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"Service Encounter 2.0": An Investigation into The Roles of Technology, Employees and Customers

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Abstract

The service encounter – one of the foundational concepts in service research – is fundamentally changing due to rapid evolutions in technology. In this paper, we offer an updated perspective on what we label the "Service Encounter 2.0". To this end, we develop a conceptual framework that captures the essence of the Service Encounter 2.0 and provides a synthesis of the changing interdependent roles of technology, employees, and customers. We find that technology either augments or substitutes service employees, and can foster network connections. In turn, employees and customers are taking on the role of enabler, innovator, coordinator and differentiator. In addition, we identify critical areas for future research on this important topic.

"Service Encounter 2.0": An Investigation into The Roles of Technology, Employees, and Customers

1. Introduction

The context in which products and services are designed, produced, and consumed is changing at a frenetic pace. The rapid development of Artificial Intelligence (AI) and corresponding novel digital technologies and devices such as smartphones, advanced robotics, Intelligent Agents and the Internet of Things (IoT) are fundamentally altering the interplay between customers and organizations – thereby changing the roles of all involved actors. It is against this background that this paper seeks to understand how the transformed business environment is affecting the very nature of the service encounter – widely considered to be one of the foundational constructs of service research (Bitner & Wang 2014).

The objectives of this paper are three-fold. First, we seek to establish an evolved view of the service encounter – which we label Service Encounter 2.0 – that accounts for the changing context in which it takes place. This will not only help foster novel academic research on the topic, but it can also assist managers in adjusting their focus when making strategic decisions about service encounter design and management. Second, we put forward a synthesis of the changing interdependent roles of technology, employees, and customers in the Service Encounter 2.0 and discuss how they impact employee/customer outcomes. In conceptualizing these roles, we account for distinct business models - asset builder, service provider, network orchestrator, technology creator – as drivers of technology deployment. To our knowledge, no previous work integrates these various perspectives. Hence, this paper complements previous unilateral work on technology roles (e.g., Froehle & Roth 2004), employee roles (e.g., Bowen 2016) and customer roles (e.g., Bitner et al. 1997). Finally, we

develop a future research agenda that seeks to stimulate further work on the "Service Encounter 2.0".

We proceed as follows: section 2 introduces an updated definition of the service encounter, and then in section 3, we present the underlying framework of our study and discuss its various components and linkages. Finally, section 4 proposes various avenues for further research, followed by some concluding thoughts in section 5.

2. The Service Encounter 2.0

Early work on the service encounter defined it as "the dyadic interaction between a customer and a service provider" (Surprenant & Solomon, 1987, p. 87). The focus was on 'dyadic, human and role-driven' interactions between customers and employees (Solomon et al. 1985). In other words, the service encounter was mainly considered to be 'a game of people' driven by specific learned behaviors appropriate for the situation (i.e., roles) (Suprenant & Solomon, 1987). However, broader interpretations of the concept quickly became more common. Following Shostack's work (1985), the service encounter now refers to distinct moments where customers interact with a concrete service interface. The latter can be considered as an integration of people (i.e., employees, other customers), the physical environment, service processes and technology (Patrício et al., 2011). As such, service encounters also encompass customer interaction with company elements other than human actors such as the servicescape and self-service technologies.

This perspective, however, falls short of the current service reality. The context in which service is delivered and experienced has fundamentally changed in several ways (Ostrom et al. 2015). This warrants an updated perspective on the service encounter concept. Today, service encounters are enabled by complex service systems, which are configurations of resources, including people and technologies, that interact with other

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service systems to co-create value (Maglio et al. 2009). For example, a service encounter is now often realized by multiple providers working together in a service network (e.g., Tax, McCutcheon & Wilkinson, 2013). Also, customers themselves take on an increasingly active role to co-create the service encounter (McColl-Kennedy et al., 2012); sometimes also in interaction with other customers (Bone et al., 2015). Most importantly, the service interface is gradually evolving to become technology-dominant (e.g., Intelligent Assistants acting as service interface) rather than human-driven (i.e., service employee acting as service interface). This evolution is only expected to continue as customers, like companies, are increasingly interacting through technology themselves (Shankar et al., 2016). One such example is the use of smartwatches which track users' behaviors like walking and sleeping. These devices interact automatically with a service provider (e.g., Fitbit) for further data analysis. Here, customer-company interactions happen in an automated way, without customers taking any deliberate action.

In light of this evolved context, we consider the Service Encounter 2.0 to encompass *"any customer-company interaction that results from a service system that is comprised of interrelated technologies (either company- or customer-owned), human actors (employees and customers), physical/digital environments and company/customer processes."*

These encounters range from simple dyadic interactions to complex interactions that bring together multiple entities (human and non-human) through various interfaces. They entail human-to-human, human-to-technology and technology-to-technology interactions (Wünderlich, Wangenheim and Bitner, 2013).

In this paper, we take a particular interest in understanding how technology, as implemented by the company, impacts the human actors involved in the service encounter – i.e., employees and customers. This will be the focus of the remainder of this paper. We start by conceptualizing the different roles of technology in the service encounter and consider

how these are (in part) driven by the company's adopted business model. After, we consider how each of these roles impacts employees and customers.

3. A Conceptual Framework

To organize our discussion, we propose a conceptual framework that describes the driving forces of the Service Encounter 2.0 (i.e., technology taking on distinct roles in the service encounter) and its consequences for service employees and customers. The framework is outlined in Figure 1.

INSERT FIGURE 1 AROUND HERE

Technology takes a central position in the Service Encounter 2.0. Considering how a company can use technology in the service encounter, we distinguish three key roles: (1) augmentation of service employees, (2) substitution of service employees, and (3) network-facilitation (i.e., Marinova et al., 2017; Lamberton & Stephen, 2016). The occurrence of these technology roles is in large part driven by the company's business model. In section 3.1 we discuss the distinct roles of technology in connection with the adopted business model. In section 3.2, we identify how this shift induces new employee roles in the service encounter; doing the same for customers in section 3.3. In section 3.4, we discuss the impact of these changed roles on relevant outcomes and investigate how these relationships are moderated by employee/customer role readiness.

3.1 Roles for Technology in Today's Business Models

Following Libert, Fenly & Wind (2016) and Libert, Wind & Beck (2014), we concur that almost any company can be fitted into one of four dominant business models or a hybrid combination of these: Asset Builder, Service Provider, Network Orchestrator, and Technology Creator. The classification is based upon the way a company creates value.

Asset Builders deliver value through building, marketing, distributing and leasing physical things (physical capital). Examples include traditional retailers, logistics providers,

and industrial manufacturers. *Service Providers* deliver value through skilled people –

hence, value is mostly created by the company's employees for which they charge

customers (human capital). Examples include financial institutions, healthcare

organizations, and business consultants. *Network Orchestrators* deliver value through

connecting peers and establishing relationships via a platform (network capital). These peers

may sell products or services, build relationships, share advice, give reviews or collaborate.

Examples include social media businesses, review and sharing platforms. *Technology*

creators deliver value through ideas as they develop and sell intellectual property

(intellectual capital). Examples include software, analytics, and pharmaceutical companies.

Interestingly, companies often combine aspects of the above business models. Such

hybrid models attempt to find optimized solution spaces that create maximum company and

customer value. For example, many asset builders complement their core business with

service provider tactics - consider IBM's shift toward integrated service solutions and

management consulting. Also, many asset builders, service providers, and technology

creators are now rapidly developing network orchestrating skills. The goal is to create an

ecosystem that connects customers to a range of services, other customers and/or other

providers. Nike is a prime example of this tactic. Although its core business is

manufacturing and selling clothes and shoes (i.e., Asset Building), the company has now

developed its own ecosystem (Nike+) to connect its physical goods to the Internet. Users

can upload and track their activity reports, and share their progress with friends (Libert,

Wind & Beck 2014). This tactic allows Nike to develop stronger relationships with its

customer base, and creates additional customer and firm value.

The way companies make use of technology and its role in the service encounter

differs across the distinct business models. In the following paragraphs, we discuss each of

the three core technology roles – augmentation, substitution, network facilitation – in the

context of the four business models presented (see Table 1 for a summary). We clarify their connection further by means of existing examples[1].

INSERT TABLE 1 AROUND HERE

The first role of technology – ***augmentation of service employees*** – signifies technology's ability to assist and complement service employees in the service encounter (Marinova et al., 2017). In popular press, this is often referred to as Intelligence Augmentation (IA), reflecting situations in which technology supports human thinking, analysis and behavior. In other words, technology can be used in tandem with employees to provide a better service encounter outcome (Froehle & Roth, 2004). *Technology as augmentation* can typically be found in *Asset Builder* and *Service Provider* business models with the promise of enhancing employees' service delivery capacity. A prime example of augmentation in an asset builder context are smart glass CRM systems (Marinova et al., 2017). These can present employees with a real-time view of customer profiles, enabling up- and cross-selling opportunities and enhancing conversion rates (Bhat, Badri & Reddi, 2014). Another example is Lowe's recent introduction of the "LoweBot". This autonomous service robot helps customers find products and can answer simple questions. As a result, Lowe employees can spend more time offering specialty knowledge to customers. In a service provider context, healthcare organizations offer one of the most fertile grounds for technology augmentation. Here, Intelligent Assistants are increasingly complementing human care providers. For example, IBM's Watson now assists medical doctors in diagnosis, whereas service robots are increasingly collaborating with human medical staff in elderly care (van Doorn et al., 2017).

At the same time, advances in automation robots, sensor fusion, deep learning algorithms and smart devices are causing employees to become obsolete in their traditional

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[1] We note that these examples are not exhaustive of current possibilities and future evolutions. They merely serve for illustrative purposes.

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service encounter position. Thus, the second role of technology – **substitution of service employees** – reflects the purpose of replacing human (i.e., employee) input in the service encounter (Marinova et al., 2017). Service employees no longer take active part in the service encounter that becomes fully technology-generated (Froehle & Roth, 2004). Technology promises to increase service encounter quality and efficiency, omitting inherent human performance variability (Heskett, Sasser & Schlesinger, 2015). Similar to augmentation, we propose that *technology as substitution* is mainly found in *Asset Builder* and *Service Provider* business models. One example of substitution in asset builder models is the recent launch of the Amazon Go retail concept. Customers can walk in, grab the groceries they desire and then exit. Contact with a service employee at the check-out is no longer needed, and payment is made automatically via an Amazon account. In a service provider context, online banking, ATMs and financial apps have revolutionized the financial services industry and led to major job cuts (Sterling, 2016). As intelligent systems are now able to deliver more advanced services, we observe that also higher-level jobs are threatened (Marr, 2016). For example, U.S.-based law firm BakerHostetler is now making use of an artificially intelligent system, Ross, to help perform legal research and (potentially) replace part of the labor force in the future.

The third role of technology – **network facilitation** – refers to technology acting as an enabler of connections and relationships. Stimulated by the swift development of digital platforms (Lamberton & Stephen, 2016) and IoT (Ng and Wakenshaw, 2017), this role is rapidly gaining traction. Clearly, *Network Orchestrators* heavily build on such technologies. Rather than focusing on replacing human employees, these business models seek to use technology as a way to connect multiple entities in the service encounter – both human and technological. These constellations are also referred to as multi-sided markets defined by multiple distinct entities that provide each other, via a platform, with network benefits

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(Hagiu & Wright, 2015). Airbnb, for example, uses a technology-based platform to facilitate exchange between private house owners willing to rent their property with travelers. Likewise, Uber's platform connects private drivers and customers in need of transportation. Both Airbnb and Uber do not own physical assets – hotels and cars, respectively – but merely facilitate service exchange through use of network technology.

Technology Creators underlie and feed all technology roles. These companies mainly focus on developing the necessary technological solutions that enhance the technology-driven service encounters designed by the *Asset Builder*, *Service Provider,* and *Network Orchestrator*.

Taken together, we observe an increasing reliance on technology in the service encounter. From this, the question of how this changes people's roles in the service encounter becomes pertinent. In the following section, we discuss three key transformed roles for service employees that follow from technology's augmenting, substituting and network facilitating roles. After, in section 3.3, we will discuss how customer roles change in a similar manner.

3.2 Transformed Employee Roles

Building on earlier work from Bowen (2016) and Andreassen & Selnes (2001), we describe 4 transformed roles for employees in the Service Encounter 2.0 – the employee as an *Enabler, Innovator, Coordinator or Differentiator*. These roles are not mutually exclusive, meaning an employee might take on more than one role. Evidently, we recognize that the traditional service employee role – actual delivery of the service – still exists in many services today. The "service employee as the service"-principle (Booms & Bitner 1981) will also hold true for some services in the future. Building technological alternatives for every service is not economically viable in all circumstances. For example, some markets/segments might not be technology ready (Parasuraman, & Colby, 2015) or too

narrow to be served by machines/technology (Davenport & Kirby, 2016). However, it is important that we come to understand how the employee role is already changing in many service settings. This understanding will be of vital importance to managers and public policy makers to prepare for the future of the human workforce.

The first transformed employee role is that of *enabler*. In an enabling function, employees help both customers and technology to perform their respective service encounter roles well (Bowen 2016). Sometimes customers and/or technology can experience difficulties that lead to negative customer outcomes such as anger, frustration, and dissatisfaction. To prevent this from happening, employees can advise customers beyond the transaction and/or handle conflicts that result from technology failures or customers' incapacity to deal with a certain online interface (Andreassen & Selnes, 2001). Previous research also demonstrated service employees' enabler role to help gain user acceptance of novel technological interfaces (Wünderlich, Wangenheim & Bitner, 2013). The enabler role is not only relevant for front-line employees in augmentation situations, but back-office workers also have an equally strong enabling role when technology fully substitutes the human front-line (Ostrom et al., 2015).

Second, employees may act as *innovators* since human capital remains a non-substitutable source of creativity (Bowen, 2016). Actively dealing with customers in augmentation, functioning as the "front-line" for customer contact in substitution and monitoring connections in network facilitation, service employees, directly and indirectly, observe customer behaviors and reactions. This makes employees highly valuable assets in that they can serve as a barometer of the customer environment and actively pinpoint areas for service improvement (Ye, Marinova and Singh, 2012). Furthermore, machines have shown little creative ability until now (Brynjolfsson & McAfee, 2011). While this is perhaps gradually changing (Cornell Tech, 2016), we posit that employees as part of the service

system can still better read customer needs (Lages & Piercy, 2012). The important role of employees in innovation is evident in research showing that the more contact employees are involved in the service innovation process, the greater innovation volume and innovation radicalness (Ordanini & Parasuraman, 2011).

Third, employees can take on a ***coordinator*** position in the service encounter (Bowen, 2016). This role becomes increasingly prevalent as complex service systems comprised of multiple actors require active coordination to create successful outcomes (Ostrom et al., 2015). In these situations, employees can function as a leading party to harmonize and manage the interdependencies between different network partners (Tax, McCutcheon and Wilkinson, 2013). Also, a single service encounter does not typically stand by itself. Rather, it is often connected to a series of other encounters across multiple channels that together give shape to an overall customer experience (Lemon and Verhoef, 2016). The value of this experience is largely dependent on the consistency and connectedness of each distinct encounter (Homburg, Jozić and Kuehnl, 2017) – which can be managed by service employees in a coordinating role.

A final employee role is that of a ***differentiator*** (Bowen, 2016). The unique position of employees as a means to differentiate was already articulated by Heskett et al. (1990), and is still important today. Technology is not loyal, and can often be copied easily. Service employees and their skills, however, are less replicable (Wirtz and Jerger, 2017). Bolton et al. (2014) make the employee differentiator role explicit. In their view, authentic human touch can help differentiate offerings in the marketplace and display unique brand-building behaviors. This responds to Schneider and Bowen's (1999) reminder that customers are people first, and only customer second. Recent work by De Keyser, Schepers and Konuş (2015), for example, reveals that the need for human touch can be especially relevant in after-sales situations (e.g., service requests and failure handling). They show that seemingly

internet-savvy customers often prefer human contact in after-sales. This makes clear that the optimal balance between "tech" and "touch" must be found for every service encounter situation (Geibelhausen et al., 2014). In making these decisions, managers should keep in mind that service employees might add a unique dimension to technology, regardless of its functionality.

3.3 Transformed Customer Roles

Much like employees, customers also take on distinct and changing roles in the Service Encounter 2.0. These largely mirror those of the employee, and we again distinguish 4 different roles – the customer as an *Enabler, Innovator, Coordinator, and Differentiator*. These roles are not mutually exclusive and can occur at the same time.

In an ***enabler*** role, customers support employees and/or technology in the service encounter. The role of customers as 'partial employees' has been recognized for a long time now (Mills, Chase & Margulies, 1983; Bowen, 1986; Larson & Bowen, 1989), and has gradually expanded over the years (van Doorn et al., 2010). Customers are now active co-creators of the service encounter (Prahalad and Ramaswamy, 2004). Just consider withdrawing money from an ATM – this encounter can only happen with active input from the customer. While important in augmentation and substitution scenarios, the enabler role is especially relevant in technology-enabled network environments. On social media, for example, value is solely created by customers actively sharing personal information, stories, photos, reviews, and other relevant materials. Increasingly, customers have become valuable partners that support the company in living up to their service promise.

Second, customers may act as ***innovators*** as they take part in the development and delivery of new services. As 'free' consultants, customers may offer valuable feedback and ideas for innovation through interaction with employees, other customers and/or technological interfaces (Hoyer et al., 2010). Companies like Heinz, Philips, and Danone

have implemented online consumer consulting boards with the purpose of initiating customer-company collaboration and innovation (InSites Consulting, 2013). Starbucks invites customers to share innovative ideas on its 'MyStarbucksIdea'-platform. These ideas are then co-judged by other customers on their value (Verleye & De Keyser, 2016). Going one step further, Shapeways and Under Armour give customers the opportunity to fully customize offerings in line with one's own wishes, ideas and desires (Valenzuela, Dhar and Zettelmeyer 2009). Such initiatives can not only stimulate purchase behaviors. They also allow companies to acquire customer knowledge by observing innovations developed by customers and market response to these innovations (Cui & Wu, 2016). It makes that the innovator role is becoming an integral part of many corporate strategies, bringing benefits to both the company and the customer (Bleier, De Keyser & Verleye, 2017).

Like employees, the customer can also take a ***coordinator*** role in the service encounter. In this capacity, he or she acts as a resource integrator selecting and bringing together multiple related and/or unrelated parties in the service encounter (Tax, McCutcheon & Wilkinson, 2013). For example, in health care settings, patients with chronic diseases regularly participate actively in the treatment process, co-deciding upon the different parties involved (e.g., doctors, nurses, dieticians, personal trainer) and their designated activities (McColl-Kennedy et al. 2012). Customers as coordinators might also be involved in building communities of companies, employees, and customers – peer-to-peer problem-solving and brand communities being prime examples (Bone et al., 2015). These communities enable the transfer of information between all related parties and can add a novel social dimension to the service encounter.

A final customer role is that of ***differentiator***. As active participators in the Service Encounter 2.0, customers' influence on the service outcome has grown significantly (Bitner et al., 1997). This holds especially when technology acts as substitutor or network facilitator

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(see the customer enabling role). Following the saying "One is never better served than by oneself", effective customer participation can lead to higher service quality perceptions, satisfaction, and loyalty (Chan, Him & Lam, 2010). Participation allows direct input into the service encounter and fosters a greater sense of control over the outcome (Schneider and Bowen 1995). The opportunity to (in part) customize the service encounter increases the likelihood that customer needs are met (Bitner et al., 1997). Therefore, customers become increasingly self-responsible for positively differentiating a service encounter. Greater customer control over the service encounter process might also stir self-reliant customer segments to innovate services and technology to work for their own individualized purposes – differentiating the outcome from standardized service solutions (Moeller et al., 2013).

3.4 Employee and Customer Outcomes in the Service Encounter 2.0

From our above discussion, it is clear that employees and customers are now confronted with new roles in the service encounter. These new roles come with significant challenges for both employees and customers. Their ability to perform well (i.e., role performance) and the resulting experiences will largely depend on employee/customer role readiness (Bowen, 1986; Bitner et al. 2002; Meuter et al., 2005; Schneider & Bowen, 1995). The latter refers to a state or condition in which a person is prepared to perform a specific role (Meuter et al. 2005), and is driven by three factors: *role clarity* (i.e., does an employee/customer understand what is expected?), *ability* (i.e., is an employee/customer able to perform as expected?), and *motivation* (i.e., is an employee/customer willing to perform as expected?). Finally, both employees and customers should be provided feedback on how well they have performed their roles so they can improve their performance, if needed (Bowen, 1986). In what follows, we discuss employee and customer outcomes in the Service Encounter 2.0 and consider the moderating impact of employee/customer role readiness.

3.4.1 Employee Outcomes and the Moderating Impact of Role Readiness

The changing employee roles – enabler, innovator, coordinator, differentiator – will undoubtedly impact overall job performance and the resulting employee experience. Drawing from customer experience literature, we consider the latter to entail the totality of cognitive, emotional, behavioral, sensorial and social responses that result from interactions with other parties (e.g., customers, technology, etc.) (De Keyser et al., 2015; Lemon & Verhoef, 2016). The more an employee is "ready" to excel at one or more of his/her changed roles, and then performs well and feels rewarded for doing so, the more positive employee experience is likely to be. If, on the other hand, an employee is not ready to cope with changed job requirements, this will reflect negatively on role performance and employee experience. Therefore, companies need to invest significantly in preparing employees for their changing role in the service encounter (Bowen, 2016).

Employee role clarity is determined by one's understanding of the expectations that come with a specific service job (Teas, Wacker & Hughes, 1979). Clearly, the above-presented roles of enabler, innovator, coordinator and differentiator set additional job expectations above what is traditionally expected from a service employee. For example, a coordinating role requires employees to manage multiple parties in co-shaping the service encounter process, which is different from traditional dyadic settings. The more an employee is uncertain on how to execute his/her new role and what is expected, the lower job satisfaction and psychological well-being will be (Kahn et al., 1964). To avoid this negative outcome, managerial socialization processes are important. These allow employees to get familiar with and adopt required behavioral patterns and norms (Dubinsky et al., 1986). Clear feedback systems, the development of job guidelines and goal setting are key practices to increase role clarity (Wirtz and Jerger, 2017).

Employee role ability reflects the extent to which one is able to perform his or her job in line with what is expected (Bowen, 1986). Managerial support and training are key to

enhance employee ability. Employees must be equipped with the right skillset to be successful in their new roles. Three abilities are especially relevant in today's service environment: creativity, empathy (i.e., social skills) and digital fluency (e.g., Frey & Osborne, 2017; Colbert, Yee & George, 2016). Creativity and empathy are two areas where humans are still superior to technology, and are directly linked to the enabler, innovator and differentiator roles. Digital fluency, which reflects an employee's proficiency and comfort in achieving desired outcomes using technology (Colbert, Yee & George, 2016), is a key qualifier to function in the Service Encounter 2.0. As technology works in combination with human employees, it is important that the latter are able to deal with their novel 'partner'. While important in an enabling role, digital fluency is especially essential in coordinating many of today's (online) service networks. This, however, does not mean that traditional skills needed for service delivery should be neglected in training. In case of a technology breakdown, for example, employees should still be able to step in to guarantee successful service encounter outcomes.

Finally, employee role motivation reflects an employee's willingness to perform his/her role as expected and is impacted by managerial encouragement processes. The latter entail, for example, enriching job characteristics and the whole of appraisal and reward systems (e.g., Schneider & Bowen, 1995; Wirtz & Jerger, 2017). While decent financial remuneration through basic pay and performance bonuses is essential, performance appraisal, feedback and recognition from customers, colleagues, and managers are equally important motivational triggers (Wirtz & Jerger, 2017). Furthermore, employee empowerment will prove to be an increasingly important motivator – especially when one considers that all of the transformed employee roles require some freedom in dealing with customers and technology. Colbert, Yee & George (2016) note that gamification might offer a new interesting avenue to increase employee motivation. By using game mechanisms and

setting specific target goals, this approach assumes employee motivation can be pushed to a higher level (Shankar et al., 2016).

3.4.2 Customer Outcomes and the Moderating Impact of Role Readiness

Similarly, transformed customer roles will impact customer role performance (Bowen, 1986) and the resulting customer experience. Customer experience encompasses the totality of sensations, feelings, cognitions, social and behavioral responses that result from interacting with other parties – employees, technology, etc. (Lemon & Verhoef, 2016). Again, we argue for the importance of role readiness. The "readier" a customer, the better his/her performance will be and the higher the benefits he/she can obtain from the service encounter.

Customer role clarity reflects customer's knowledge and understanding of what to do in a specific role (Bowen, 1986; Meuter et al. 2005). Despite the growing prevalence of each transformed customer role today, not all customers are clear on what is expected from them. This holds especially true for fully technology-enabled interactions where no human counterpart is present – consider elder people interacting with self-service technology. Given the possible detrimental effects for both customer and company, managers may opt to socialize their customers (Verleye, 2014). Previous research has shown that companies can socialize customers through communication of role expectations (e.g., Bowen, 1986) and educating customers about their role (e.g., Bettencourt et al., 2002). The website of Lego's Digital Designer ([www.ldd.lego.com)](www.ldd.lego.com), for example, highlights customers' innovator role through the slogan "Build Freely and Share with the World" (Bleier, De Keyser & Verleye, 2017).

Customer role ability relates to customers having the necessary skills and confidence to engage in their transformed roles (Meuter et al., 2005). This is a very important factor as many customers are still low on technology readiness and uncertain how to deal with a non-

human interface (Parasuraman and Colby, 2015). Consequently, companies should invest in providing clear guidance and training to their customers so that they can be successful in their roles (Verleye, 2014). Lowe's, for example, offers a diverse set of "How To"-videos that offer detailed descriptions to get a variety of jobs done – supporting a customer's enabling role. Nike, on its end, implemented a clear step-by-step procedure to assist customers in their online customization efforts – supporting their innovator role.

Finally, customer role motivation is an expression of the extent to which a customer is willing to take on a specific service encounter role (Bowen, 1986; Meuter et al., 2005). Willingness is stimulated by the perceived benefits that would result from specific behaviors such as taking on an enabler, innovator, coordinator or differentiator role (Blau, 2004). If these benefits are limited, customers might not perform as needed. For example, some customers might be reluctant to deal with self-service technology (Reinders, Dabholkar & Frambach, 2008) or online customization tools (de Bellis et al., 2016) as they do not perceive any increase in customer added value. Therefore, companies must signal the potential experiential returns of proper role behavior through customer encouragement processes. Weight Watchers, for example, signals the benefits gained by using its online tools, such as gaining new knowledge on dieting (cf. cognitive benefit) and connecting with peers (cf. social benefit) (Verleye, 2014). As a result, many of its customers have a clear view of the benefits therein, and display higher motivation to co-create the service encounter.

3.4.3 The Mirror Effect Between Employee and Customer Outcomes

Clearly, employee and customer outcomes do not stand independently. As both parties are co-creating the service encounter, their respective performance will impact the counterpart – often labeled as the mirror effect in literature (e.g., Heskett, Sasser & Schlesinger, 2015). For instance, customer ability to perform a specific role is important for employees directly

or indirectly dealing with those customers. Employees may feel dissatisfied and stressed in situations where customers cause service failures due to a lack of customer performance (Lachman, 2000). Vice versa, employees failing to perform their roles may also hinder customer performance – think of a frontline employee unable to repair a technology failure – and lead to a negative customer experience. As such, it is important to account for the all entities involved in the service encounter when attempting to understand their respective encounter roles and outcomes.

4. A Research Agenda

In this conceptual article, we present a framework that discusses the changing interdependent roles of technology, employees and customers in the Service Encounter 2.0, and consider how these impact important outcomes. We further recognize the importance of role readiness for any employee or customer to acclimate in this new environment. While this article serves as a first step toward an enhanced view of the service encounter, much remains to be discussed. In what follows, we highlight possible avenues for future research. This section is organized around core themes with a summary of specific research questions provided in Table 2.

<center>*INSERT TABLE 2 AROUND HERE*</center>

Service Encounter Design

Companies must think strategically about the design of the service encounter (Patrício et al., 2011). Given the complexity of the business environment, multiple design choices are to be made. Managers must first decide on the balance between human and technological input – ranging from fully technology-driven service encounters (i.e., machine-to-machine) to human-only service encounters (i.e., human-to-human). The preferred combination is likely to depend upon the involved customer segments, the product/service being sold and the stage of the customer journey (De Keyser, Schepers & Konuş, 2015); while also impacted

<center>20</center>

by the customer's job-to-be-done (Christensen et al., 2016). It is also important to note that technology might not always be the preferred option, given its inherent computational, creativity, and social limits (Frey & Osborne, 2017).

An additional layer of complexity is added as service encounters are now often realized by multiple connected parties (i.e., moving beyond the dyadic service interaction). This begs the question on how directly and indirectly related parties are best managed, and who should take the lead in this process – the company or the customer? Who is responsible in case of service encounter failure? And how does this reflect upon the other involved parties?

Also, the design of any single service encounter should acknowledge its linkage to other encounters (Lemon & Verhoef, 2016). Managers are thus faced with a quest to design smooth encounter transitions – customer journeys - across multiple channels, technologies, people and other related parties (Tax, McCutcheon & Wilkinson, 2013). The increasingly important service design movement provides a wide array of methods, tools and human-centered philosophies that can help with this challenge (Lemon & Verhoef, 2016; Ostrom et al., 2015).

Employee and Customer Training, Performance Appraisal and Feedback

To perform well, employees and customers must develop specific skills that allow them to execute their role(s) in the service encounter (Verleye, 2014). For example, employees as enablers must possess competencies of both technology readiness and interpersonal skills (Bowen, 2016). To date, however, much remains unknown on what specific skills and competencies underlie every distinct role. Yet, this knowledge is crucial for the development of effective training practices. The latter can be various in nature and entail traditional (i.e., in person) and more innovative (i.e., computer-mediated, gamification) tools (Moorman & Day, 2016). Training and education might also be effective to overcome employee and/or

customer resistance against a changing service encounter. Not every individual is eager to work with technology and might experience distrust and anxiety, which can ultimately lead to service sabotage (Harris & Ogbonna, 2002).

Further, new metrics should come to track employee and customer performance in the service encounter and their experience thereof (Shankar et al., 2016), and link these different metrics. For example, employees as innovators might be judged on their actual contribution to service improvement processes, whereas customers as innovators might be monitored through their customer knowledge value (Kumar et al., 2010). These adapted metrics could then provide valuable information for employee evaluation, the development of novel incentive schemes and the valuation of customers. Especially for customers, we argue that companies should move beyond simple customer satisfaction measurement. Rather, measuring customer role performance and providing feedback on how well customers execute their various roles can help boost future role performance. Uber, for instance, allows its drivers to rate customers and shares aggregate scores from 1 to 5 with its customers. Being relatively new in practice, rating customers might lead to some resistance as evaluation becomes a two-way street.

At the same time, more research is needed on how employees experience the service encounter. Notwithstanding major interest in customer experience (e.g., Lemon & Verhoef, 2016), research on the employee experience is currently lacking. Employee experience is a topic deserving of far more elaboration and research. Borrowing from the work on customer experience, employee experience needs to be conceived and measured with the same longitudinal, journey perspective. A structured analysis of the employee experience, its exact conceptualization and measurement could strongly advance our knowledge of (service) employees.

Organizational Challenges

Companies need to stay at the forefront of the dynamic forces that are fundamentally changing the service encounter setting. Therefore, they must develop adaptive capabilities that allow to anticipate changes on the market (i.e., vigilant learning), experiment with multiple service encounter setups (i.e., adaptive experimentation) and develop strong relationships with technology-creating and other parties (i.e., open marketing) (Day, 2011).

Furthermore, any company should continuously evaluate its current business model (i.e., mix of capabilities, partnerships and strategies) and consider how characteristics of other models can complement the current one to create better service experiences. The goal should be to create an optimized (hybrid) model that emerges from a blend of (disrupted) business models that create value through a fusion of physical (asset builder), human (service provider), intellectual (technology creator), and network (network orchestrator) capital. Effective company leadership will be critical to such change (Moorman and Day, 2016).

Other

The by technology accelerating organizational change is not only transforming service employee roles. It is also causing the disappearance of many traditional service jobs. Indeed, recent work by Frey and Osborne (2017) estimates that around 47 percent of total US employment risks to be replaced by technology. Clearly, such change represents a critical event for any involved actor and typically leads to an increase in employee uncertainty, anxiety, stress and resistance (Shah, Irani & Sharif, 2017). More research is needed to uncover how threats of obsolescence affect employee experience. Also, what should happen with the large numbers of "substituted" employees? Here, it is especially important for public policy makers and schools to figure out what capabilities are needed to survive in such fast-changing business environment and how education programs should be adapted to prepare students for the workforce of the future.

5. Concluding Thoughts

As technology is fundamentally changing the nature of the service encounter, managers will need to take important decisions on how to best manage and mix all involved parties. In this paper, we have emphasized that technology, employees and customers can take on different roles. Companies that figure out ideal role combinations across distinct service encounters along the customer journey will gain a competitive advantage. Acknowledging inherent customer and employee heterogeneity to perform well in their transformed roles and recognizing the limits of technology will be key managerial capacities in the future. While our framework offers a first insight, new theory and empirical research is needed in support of this exciting area in service management.

6. References

Andreassen, T. W., & Selnes, F. (2001). *Service Heroes*. Stoelen Publishing.
Austin, J. (2015). World's first human-like AI robot who could one day take YOUR job... and she's terrifying http://www.express.co.uk/news/science/630352/World-s-first-human-like-AI-robot-one-day-take-YOUR-job-terrifying Accessed October 8 2016.

Bettencourt, L. A., Ostrom, A. L., Brown, S. W., & Roundtree, R. I. (2002). Client co-production in knowledge-intensive business services. *California Management Review*, 44(4), 100-128.

Bhat, A., Badri, P., & Reddi, U. S. (2014). Wearable devices: the next big thing in CRM. Teaneck, NL: Cognizant 20-20 Insights.

Bitner, M. J., Faranda, W. T., Hubbert, A. R., & Zeithaml,V. A. (1997). Customer contributions and roles in service delivery. *International Journal of Service Industry Management*, 8 (3) 193-205.

Bitner, M. J., Ostrom, A. L., & Meuter, M. L. (2002). Implementing successful self-service technologies. *Academy of Management Executive*, 16(4), 96-108.

Bitner, M. J., & Wang, H. S. (2014). Service Encounters in Service Marketing Research. In R. Rust & M.-H. Huang (Eds.), *Handbook of Service Marketing Research* (pp. 221-243). Cheltenham, UK: Edward Elgar Publishing.

Blau, P. M. (2004). *Exchange & power in social life*. New York: Wiley.

Bleier, A., De Keyser, A., & Verleye, K. (2017). Customer engagement through personalization and customization. In R. W. Palmatier, V. Kumar, & C. M. Harmeling (Eds.), *Customer Engagement Marketing* (in press). Palgrave Macmillan.

Bolton, R. N., Gustafsson, A., McColl-Kennedy, J., Sirianni, N. J., & Tse, D. K. (2014). Small details that make big differences: A radical approach to consumption experience as a firm's differentiation strategy. *Journal of Service Management*, 25 (2), 253–274.

Bone, S. A., Fombelle, P. W., Ray, K. R., & Lemon, K. N. (2015). How customer participation in B2B peer-to-peer problem-solving communities influences the need for traditional customer service. *Journal of Service Research*, 18(1), 23-38.

Bowen, D. E. (1986). Managing customers as human resources in service organizations. *Human Resource Management*, 25 (3), 371-83.

Bowen, D. E. (2016). The Changing Role of Employees in Service Theory and Practice: An Interdisciplinary View. *Human Resource Management Review*, 26(1), 4-13.

Bowen, D. E., & Jones, G. R. (1986). Transaction cost analysis of service organization-customer exchange. *Academy of Management Review*, 11(2), 428-441.

Brynjolfsson, E., & McAfee, A. (2011). *Race against the machi*ne. Lexington, Mass: Digital Frontier Press.

Chan, K. W., Yim, C. K. B., & Lam, S. S. K. (2010). Is customer participation in value creation a double-edged sword? Evidence from professional financial services across cultures. *Journal of Marketing*, 74(3), 48-64.

Christensen, C. M., Dillon, K., Hall, T., & Duncan, D. S. (2016). *Competing against luck: The story of innovation and customer choice*. New York: HarperCollins.

Colbert, A., Yee, N., & George, G. (2016). The digital workforce and the workplace of the future. *Academy of Management Journal*, 59(3), 731-739.

Cornell Tech (2016). Can machines be creative? https://tech.cornell.edu/news/can-machines-be-creative Accessed February 6, 2017

Cui, A. S., & Wu, F. (2016). Utilizing Customer Knowledge in Innovation: Antecedents and Impact of Customer Involvement on New Product Performance. *Journal of the Academy of Marketing Science*, 44(4), 516-38.

Davenport, T. H. & Kirby, J. (2016). *Cognitive Technologies: The Next Step Up for Data and Analytics*, MIT Webinar, 29.01.16

de Bellis, E., Sprott, D. E., Hermann, A., Bierhoff, H.-W., & Rohmann, E. (2016). The influence of trait and state narcissism on the uniqueness of mass-customized products. *Journal of Retaling*, 92(2), 162-172.

Day, G. (2011). Closing the marketing capabilities gap. *Journal of Marketing*, 75(4), 183-195.

De Keyser, A., Lemon, K.N., Klaus, P., & Keiningham, T.L. (2015). A Framework for Understanding and Managing the Customer Experience. *Marketing Science Institute Working Paper Series 2015*, Report No. 15-121.

De Keyser, A., Schepers, J., & Konuş, U. (2015), Multichannel customer segmentation: Does the after-sales channel matter? A replication and extension. *International Journal of Research in Marketing,* 32 (4), 453-456.

Dubinsky, A. J., Howell, R. D., Ingram, T. N., & Bellenger, D. N. (1986). Salesforce socialization. *Journal of Marketing*, 50(4), 192-207.

Frey, C. B., & Osborne, M. A. (2017). The future of employment: how susceptible are jobs to computerisation. *Technological Forecasting & Social Change*, 114, 254-280.

Froehle, C., & Roth, A.V. (2004). New measurement scales for evaluating perceptions of the technology-mediated customer service experience. *Journal of Operations Management*, 22 (1), 1-21.

Geibelhausen, M., Robinson, S. G., Sirianni, N. J., & Brady, M. K. (2014). Touch versus tech: When technology functions as a barrier or a benefit to service encounters. *Journal of Marketing*, 78(4), 113–124.

Hagiu, A., & Wright, J. (2015). Multi-sided platforms. *International Journal of Industrial Organization*, 43(November), 162-174.
Harris, L. C., & Ogbonna, E. (2002). Exploring service sabotage: the antecedents, types and consequences of frontline, deviant, antiservice behaviors. *Journal of Service Research*, 4(3), 163-183.

Heskett, J. L., Sasser, W. E. Jr., & Hart, W. C. (1990). *Service breakthroughs: Changing the rules of the game*. New York: The Free Press.

Heskett, J. L., Sasser, W. E. Jr., & Schlesinger, L. A. (2015). *What great service leaders know and do*. Oakland: Berrett-Koehler.

Homburg, C., Jozié, D., & Kuehnl, C. (2017). Customer experience management: toward implementing an evolving marketing concept. *Journal of the Academy of Marketing Science*, 45(3), in press.

Hoyer, W. D., Chandy, R., Dorotic, M., Krafft, M., & Singh, S. S. (2010). Consumer co-creation in new product development. *Journal of Service Research*, 13(3), 283-296.

Insites Consulting (2013). *The consumer consulting board*. Belgium, Ghent.

Kahn, R. L., Wolfe, P. M., Quinn, R. P., Snoek, J. D., & Rosenthal, R. H. (1964). *Organizational Stress.* New York: John Wiley & Sons, Inc.

Kumar, V., Aksoy, L., Donkers, B., Venkatesan, R., Wiesel, T., & Tillmanns , S. (2010), Undervalued or Overvalued Customers: Capturing Total Customer Engagement Value. *Journal of Service Research*, 13(3), 297-310.

Lachman, R. (2000). Stepping into the kitchen: lay clients as co-producers of a professional service. *International Journal of Human Resource Management*, 11(3), 617-634.

Lages, C. R., & Piercy, N. F. (2012). Key drivers of frontline employee generation of ideas for customer service improvement. *Journal of Service Research*, 15 (2), 215–230.

Lamberton, C., & Stephen, A. T. (2016). A thematic exploration of digital, social media, and mobile marketing: research evolution from 2000 to 2015 and an agenda for future inquiry. *Journal of Marketing*, 80(6), 146-172.

Larsson, R., & Bowen, D. E. (1989). Organization and customer: managing design and coordination of services. *Academy of Management Review*, 14 (2), 213-233.

Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of Marketing*, 80(6), 69-96.

Libert B., Fenley, M. B., & and Wind Y. (2016). Network Revolution: Creating Value through Platforms, People and Technology, *Knowledge at Wharton*, http://knowledge.wharton.upenn.edu/article/the-network-revolution-creating-value-through-platforms-people-and-digital-technology/ Accessed June 12 2016.

Libert, B., Wind, Y., & Beck, M. (2014). What Airbnb, Uber, and Alibaba Have in Common, *Harvard Business Review*, https://hbr.org/2014/11/what-airbnb-uber-and-alibaba-have-in-common Accessed June 12 2016.

Maglio, P. P., Vargo, S. L., Caswell, N., & Sphorer, J. (2009). The service system is the basic abstraction of service science. *Information Systems E-Business Management*, 7(4), 395-406.

Marinova, D., de Ruyter, K., Huang, M.-H., Meuter, M. L., & Challagalla, G. (2017). Getting smart: learning from technology-empowered frontline interactions. *Journal of Service Research*, 20(1), 29-42.

Marr, B. (2016). Surprisingly, these 10 professional jobs are under threat from big data. http://www.forbes.com/sites/bernardmarr/2016/04/25/surprisingly-these-10-professional-jobs-are-under-threat-from-big-data/#42c638594e10 Accessed February 5 2017.

McColl-Kennedy, J. R., Vargo, S. L., Dagger, T. S., Sweeney, J. C., & van Kasteren, Y. (2012). Health care customer value cocreation styles. *Journal of Service Research*, 15(4), 370-389.

Meuter, M. L., Bitner, M. J., Ostrom, A. L, & Brown, S. W. (2005). Choosing Among Alternative Service Delivery Modes: An Investigation of Customer Trial of Self-Service Technologies. *Journal of Marketing*, 69(2), 61-83.

Mills, P. K., Chase, R. B., & Margulies, N. (1983). Motivating the client/employee system as a service production strategy. *Academy of Management Review*, 8 (2), 301-310.

Moeller, S., Ciuchita, R., Mahr, D., Odekerken-Schröder, G., & Fassnacht, M. (2013). Uncovering Collaborative Value Creation Patterns and Establishing Corresponding Customer Roles. *Journal of Service Research*, 16(4), 471-487.

Moorman, C., & Day, G. S. (2016). Organizing for Marketing Excellence. *Journal of Marketing*, 80(6), 6-35.

Ng, I. C. L., & Wakenshaw, S. Y. L. (2017). The internet-of-things: review and research directions. *International Journal of Research in Marketing*, in press.

Ordanini, A., & Parasuraman, A. (2011). Service innovation viewed through a service-dominant logic lens: A conceptual framework and analysis. *Journal of Service Research*, 14 (1), 3–33.

Ostrom, A. L., Parasuraman, A., Bowen, D. E., Patrício, L., & Voss, C. A. (2015). Service research priorities in a rapidly changing context. *Journal of Service Research*, 18(2), 127-159.

Parasuraman, A., & Colby, C. L. (2015). An Updated and streamlined technology readiness index TRI 2.0. *Journal of Service Research*, 18(1), 59-74.

Patrício, L., Fisk, R. P., Falcão e Cunha, J., & Constantine, L. (2011). Multilevel service design: From customer value constellation to service experience blueprinting. *Journal of Service Research*, 14(2), 180-200.

Prahalad, C. K., & Ramaswamy, V. (2004). Co-creation experiences: the next practice in value creation. *Journal of Interactive Marketing*, 18(3), 5-14.

Reinders, M. J., Dabholkar, P. A., & Frambach, R. T. (2008). Consequences of forcing consumers to use technology-based self-service. *Journal of Service Research*, 11(2), 107-123.

Shankar, V., Kleijnen, M., Ramanathan, S., Rizley, R., Holland, S., & Morissey, S. (2016). Mobile shopper marketing: key issues, current insights, and future research avenues. *Journal of Interactive Marketing*, 34, 37-48.

Shah, N., Irani, Z., & Sharif, A. M. (2017). Big data in an HR context: exploring organizational change readiness, employee attitudes and behaviors. *Journal of Business Research*, 70, 366-378.

Schneider, B., & Bowen, D.E. (1995). *Winning the service game.* Boston, Mass.: Harvard Business School Press.

Schneider, B., & Bowen, D.E. (1999). Understanding customer delight and outrage. *Sloan Management Review*, 41 (Fall), 35–45.

Shostack, G. L. (1985). Planning the service encounter. In J. A. Crepiel, & M. R. Solomon (Eds.), *The Service Encounter* (pp.243-254). MA: Lexington Books.

Sterling, T. (2016). Dutch bank ING is cutting 7,000 jobs in its biggest restructure since the 2008 crash. http://uk.businessinsider.com/ing-group-cuts-7000-jobs-in-major-digital-restructure-2016-10?r=UK&IR=T Accessed February 5 2017.

Suprenant, C. F., & Solomon, M. R. (1987). Predictability and personalization in the service encounter. *Journal of Marketing*, 51 (April), 86-96.

Tax, S. S., McCutcheon, D., & Wilkinson, I. F. (2013). The service delivery network (SDN): A consumer-centric perspective on the customer journey. *Journal of Service Research*, 16 (4), 454-470.

Teas, R. K., Wacker, J. G., & Hughes, R. E. (1979). A Path Analysis of Causes and Consequences of Salespeople's Perceptions of Role Clarity. *Journal of Marketing Research*, 16 (3), 355-369.

Valenzuela, A., Dhar, R., & Zettelmeyer, F. (2009). Contingent response to self-customization procedures: implications for decision satisfaction and choice. *Journal of Marketing Research*, 46(6), 754-763.

van Doorn, J., Lemon, K. N., Mittal, V., Nass, S., Pick, D., Pirner, P., & Verhoef P. C. (2010). Customer Engagement Behavior: Theoretical Foundations and Research Directions. *Journal of Service Research*, 13 (3), 253-266.

van Doorn, J., Mende, M., Noble, S. M., Hulland, J., Ostrom, A. L., Grewal, D., & Petersen, J. A. (2017). Domo Arigato Mr. Roboto: Emergence of Automated Social Presence in Organizational Frontlines and Customers' Service Experiences. *Journal of Service Research*, 20(1), 43-58.

Verleye, K. (2014). Designing service interfaces for customer engagement in the creation of value. In J. Kandampully (Ed.), *Customer experience management: enhancing experience and value through service management* (pp. 73-97). Dubuque, IA: Kendall Hunt Publisher.

Verleye, K. (2015). The co-creation experience from the customer perspective: its measurement and determinants. *Journal of Service Management*, 26 (2) 321-342.

Verleye, K., & De Keyser, A. (2016). Customer engagement in technology-based and high-contact interfaces. In R. J. Brodie, L. D. Hollebeek, & J. Conduit (Eds.), *Customer engagement: contemporary issues and challenges* (pp. 137-151). Oxon: Routledge.
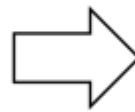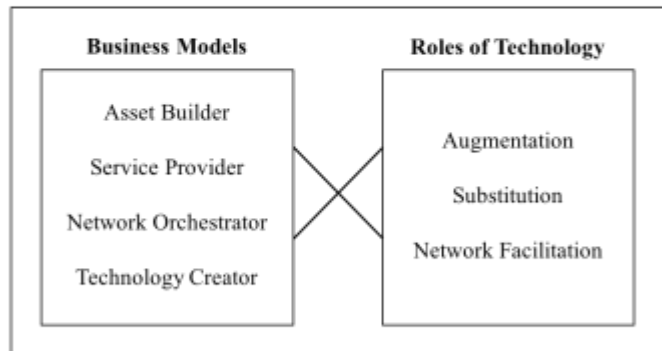
Wirtz, J., & Jerger, C. (2017). Managing service employees: literature review, expert opinions, and research directions. *The Service Industries Journal*, 36(15-16), 757-788.

Wünderlich, N. V., v. Wangenheim, & Bitner, M. J. (2012). High tech and high touch: a framework for understanding user attitudes and behaviors related to smart interactive services. *Journal of Service Research*, 16(1), 3-20.

Ye, J., Marinova, D., & Singh, J. (2012). Bottom-up learning in marketing frontlines: conceptualization, process, and consequences. *Journal of the Academy of Marketing Science*, 40(6), 821-844.

Figure 1: Conceptual Framework

Business Models and The Roles of Technology

Business Models	Roles of Technology
Asset Builder	Augmentation
Service Provider	Substitution
Network Orchestrator	Network Facilitation
Technology Creator	

Transformed Roles and Outcomes for Employees and Customers in the Service Encounter 2.0

Transformed Roles for Employees: Enabler, Innovator, Coordinator, Differentiator

Employee Outcomes: Employee Role Performance, Employee Experience

Role Readiness: Role Clarity, Ability, Motivation

Transformed Roles for Customers: Enabler, Innovator, Coordinator, Differentiator

Customer Outcomes: Customer Role Performance, Customer Experience
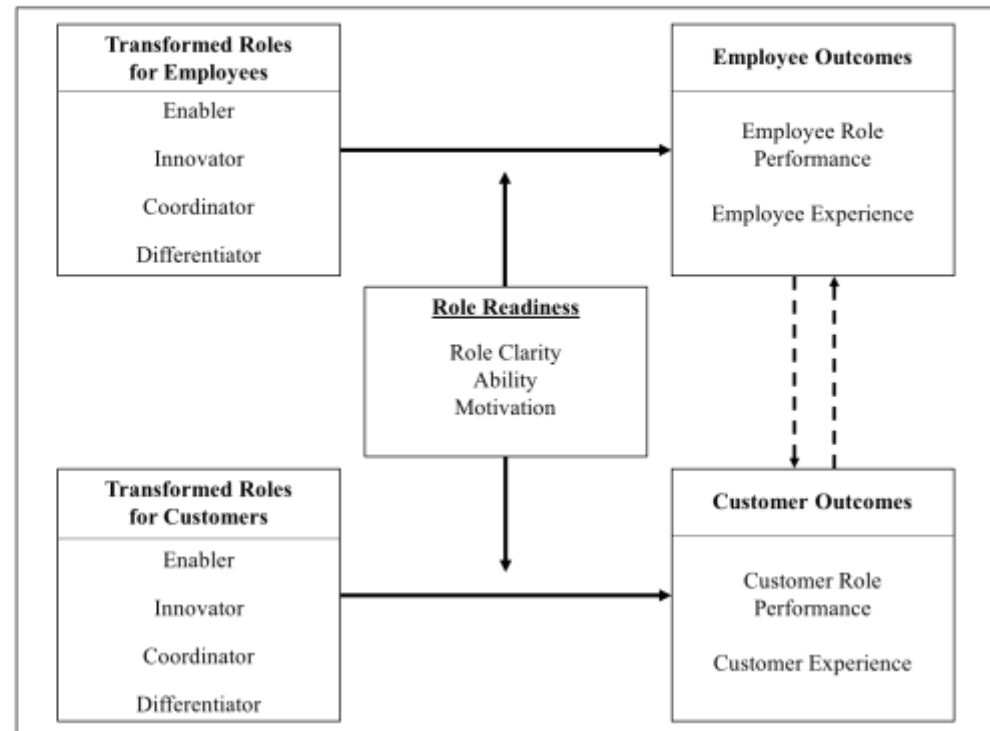
Table 1: Business Models & Technology Roles

Business Models	Roles of Technology		
	Augmenting (technologies that supplement the service employee's role and capabilities)	**Substituting** (technologies that replace the service employee)	**Network Facilitating** (technologies that provide the basis for and enhance the use of network strategies)
Business models that are enhanced by technologies	*Asset Builder* (e.g., wearables) *Service Provider* (e.g., Intelligent Assistants)	*Asset Builder* (e.g., automation systems) *Service Provider* (e.g., self-service technology, chatbot)	*Network Orchestrator* (e.g., digital platforms, IoT)
Business models that focus on creating technologies	*Technology Creator* (create novel technologies that underlie the other business models – e.g., analytic software, communication technology, …)		

Table 2: Future Research Directions

Core Theme	Research Questions
Service Encounter Design	• What is the optimal human-technology mix in the service encounter - taking into account customer segment, product/service category and stage of the customer journey? • What jobs can employees perform better than technology? And vice versa? • How to manage multiple directly and indirectly related parties that contribute to the service encounter? Is there a preferred coordination model? • How can managers guarantee a smooth transition across multiple service encounters in a customer journey? • How can service design principles be applied to improve the service encounter?
Employee and Customer Training, Performance Appraisal and Feedback	• What specific skills and competencies underlie each of the identified roles – enabler, innovator, coordinator, differentiator? • How can companies help adapt and train employees and customers to their new roles in the service encounter? • How can training and education help avoid employee/customer resistance? • What (new) metrics can be used to track role performance for employees and customers? • How do companies best measure employee and customer experience? And its interplay? • How can we give feedback to employees and customers, and what is the impact of that on their role performance?
Organizational Design	• How can companies develop adaptive capabilities to manage the fast-changing service encounter? • What new capabilities are needed in the Service Encounter 2.0? • What is the optimal business model (or blend) for success in the Service Encounter 2.0? • What are the most effective leadership styles?
Other	• How does the growing threat of obsolescence affect employee experience? • What should be done with the large numbers of "substituted" employees? • What education (elementary school / high school / university) is needed to prepare students for the workforce of the future?