourselves	0.834***	4.863	1.211
The sequence in which all tasks and activities need to be completed, regardless of who is handling them	0.881***	5.02	1.19
Customer Goal Clarity			
My goals for our wedding events	0.852***	5.02	0.992
What I want our wedding events to "say"	0.859***	4.82	1.169
The type of wedding events I want to have	0.862***	5.122	0.894
My vision for each wedding event	0.870***	4.863	1.013
Information Exchange Quality			
Relevance			
The information the coordinator provides is insightful and relevant to my particular situation.	0.879**	5	0.809
The information the coordinator gives me is often too late to be useful. (r)[1]	0.471	2.236	1.235
The information the coordinator provides is very relevant to my specific needs and desires.	0.909**	4.982	0.924
The coordinator promptly answers my questions.	0.883*	5.055	0.961
The coordinator proactively provides useful information before I specifically ask for it.	0.828*	4.8	1.085
Completeness			
I volunteer my thoughts about all aspects of my wedding, whether or not the coordinator asks my opinion.	0.742*	4.527	1.189
I provide only the information necessary for the coordinator to do his/her job. (r)[1]	0.119	3.745	1.391
I am honest with the coordinator about my preferences.	0.877**	5.545	0.566
I proactively share every concern I have about my wedding with the coordinator. (r)[1]	0.622	4.436	1.359
I share only the information the coordinator specifically asks me for. (r)[1]	0.143	3.964	1.293
I share accurate information about my budget with the coordinator.	0.747*	4.891	1.056
Complementarity			
The coordinator offers many ideas I would not have thought of myself.	0.974**	4.6	0.965
The coordinator often provides information that I already know or don't need. (r)[1]	0.241	2.727	1.198

	Factor Loading	Mean	S.D.
Customer Expertise			
I knew a lot about all the services that are involved in wedding events	0.847***	3.259	1.454
I understood almost everything about the choices that have to be made in planning wedding events	0.916***	3.429	1.495
I considered myself an expert in wedding events	0.844***	2.22	1.263
I was aware of the factors to consider when hiring wedding vendors	0.845***	3.527	1.464
Vendor Performance			
Performance was [far below / far above] my expectations (r)[1]	0.563	5.611	1.870
Provided [very high / very low] quality service	0.995*	2.333	2.143
[Always / never] considered my wedding a priority	0.995*	2.315	2.071
Perceived Complexity			
Considering all the events that are part of my wedding, my wedding is			
Complex / Simple (r)	0.969***	2.502	1.204
Very Complicated / Not Complicated (r)	0.936***	2.439	1.110
Customer Dissatisfaction			
How satisfied are you with your overall experience with (your vendor)	N/A	0.556	0.853

*p<.05, **p<.01, ***p<.001
SmartPLS bootstrapping with 2000 iterations
(r) indicates reverse-scored item
[1] indicates item was dropped from final measurement scale
S.D. = Standard Deviation

***Table 6**: Wedding Level Construct Correlations*

	Composite Reliability	Average Variance Extracted	Mean	Standard Deviation	Service Complexity	1	2	3	4	5	6
1) Coordinator Breadth	N/A	N/A	0.179	0.324	0.220						
2) Coordinator Depth	N/A	N/A	.909	1.602	0.189	0.850					
3) Customer Expertise	0.926	0.758	3.109	1.419	-0.003	-0.039	-0.012				
4) Goal Clarity	0.919	0.74	4.956	1.017	0.097	0.122	0.170	0.415			
5) Information Exchange Quality	N/A	N/A	N/A	N/A	-0.234	-0.107	0.303	0.173	0.218		
6) Perceived Complexity	0.966	0.934	2.471	1.157	0.431	0.117	0.094	-0.113	-0.010	-0.068	
7) Customer Process Clarity	0.923	0.706	4.969	1.182	-0.010	0.071	0.076	0.433	0.596	0.302	-0.165

The composite reliability for each multi-item scale exceeded the recommended threshold of .60 (Bagozzi and Yi 1988), indicating acceptable internal consistency (see Table 6). For all constructs, the average variance extracted (AVE) values exceeded the .50 benchmark (Fornell and Larcker 1981), providing support for convergent validity. I also compared the AVE of each construct with its squared correlations with all other constructs; since, in each case, the highest shared variance was lower than the AVE, support for discriminant validity was obtained (Fornell and Larcker 1981). The descriptive statistics and associated psychometric properties for the various study constructs are shown in Tables 3 and 4. I also followed the most recent literature (Henseler, Ringle, and Sarstedt 2015; Voorhees, Brady, Calantone, and Ramirez 2016) and applied the heterotrait-monotrait ratio (HTMT) criterion to additionally assess discriminant validity. The fulfillment of the HTMT 0.85 criterion as well as the HTMT-inference test indicated adequate discriminant validity (Henseler et al. 2015).

Since I gathered most of the bride-based measures with one questionnaire, I evaluated the potential threat of common method bias (CMB). Harman's (1967) one factor test was performed following the approach described by Podsakoff, Todor, Grover, and Huber (1984). The test revealed that no factor accounted for more than 50% of the variance. To further test for the presence of common method bias I

conducted a collinearity test. In SmartPLS, variance inflation factors (VIFs) are generated for all latent variables in a model. The occurrence of a VIF greater than 3.3 is as an indication that a model may be contaminated by common method bias (Kock 2015). I inspected the VIF statistic for all the factors included in the model and found that the maximum in the model was 1.304, well below the 3.3 threshold. The use of varied response formats and the concrete nature of many of the focal constructs also reduces concerns about common method variance. I conclude that common method variance is unlikely to be an issue in this data.

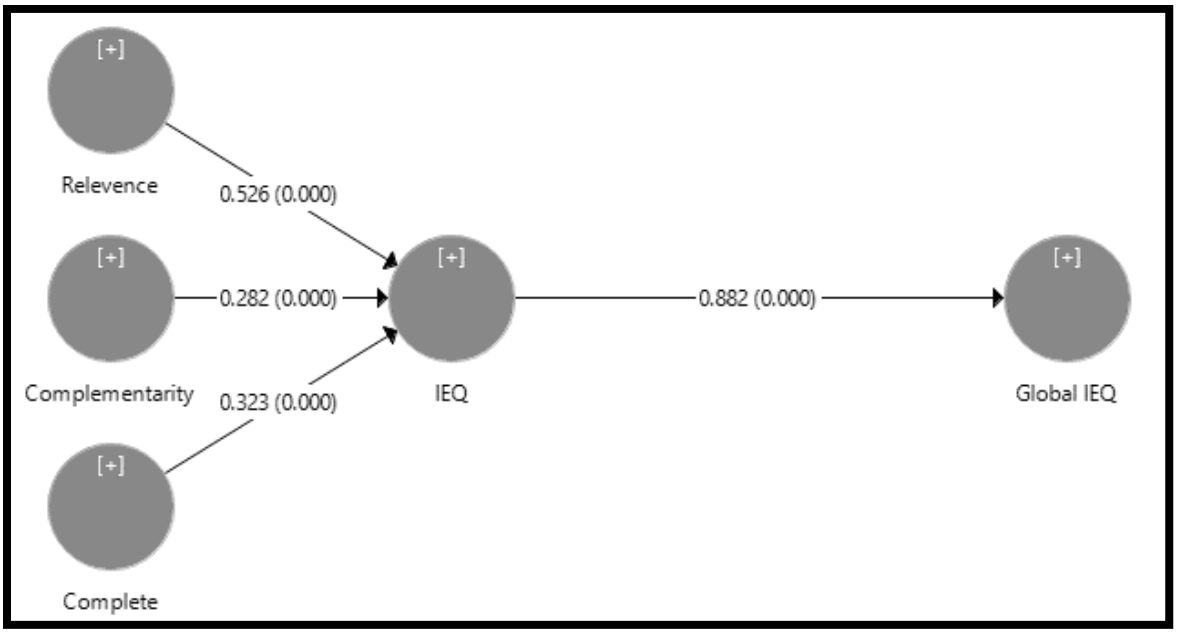
Analysis of Formative Indicators

Chin (1998) instructs that the magnitude of the weights of each formative indicator (interpreted the same as the beta coefficients in a regression model) is suggestive of the contribution of the indicator to the latent construct; this can be interpreted as reliability of the indicators. The path coefficients for the three formative dimensions of information exchange quality are: Relevance ($\beta = .526$, $p < .001$); Complementarity ($\beta = .282$, $p < .001$); Completeness ($\beta = .762$, $p < .001$). The path coefficients for the four formative dimensions of service complexity are: Service Scope ($\beta = .762$, $p < .001$); Service Time Frame ($\beta = .240$, $p < .01$); Service Integration ($\beta = .427$, $p <$

.01); Service Interdependence (β = -.048, p > .1). Given that the service interdependence dimension was found to be insignificant, it was dropped from hypothesis testing. Other than this, the reliability of the other indicators of the model is strong, as all of the standardized paths in model were above the suggested value of 0.2 (Chin 1998).

Additionally, I further tested the validity of these measures by analyzing the relationship with a dependent variable such as a global measure or a theoretically related construct. For formative indicators, validity depends on the significance and strength of the path from each indicator to the composite latent construct (MacKenzie et al. 2005). For Information Exchange Quality, I assessed validity using a global reflective measure of information exchange quality. The formative indicator had a strong statistically significant positive relationship with the global indicator (see Figure 13).

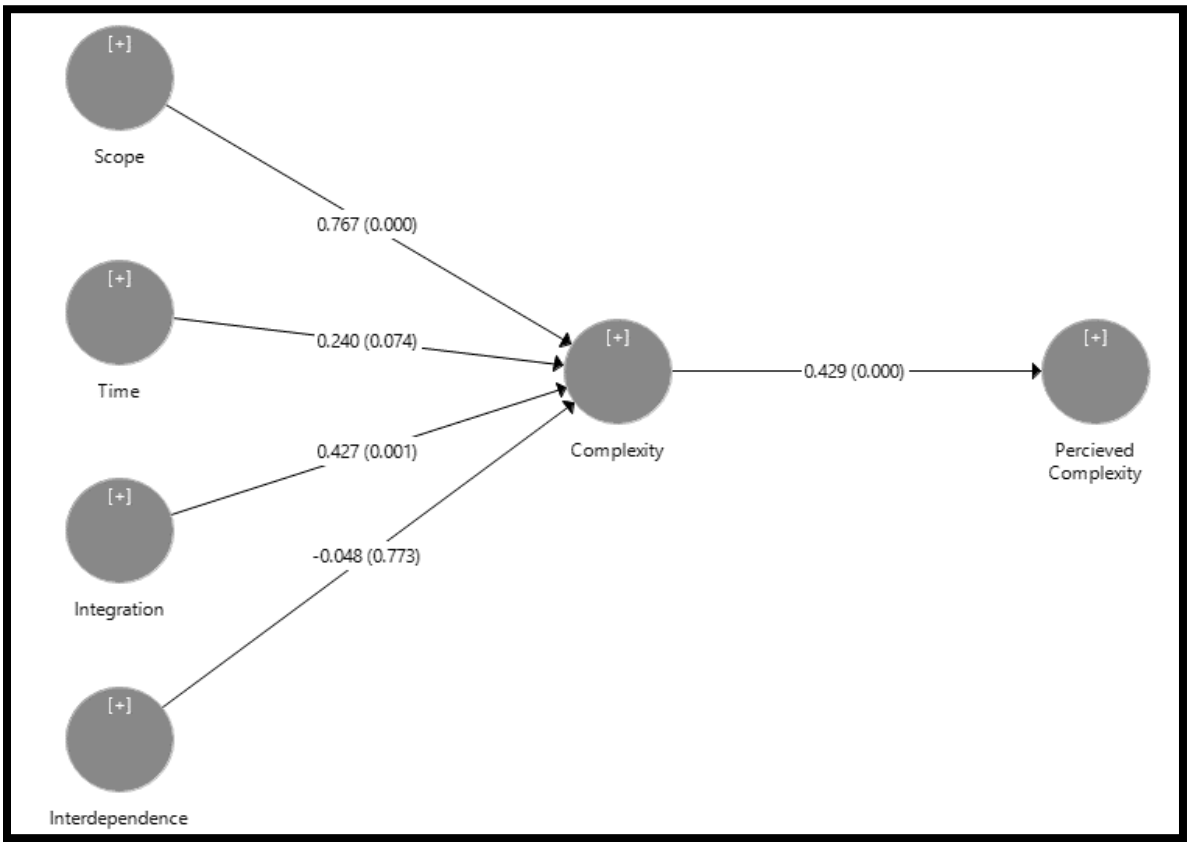
Figure 13: *Information Exchange Quality*



Note: The statistics provided are β and p value

The three components of service complexity (Scope, Time, and Integration) were similarly positively related to a global reflective measure of perceived overall service complexity (see Figure 14).

Figure 14: *Service Complexity*



Note: The statistics provided are β and p value

Hypotheses Testing

After testing and concluding that the psychometric properties of the measures were appropriate, the next stage of the analysis was to examine the structural model in order to assess the model's explanatory power and the significance of the hypothesized paths

shown in Figures 11 and 12. The structural model was estimated using structural equation modelling that employed partial least squares (PLS-SEM) estimation in SmartPLS Release 3.0. I used partial least squares due to the formative nature of the higher order Service Complexity and Information Exchange Quality constructs. PLS is a predictive causal modelling tool, and as such, the variance explained in the endogenous constructs provides important information about the power of a model. PLS is also well suited for predictive models using small samples (Chin 1998). Considering my relatively small sample size, this method of analysis was deemed appropriate. A common rule of thumb suggests that the sample size should be at least 10 times the largest number of independent constructs affecting a dependent variable (Goodhue, Lewis, and Thompson 2012); in this model, the maximum number of independent constructs (including control variables) was 6, so the sample of 205 was adequate.

As there is no overall fit index in PLS path modeling, the appropriateness of the model may be determined by examining explained variance (Petter, Straub, and Rai 2007). PLS provides an R^2 measure for the endogenous variables in the model to indicate how well the model fits the hypothesized relationship. The R^2 indicates a construct's percent variation explained by the model (Wixom and Watson 2001).

Hypotheses testing consisted of examining the size, sign, and significance of path coefficients in the structural model. Bootstrapping was utilized to produce parameter estimates, standard errors, and t-values (Efron and Gong 1983).

Results

Hypothesis 1 postulates that as service complexity increases, the customer's (a) goal clarity and (b) process clarity decreases. Service complexity was conceptualized as a higher order formative construct with four underlying dimensions: Scope, Integration, Time Frame, and Interdependence. The measures for the Scope, Integration, and Time Frame dimensions satisfied the standards for reliability and validity, but the Interdependence measure did not. As a result, service complexity as originally conceptualized could not be tested. I did, however, test the effect of service complexity comprised of the remaining three formative dimensions. Even so, this hypothesis was not supported. Hypothesis 1(a) the effect of complexity on goal clarity was not significant ($p=.139$).

Hypothesis 1(b), the effect of service complexity on process clarity, was not supported either ($p=.477$). Post hoc analysis revealed, however, that if the global measure of customer perceived complexity was also included in the model, the formative indicators of service complexity had strong and significant effect on global perceived

complexity (β=.432, p<.001), which in turn manifested a statistically significant effect negative effect on customer process clarity (β=-.142, p=.005). While this was not the hypothesized relationship, it is suggestive that there is a path through which service complexity may indeed negatively affect customer process clarity.

In support of Hypothesis 2, the data show a significant link from customer's goal clarity to customer's process clarity. The relationship between goal and process clarity is strong and positive (β = .491, p < .001).

Hypothesis 3 proposed that when the customer's goal clarity increases, service provider performance also increases (β =.412, p < .001). This hypothesis too was supported.

Hypothesis 4 postulated that the greater the information exchange quality between the service coordinator and customer, the greater the customer's (a) goal clarity and (b) process clarity for the complex service. The effect of information exchange quality on customer goal clarity was positive (β=.182, p < .05), supporting Hypothesis 4(a). However, information exchange quality's effect on process clarity is not supported (β=.15, p=.118), so Hypothesis 4(b) was rejected. It could be that information exchange's effect on process clarity flows through the impact on goal clarity.

Hypothesis 5 theorized that the greater the average depth of service coordinator participation in the complex service event, the greater the information exchange quality between the service coordinator and customer. This hypothesis was supported (β =.081, $p < .001$).

Breadth of service coordinator participation was also hypothesized to have an effect on customer goal and process clarity. Hypothesis 6 postulated that greater breadth of service coordinator participation in the complex service event will suppress the negative impact of service complexity on the customer's (a) goal clarity and (b) process clarity for the complex service event. I first tested the main effects of service coordinator breadth of participation on customer goal and process clarity and found that coordinator breadth had a significant main effect on customer goal clarity (β =.125, $p < .05$), but not on customer process clarity. I then tested the moderating effect of service coordinator breadth and found that it did not moderate the impact of service complexity on either goal (β = -0.067, $p = .167$) or process clarity (β = -.028, $p = .342$). To test this hypothesis further, I did a multi-group analysis (MGA) and compared the effect of complexity on customer goal and process clarity for those with wedding planners (n=55) to those without wedding planners (n=150).

I found that none of the model relationships for these two groups were significantly different from one another.

Hypothesis 7 postulates that the greater the vendor's expectation to work with a service coordinator again the greater the service provider performance ($\beta = 0.01$, $p > .1$). This hypothesis was not supported. Given that the small sample size, this may be a result of insufficient power to test the hypothesis. I also tested the direct link between the vendor's expectation to work with a service coordinator again and customer dissatisfaction with the service provider and found that there was a significant relationship ($\beta = -.222$, $p < .001$) such that the greater the service provider's expectation to work with a service coordinator again, the less dissatisfied the customer is with that service provider. I do not suggest that the effect is not mediated by service provider performance rather that customers may not be able to fully evaluate service provider performance. Earlier I suggested that it is difficult for customers to evaluate interdependent service offerings separately and this supports that conclusion.

As expected the control variable customer expertise had a positive impact on customer goal ($\beta = .409$, $p < .001$) and process clarity ($\beta = .206$, $p < .001$). This relationship needed to be accounted for so that a more accurate assessment of service complexity's impact on customer role ambiguity may be performed.

***Figure 15**: Customer (Bride) Model Results; N = 205*

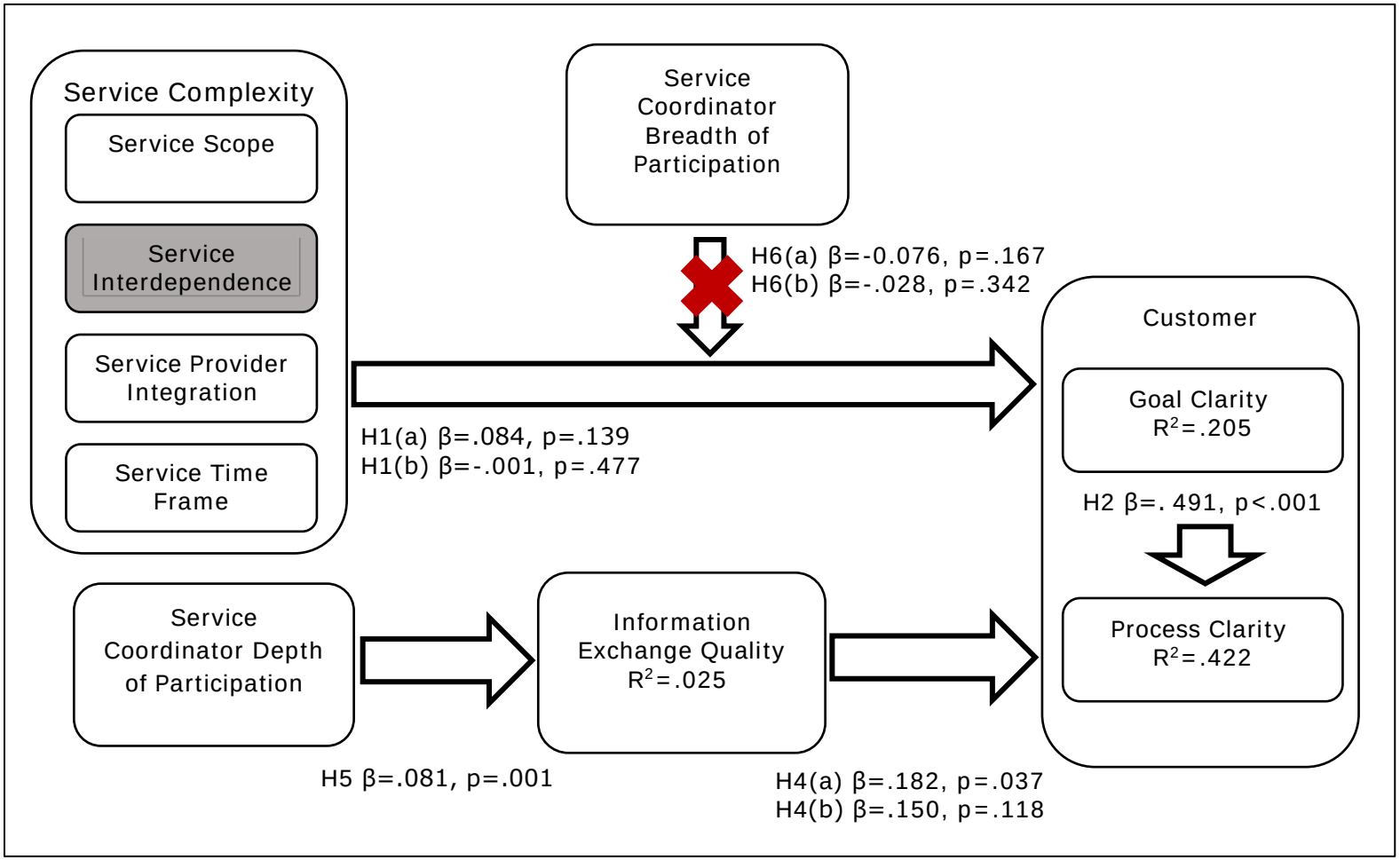


***Figure 16**: Customer-Service Provider Model Results; N = 54*

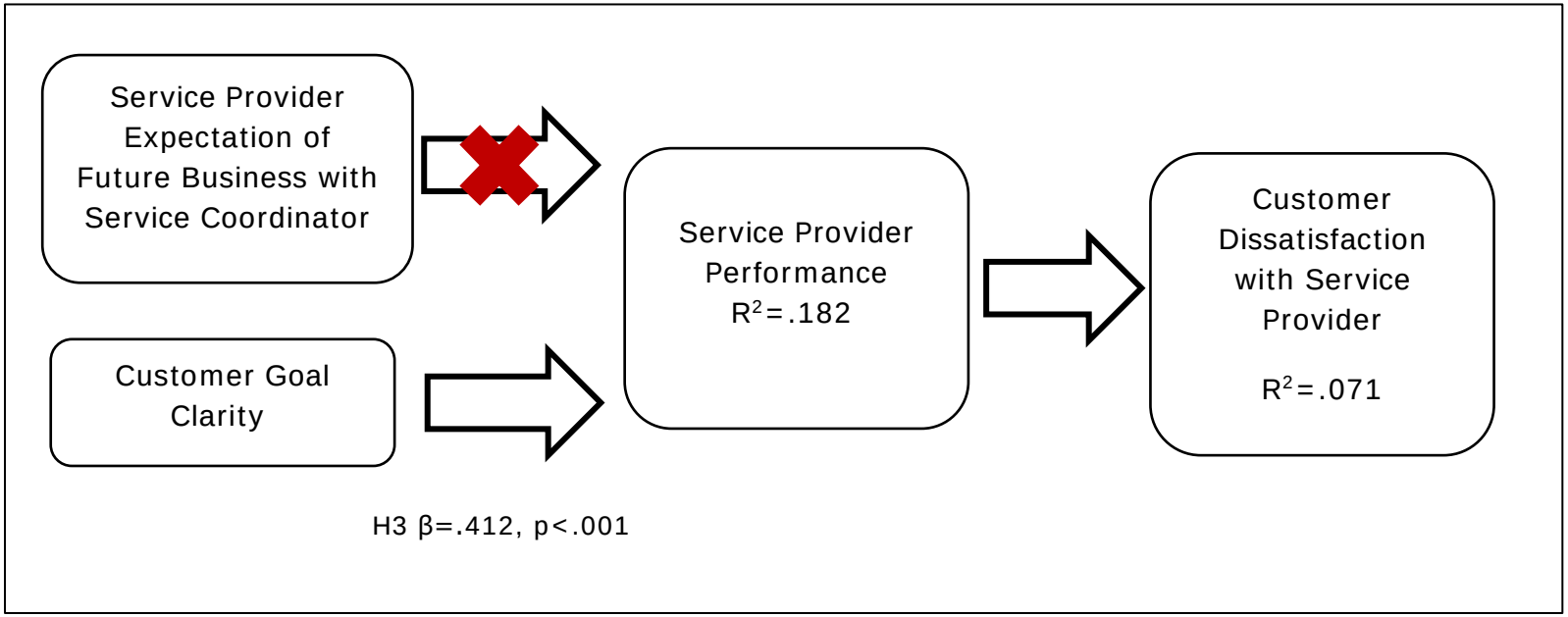


Table 7: *Results of PLS Estimation*

Hypotheses		β	Standard Deviation	T Statistic	P Value	5% C.I.	95% C.I.
H1(a)	Service Complexity » Goal Clarity	0.084	0.08	1.087	0.139	-0.041	0.224
H1(b)	Service Complexity » Process Clarity	-0.001	0.07	0.058	0.477	-0.101	0.126
H2	Goal Clarity » Process Clarity	0.491	0.067	7.33	0.000	0.381	0.604
H3	Goal Clarity » Service Provider Performance	0.412	0.085	4.726	0.000	0.237	0.519
H4(a)	Information Exchange Quality » Goal Clarity	0.182	0.101	1.786	0.037	0.018	0.351
H4(b)	Information Exchange Quality » Process Clarity	0.15	0.129	1.187	0.118	-0.068	0.361
H5	Coordinator Depth » Inform. Exchange Quality	0.081	0.025	3.222	0.001	0.038	0.119
H6(a)	Coordinator Breadth*Complexity » Goal Clarity	-0.067	0.073	0.966	0.167	-0.188	0.05
H6(b)	Coordinator Breadth*Complexity » Process Clarity	-0.028	0.07	0.408	0.342	-0.144	0.084
H7	Service Provider Expectation of Future Business with Service Coordinator » Service Performance	0.001	0.110	1.387	.436	-0.228	0.349
Controls							
	Customer Expertise » Goal Clarity	0.409	0.052	7.841	0.000	0.322	0.491
	Customer Expertise » Process Clarity	0.206	0.054	3.798	0.000	0.123	0.302
Other Non-Hypothesized Relationships							
	Service Complexity » Perceived Complexity	0.432	0.052	8.312	0.000	0.333	0.508
	Perceived Complexity » Goal Clarity	-0.013	0.076	0.158	0.437	-0.139	0.110
	Perceived Complexity » Process Clarity	-0.142	0.054	2.605	0.005	-0.225	-0.048
	Coordinator Breadth » Goal Clarity	0.125	0.059	2.135	0.016	0.026	0.220
	Coordinator Breadth » Process Clarity	0.038	0.06	0.653	0.257	-0.060	0.137
	Service Performance » Customer Dissatisfaction	-0.147	0.108	1.461	0.072	-0.312	0.036
	Service Provider Expectation of Future Business with Service Coordinator » Customer Dissatisfaction	-0.222	0.051	4.221	0.000	-0.300	-0.133
Note: SmartPLS bootstrapping with 2000 iterations. Pairwise deletion was used for missing data.							

Discussion

The purpose of this chapter was to provide some evidence of how a knowledge of complex services can inform research. Since the consequences of service complexity to the actors in the complex service network are potentially wide ranging, I addressed only some of the potential implications of service complexity, and complex service settings. Nevertheless, the results of this study were illuminating.

To address my research questions, I developed a theoretical model that combines service complexity as conceptualized and two role ambiguity constructs. Additionally, it included the impact the service coordinator, a service specialist role that is unique to complex services. I conducted research in the prototypical complex services setting of weddings.

Theoretical Contributions

This research examined weddings, a service context where it is suitable to use a different unit of analysis than the standard dyadic one so often employed in services research. Since so little is known about contexts like these, this study begins to draw the appropriate attention to complex services. This research contributes to theory in several ways.

This research began an examination into the complex service context and thus makes several contributions to the literature. It

presents a service context where it is appropriate to use a different unit of analysis than the standard dyadic one so often employed. It does so by demonstrating that customer's own role depends to some extent on the coordination of service delivery between independent service providers. Overall, the key findings reveal that the effect of service complexity and its corresponding actors on customer role ambiguity is far more nuanced than anticipated.

This research also makes a contribution by investigating the impact of a role in service delivery that is yet to be appropriately identified or appreciated: that of service coordinators, a role unique to complex services. At very least, this study provides evidence that the role of service coordinators is an influential one. Two paths of service coordinator influence on customer outcomes are revealed in the findings. First, the service coordinator impacts the customer directly. Secondly, the service coordinator affects the component service providers that together comprise the complex service event.

Implications for Customers and Service Providers

Complex service events present customers with an array of challenges in performing their role. It can be a daunting task for the customer to fulfil the requirements of her role. It can be difficult for the customer to evaluate the performance of each component service as the means-ends chain is often ambiguous. Consider the many

component services involved in a home remodel. For example, construction of a new wall includes an architect, carpenter, taper, painter, etc. It is difficult for the customer to evaluate the performance of each component service in isolation, for the interrelationships cannot be disentangled. If the new wall is excellent, the customer may assume that all component services were performed well, but sub-standard performance of foundational services could be masked by well-performed surface services. If the new wall does not meet the customer's expectations, it is difficult and perhaps impossible for the customer to accurately identify the source(s) of the problem.

As complex service events potentially pose many challenges for customers, they may partner with a service coordinator who can guide them through the process, assist with integration of providers, and help them avoid hidden pitfalls. The coordinator improves service outcomes by assisting the customer to make better decisions regarding component services (e.g. music, catering, décor) and provider selection (e.g. DJ, photographer, venue). Instead of suppressing the negative effect of complexity as hypothesized, service coordinators breadth of participation has a more direct main effect on customer goal clarity which in turn has a positive effect on service provider performance as judged by the customers themselves. Additionally, service coordinator depth of participation improved the

quality of the information exchanged between the two, which also improved customer goal clarity. Taken together, this suggests that active service coordinator participation aids the customer by improving the customer's ability to perform his or her role, therefore leading to better service outcomes for the customer.

Service providers also face myriad challenges in delivering their services in complex service settings, such as unfamiliar service actors with whom they must interface and demanding customers with narrower zones of tolerance for this important and expensive event. Each service provider's ability to satisfy the customer is linked to the activities of other service network actors over which they may have little influence. Given this complexity, this study explored how service coordinator involvement affects provider behavior. I hypothesized that a service coordinator creates greater incentives for strong provider service performance. In this study, I provided some evidence that a service provider's expectation of future business with the service coordinator improved customer satisfaction with that service provider. It is interesting to note that I tested the link from service provider expectation of future business to the customer evaluation of service performance and that link was weak and statistically insignificant. This suggests that often a customer cannot consciously discern the higher quality in service provider performance yet still be more satisfied.

A satisfied customer has some ability to deliver future business to a provider, but an impressed and satisfied service coordinator can soon route to the provider potential new customers with immediate, effective demand for that provider's services. This implies that even if customers know exactly what they want, know how to accomplish their goals, and have ample time and resources to achieve their aims, thus not needing a service coordinator as an advisor, they may still experience better service outcomes by utilizing a service coordinator because of how the presence of that service coordinator alters the service providers' incentive structure.

Limitations and Future Directions

As is true of any survey based study, this research has some limitations. The first is that it primarily relied on brides to act as informants/respondents. This research only explored one complex service setting and as such may not be generalizable to other settings. Future research could augment the findings here by replicating this study in other complex service contexts (e.g. health care, travel, real estate).

This study failed to test service complexity as originally conceptualized, since it was unsuccessful in utilizing an adequate measure of service interdependence. Future studies are needed to correct this problem. The effect of service complexity on the customer

role ambiguity constructs may also be illuminated by capturing customer goal and process clarity over time to help eliminate the potential endogeneity issues faced in this study, and help establish a more clear causal link. Future tests should also explore the possibility of non-linear effects as well.

This study also suffered from a power problem. The sample size of weddings with wedding planners (service coordinators) was only 55. A substantial number of these were destination weddings to all-inclusive resorts. These service contexts are more similar to preprogrammed service rather than idiosyncratic service networks. A larger sample is needed for moderation or multi-group tests. Consequently, a larger study or one with more service coordinators in idiosyncratic service networks is needed.

CHAPTER 5

Conclusion

In this dissertation, I addressed three related questions. What distinguishes complex services from simpler services? Why is inquiry into complex services needed? And how can a knowledge of complex services inform research?

In Chapter 3, I tacked the first two questions. To address what distinguishes complex services from simpler services I explored two deep-seated assumptions in the services literature that prevail in the vast majority of previous research in services domains. Accordingly, I developed an organizing framework for categorizing services that accommodates for diverse service settings. In particular, this framework answers what distinguishes complex services from simpler services, specifically, their fragmentation on the service provider side and the regularity of the service rhythm demand on the customer side.

To address why inquiry into complex services is needed, I explored how we arrived at the present state in services research. I also identified the service contexts that do not fit into the paradigm underlying prior services research. By relaxing the two assumptions I previously identified, I challenged some of the fundamental tenets that underlie the services literature and provided insight on neglected

service contexts. I also described the different types of service delivery systems as illustrated by the four quadrants of the framework. These descriptions highlight the differences between the various service contexts, illustrate why inquiry into complex services is needed, and offer new opportunities for meaningful services research.

In Chapter 4, I demonstrate how a knowledge of complex services informs research. The findings in this study suggest that complex services are indeed different. An indication of this difference is found in customers being affected by the involvement of service coordinators, a role unique to complex service contexts. I found evidence that the breadth of service coordinator participation had a positive impact on customers' goal clarity. Further, I discovered that service coordinator depth of participation also had a positive impact on customers' goal clarity by improving the quality of information exchanged.

Finally, by being involved in the service system, service coordinators provide an incentive aligning function. What customers get from service coordinators is not just a function of what they do, but also who they are. Even if customers know exactly what they want, know how to accomplish their goals, and have ample time and resources to achieve their aims--and thus do not need a service coordinator in this capacity--they may still experience better service

outcomes by using a service coordinator. One would not expect these third party effects in simpler services, thus giving credence to a macro perspective rather than a narrow dyadic focus.

APPENDIX

Table 8: *List of Constructs*

Construct	Definition
Co-creation of Value	Customer and service provider creation of value realized by consumption
Service Co-production	Customer and service provider participation in the creation of the core offering
Service Quality	The consumer's assessment of the service event's overall excellence or superiority (Oliver 1997)
Customer Goal Clarity	The extent to which customers understand their overall goals and objectives concerning the service event (Sawyer 1992)
Customer Process Clarity	The extent to which customers comprehend the procedures that must be followed in order to achieve goals and objectives for the service event (Sawyer 1992)
Service Delivery Network	The collective network of service providers, including sub-contractors and suppliers, that participate in value creating activities that result in a customer-integrated service offering
Service Value Network	The collective network of service providers, including sub-contractors and suppliers, that participate in value creating activities that result in a provider integrated service offering
Service Fragmentation	The process of decoupling integrated services from a unified package into separate stand-alone services often provided by different service organizations
Service Consolidation	The process of integrating stand-alone services into a unified package by a service provider
Service Scope	The total count of self-contained services joined together to comprise a service offering
Customer Heterogeneity	The degree to which customers' needs for an offering differ from each other
Economies of Scope	The degree to which the joint cost of producing two or more offerings is less than the sum of the costs of producing each offering separately
Service Interdependence	The degree of influence the successful performance of component service offerings comprising the service delivery network has upon the successful production and delivery of other component service offerings
Resource Integration	Actors' efforts to combine and use resources to create intended value
Service Rhythm	The degree to which the customer need for service occurs at predicable intervals or is knowable to all parties involved
Social Role	A particular set of recurring or routine activities that result from established social positions between two actors (Solomon et al. 1985)

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VITA

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