Transforming technology-mediated healthcare services through strategic sense-giving

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Transforming technology-mediated healthcare services through strategic sense-giving

Abstract

Purpose: Service research has previously documented service providers’ role in addressing the barriers of technology mediation, mostly at the service delivery level. However, there is still limited understanding about the role of service providers who hold strategic and operational roles, as well as the impact of coordinated, organization-wide initiatives in dealing with the demands and associated emotional ambivalence of technology mediated services.

Design/methodology/approach: This qualitative study draws from a series of in-depth interviews with healthcare service providers who hold strategic and operational roles in healthcare organizations along with participant observation in order to develop an understanding of the broader organizational context of telehealth services.

Findings: We outline the strategic sense-giving process and highlight how healthcare service providers who hold strategic and operational roles enact the sense-giver role. We illustrate that strategic sense-giving involves the (a) recognition of sense-making gaps; (b) identification of sense-giving opportunities; and (c) provision of templates of action.

Originality/value: We illustrate that sense-giving can be performed by a number of organizational members in a more formalized way which extends informal sense-giving efforts at the peer-to-peer level. We highlight the importance of strategic sense-giving in providing templates of action for service providers and consumers. We also show how strategic sense-giving safeguards against confusion and errors by communicating appropriate ways of using technology. Finally, we demonstrate the role of strategic sense-giving in helping service providers and consumers cope with the emotional ambivalence of technology mediated service interactions.

Keywords: health services, digital healthcare, technology and service, service encounter, roles, role theory.
Introduction

The use of technology has become an essential element of service interactions (Bitner, 2017). Technology mediation refers to the integration of various technologies at different stages of service delivery and it has transformed traditional service encounters into fully ‘high-tech’ and ‘high-touch’ experiences (Walker and Johnson, 2006; Schumann, Wünderlich, and Wangenheim, 2012). New ways of providing services have been well documented in the literature such as discretionary technology use (Daskalopoulou, Keeling and Pritchard Jones, 2019a; Daskalopoulou et al., 2019b); self-service technologies (Blut, Wang, and Schoefer, 2016); and smart interactive services (Wünderlich, Wangenheim, and Bitner, 2013), amongst others. Prior service research has also explored various aspects of technology mediated services, such as experiences of service separation (Green, Hartley, and Gillespie, 2016; Keh and Pang, 2013). However, the majority of empirical studies focus primarily either on consumer evaluations of the technology-mediated service encounter in regard to benefits and/or barriers induced by the use of technology (Chowdhury et al., 2014; Meuter et al., 2005; Walker and Johnson, 2006) or on service providers’ perspectives (Daskalopoulou et al., 2019a, 2019b; Green et al., 2016; Wünderlich et al., 2013).

Drawing on role theory, prior research has often aimed to understand service providers’ role in addressing the barriers of technology mediation, mostly at the service delivery level (Bowen, 2016; Christ-Brendemühl and Schaarschmidt, 2019; Daskalopoulou et al., 2019a; Lariviére et al., 2017). For example, Gallan et al. (2013) argue that service providers should be able to identify consumers’ affective states before and during service interactions in order to enhance participation and satisfaction. Similarly, Giebelhausen et al. (2014) posit that service providers should be informed about the effects of technology use in rapport building and be advised on how to guide consumers’ interaction with technology and ensure reciprocity in rapport building efforts. Such studies mostly focus on the provider-
consumer dyad and do not account for the influence of other macroscopic dimensions (e.g. social, cultural, and organizational). While technology mediation affects micro-level, dyadic interactions and unfolds in unique ways for different individuals, it remains embedded within a specific sociocultural and organizational context (Go Jefferies, Bishop and Hibbert, 2019a). We argue that research on service provider roles needs to account for the impact of other organizational actors beyond the service provider-consumer dyad along with the sociocultural context in which it is embedded (Askegaard and Linnet, 2011). Indeed, there is limited knowledge about the role of service providers who hold strategic and operational roles, as well as the impact of coordinated, organization-wide initiatives on dealing with the demands (e.g. changes in role behaviors, role expectations, skills) and associated emotional ambivalence (e.g. stress, uncertainty, frustration) of these new types of services (Bitner, 2017; Christ-Brendemühl and Schaarschmidt, 2019).

In this paper, we draw upon a qualitative study about the integration of clinical decision-making aids installed on mobile phones, iPads or telehealth portals in addition to usual service interactions. Studying telemedicine (technology-enhanced professional decision-making aids via mobiles or tablets) and telehealth (technology-enabled remote patient monitoring where clinicians, patients and non-clinical service workers use digital health monitors to obtain data for algorithmic analysis) allowed us to consider relevant changes to roles and behaviors in practice. We interviewed fourteen service providers who hold strategic and operational roles in healthcare organizations and conducted participant observations with telehealth workers within a telehealth steering group, operational meetings and service visits to patient homes. Specifically, we introduce the concept of strategic sense-giving to describe organization-wide efforts aiming to identify individuals’ understanding and expectations of service provider/consumer roles and to communicate in a formalized way the objective and appropriate set of behaviors for each role when using these technologies.
during service interactions. Our findings extend prior studies in three important ways. First, we contribute to research on service provider roles (Bowen, 2016; Larivière et al., 2017) by illustrating that sense-giving can be performed by a number of organizational members in a more formalized way which extends informal sense-giving efforts at the peer-to-peer level (Daskalopoulou et al., 2019a). We highlight the significance of strategic sense-giving in providing templates of action for service providers and consumers. Second, we demonstrate how strategic sense-giving safeguards against confusion and errors during technology-mediated service interactions by communicating appropriate ways of using technology. Third, we illustrate the role of strategic sense-giving in helping service providers and consumers to cope with the emotional ambivalence (e.g. stress, uncertainty, frustration) of technology-mediated service interactions.

Next, we present an overview of the literature on role theory and provide an analysis of technology mediation in services. We then detail our methodological procedures and outline our findings. We conclude with a discussion of our theoretical contributions and practical suggestions.

**Literature review**

**Role theory**

Role theory is commonly employed in service research in order to theorize service interactions as a form of social exchange. Here, every service interaction needs to adhere to a predetermined and expected set of behaviors which can be subsequently adopted by service providers and consumers. The term ‘role performances’ (Solomon et al., 1985, p. 101) is often used to refer to service interactions.

During ‘role performances’, the adoption of specific roles is charged with specific role expectations (Biddle, 1986). Prior studies highlight the importance of predictable, familiar, and well-defined roles in achieving favorable service outcomes (Solomon et al.,
1985; Surprenant and Solomon, 1987) and the ‘mastery’ of role behaviors (Broderick, 1998). According to Mohr and Bitner (1991), service providers and consumers need to have a shared understanding of role expectations to evaluate their experiences similarly and avoid role discrepancy and conflicts (Broderick, 1998). When roles are not well-defined or when individuals are not familiar with expected behaviors (Bitner, Booms and Mohr, 1994), service providers and consumers tend to evaluate service interactions quite differently. In addition, conflicting perspectives might circulate in relation to the objective of these roles (Broderick, 1998) or the appropriate set of behaviors for each role (Solomon et al., 1985). For instance, an unexpected change in dialect and associated jargon-filled language by service providers can cause unintended consequences (Schau, Delande and Gilly, 2007). Changes in roles have also been linked to consumers’ psychological discomfort (Giebelhausen et al., 2014), uncertainty and dissatisfaction (Schau et al., 2007).

Technology-mediated services and new service provider roles

Prior research dealt with the degree and nature of technology use and its impact on consumer experiences. Service interactions are classified in the literature as ranging from ‘technology-free’ to ‘technology-generated’ encounters. Empirical evidence further illustrates that consumers evaluate their experiences differently in each one of those modes (Froehle and Roth, 2004). The ‘human-touch’ element in service interactions is celebrated by consumers; sometimes claiming that ‘human is better’ (Eastwood, Snook and Luther, 2012) whereas technology use can be perceived as risky (Keh and Pang, 2010). Interestingly, the ‘human touch’ element is an important factor for satisfaction even for tech-savvy consumers (Makarem, Mudambi and Podoshen, 2009).

In addition, consumers’ evaluations of providers who use technology are contradictory. Consumers either challenge service provider expertise and competence or react positively towards providers who interact with technology, as long as technology does not
replace their expert judgment when it is used as a decision-aid (Palmeira and Spassova, 2015). Yet, service providers can also experience professional identity tensions when their expertise is challenged by consumers or when technology use is not considered to be in line with perceptions of professional behavior (Daskalopoulou et al., 2019b). Consumers make regular judgements about the legitimacy of the use of technology in service interactions, and they tend to evaluate their experiences accordingly.

Recent studies find that, due to increased technology diffusion in service delivery (Ostrom et al., 2015), service providers start to adopt new roles. Five new service provider roles have been previously documented in the literature: the enabler, differentiator, innovator, coordinator, and sense-giver role (cf Bowen, 2016; Daskalopoulou et al., 2019a; Larivière et al., 2017). Service providers adopt new roles for a variety of reasons. They naturally adopt the enabler role to effectuate positive technology-mediated service interactions with consumers (Gallan et al., 2013; Green et al., 2016). This role suggests that service providers need to ensure that all parties can perform well in their respective roles (Bowen, 2016). Acting as enablers involves managing discrepancies between service providers’ and consumers’ expectations about technology use (Daskalopoulou et al., 2019a).

The differentiator role suggests service providers are responsible for maintaining a ‘human touch’ element in technology-mediated services (Bowen, 2016; Eastwood et al., 2012). This role emphasizes that service providers need to ensure that technology use does not become a communication barrier. Acting as differentiator also involves assessing consumers’ technology readiness (Mishra, Maheswarappa and Colby, 2018; Parasuraman, 2000) in order to provide them with the appropriate support to interact with the technology at hand (Daskalopoulou et al., 2019a).

The third role adopted by service providers is the innovator role. Service providers are in a privileged position to innovate because they can leverage insider knowledge to identify
innovation opportunities (Daskalopoulou et al., 2019a). When service providers act as innovators, this has a positive impact on the implementation of service innovations, both in terms of innovation volume and innovation radicalness (Gottfridsson, 2014).

The coordinator role implies that service providers are responsible for coordinating and harmonizing the various interdependent actors involved in a technology-mediated service interaction; namely, service providers, consumers, technology and other resources (Larivière et al., 2017; Ostrom et al., 2015). Service providers can shape the entire customer journey (Lohndorf and Diamantios, 2014) and help to increase consumer satisfaction, as well as operational and financial performance (Breidbach, Antons and Salge, 2016).

Service providers also adopt the sense-giver role (Daskalopoulou et al., 2019a) to help their colleagues (i.e. other service providers) to use technology appropriately. By adopting this role, service providers alleviate some of the ambiguity and confusion (Gioia and Chittipeddi, 1991) that surrounds technology mediation in services. Sense-givers help to create a shared understanding at the peer-to-peer level about technology use (i.e. what to do, how to do it, what is going to be achieved). A sense-giver needs to build a shared understanding by describing the situation and goals clearly and logically, and to create mutual faith and trust (Vuori, 2011).

Prior studies mainly focus on the service provider-consumer dyad and have only begun to account for the macroscopic dimensions of service interactions, i.e. the socio-cultural and organizational context in which such interactions are embedded (Askegaard and Linnet, 2011; Go Jefferies, Bishop and Hibbert, 2019a). In other words, a holistic appreciation and detailed understanding of new service provider roles seems to be missing (Daskalopoulou et al., 2019a). Further, Davey and Grönroos (2019) argue that more research is needed to investigate complementary and competing health service roles and resource integration throughout patients’ health-care service journeys. Our study investigates the role
of service providers who hold strategic and operational roles, as well as the impact of coordinated, organization-wide initiatives on dealing with the demands (e.g. changes in role behaviors, role expectations, skills) and associated emotional ambivalence (e.g. stress, uncertainty, frustration) of these new types of services (Bitner, 2017; Ostrom et al., 2015).

**Methodology**

We collected data from two healthcare organizations; we partnered with an NHS Trust in the North West of England comprising of two large hospitals and an NHS community healthcare provider offering a telehealth service to support case management of chronic disease patients across a large English city in the Midlands. The Trust employs more than 6000 members of staff and is a lead employer in the region. The Trust’s patient population exceeds 50,000 admissions for elective and non-elective procedures yearly. The NHS community healthcare provider is a social enterprise founded in 2011 with an annual income of £66.5 million. It employs 1800 staff and serves a population of 312,000. They deliver approximately 60 Commissioned NHS and Local Authority Public Health services in home settings, community health centers, schools, GP surgeries and an urgent care center. Our in-depth engagement with different levels of NHS organizational actors delivering primary and acute care enabled us to collect rich data about the extended healthcare service context which reflect how the process of strategic sense-giving unfolds in both large-scale organizations and their more small-scale community-based counterparts. Moreover, both contexts involve timely information sharing between providers in a service network (Lariviere et al. 2017). Mobile apps make information accessible during service encounters. Telehealth enables patients to provide information for algorithms to alert remote service workers and clinicians.

We followed a qualitative methodology which falls into the interpretivist tradition of social science research (Crotty, 1998) and is considered to be an established research
paradigm in management studies which acknowledges the existence of multiple subjective realities and contributes to scientific knowledge through inductive theory development (Quinn-Patton, 2002). Our entire block of data comprises of fourteen in-depth interviews and five participant observations. The second author also conducted 6 hours of participant observation at telehealth steering group and operational meetings, and during service visits to patient homes to manage onsite equipment; the aim was to understand the wider organizational context of the telehealth service studied. We used a mix of purposive and snowball sampling to recruit healthcare service providers (eight male, six female) who were encouraged to implement the telehealth service. Participants were invited to participate via a global email invitation and the second author recruited in-person during regularly scheduled clinical team meetings to explain the aims of the study. Participant observation involved shadowing telehealth workers for 1-3 hours as they undertook their usual activities in provider offices, and during visits to patient homes. Transcribed fieldnotes from participant observation generated over 3500 words. Table 1 summarizes the profile of our informants including their assigned pseudonym, information about their role and responsibilities. All interviews (up to 90 minutes; average interview: 79 minutes) were audio recorded and transcribed. The interviews were conducted in person (n=10) and over the phone (n=4). We conducted unstructured interviews and we employed grand tour questions and probes (Belk, Fischer, and Kozinets, 2013; McCracken, 1988). We encouraged our informants to discuss technology mediation in general terms at the beginning of the interview. We then prompted them to reflect on their role and how it influences technology use in the hospital context and in community-based healthcare. Our informants also discussed initiatives in their organization aiming to support healthcare service providers and patients with technology use (e.g. using telehealth). Pseudonyms were used to protect participants’ anonymity.
In line with interpretivist research approaches, data analysis was a part of an iterative process which involved continuously moving back and forth between conceptualization, data collection and analysis, and theory building (Arsel, 2017). Our findings emerged inductively, following a modified grounded theory approach (Charmaz, 2014). Data analysis followed a constant comparative logic (Belk et al., 2013; Glaser and Strauss, 1967) of coding, categorizing, abstracting and dimensionalizing (Spiggle, 1994). We stopped data collection when we reached theoretical saturation and observed repetition of themes in our data (Glaser and Strauss, 1967). Coding techniques (e.g. open, axial and selective coding) were used throughout the data analysis process (Spiggle, 1994). We developed our initial codes by analyzing several times the textual data from the in-depth interviews and fieldnotes. In the first step of data analysis, we labeled our data by searching for patterns in terms of roles adopted by our informants (Bowen, 2016). Having identified sense-giving as a central role throughout our dataset, we then refined our analysis and developed our emerging codes into axial codes (Spiggle, 1994) until we were able to produce a theoretical storyline grounded in our informants’ narratives.

Findings

Our findings outline the process of strategic sense-giving which involves three steps; (a) recognition of sense-making gaps, (b) identification of sense-giving opportunities, and (c) provision of templates of action. A detailed summary of our findings can be found in Table 2.

The recognition of sense-making gaps

Our analysis shows that the first step of strategic sense-giving involves understanding sense-making gaps. Individuals engage in sense-making activities when they are dealing with ambiguous, or disruptive situations (Maitlis and Christianson, 2014). We find that, in technology-mediated services, service providers and/or consumers often experience
knowledge gaps which arise due to lack of organizational cues (Ashforth et al., 2008) in relationship to appropriate technology use. These knowledge gaps might hinder how healthcare service providers and/or consumers make sense of technology mediation (Pratt, Rockmann and Kaufmann, 2006). For instance, one of our informants, Michael, explains how the use of mobile applications (apps) in the hospital context has introduced a cultural change in his organization:

“There’s certainly been a change, and there is a degree of cultural change, there’s some barriers there, particularly around nurses, I think doctors are much more receptive to using it because a lot of doctors are using a lot of mobile apps on their phones already, and so apps sitting on your mobile can be very helpful, there’s still a lot of anxiety around quality and knowing what you can trust, that’s been tackled at all sorts of different levels. We tackle it locally by writing our own apps and making them available for our own doctors, it’s been tackled at a national level by papers being written by organizations like DHACA [Digital Health and Care Alliance], trying to produce some guidance on app development, NHS England say that they’re looking to help curate good quality apps.” (Michael, Chief Clinical Information Officer/Doctor, interview)

Michael argues that certain groups of healthcare service providers, e.g. nurses, might struggle more with technology mediation since their role does not typically involve interacting with niche technology, such as mobile apps. Healthcare service providers can experience sense-making gaps despite local and national efforts to provide guidelines for technology mediation. This is often due to a lack of shared understanding about what to do with new technology, how to do it and what to expect (Vuori, 2011). Without a clear understanding of how technology can fit within day-to-day roles (Larivièr...
individuals can experience emotional ambivalence “there’s still a lot of anxiety” (Christ-Brendemühl and Schaarschmidt, 2019).

On a related note, Sylvia contends that healthcare service providers also feel overwhelmed due to the number of tools they can use:

“There are various stages in care where people have to make a choice - either a diagnostic choice, or a choice in terms of treatment, or a choice in terms of communication of issues. I suppose it’s a mixture of reasoning and judgement that leads to an action […] we have a massive amount of assessment tools, care pathways, and procedural guidance. [T]here is a series of different types of evidence, which leads to those decisions being made. Some of that evidence is biophysical, in terms of clinical information from investigations or tests. Some of it is social in terms of the client’s background.” (Sylvia, Registered Nurse/Nursing School Lecturer, interview)

According to Sylvia, healthcare service providers can rely upon a range of possible approaches when providing appropriate services, including integrating telehealth solutions as a decision-aid (Palmeira and Spassova, 2015). However, she finds that in order to reach a decision either in terms of treatment and diagnosis or communication of results, healthcare service providers also need to consider technical, clinical and social factors (Davey and Grönroos, 2019). Sara (Director of Informatics, interview) stresses that healthcare service providers must decide which types of tools are relevant and appropriate to use in the hospital context: “it all very much has to sit with the clinicians to decide what they think is appropriate and safe for the hospital to use.” Essentially, much of the responsibility of integrating successfully technology use falls on the healthcare service provider (Larivièr et al., 2017).

These interview extracts highlight the need for clinical input when it comes to delivering technology-mediated healthcare services (Daskalopoulou et al., 2019a, 2019b).
But, our informants’ narratives also reveal that it is not always clear how technology mediation fits within existing work routines (Bowen, 2016). This can happen either because it is not common to use technology as part of healthcare service providers’ role or because they are overwhelmed by the plethora of available tools and feel anxious about how to use them. We believe that by identifying why and when these sense-making gaps occur, organizations can offer tailored support and guidance to healthcare service providers who are struggling with technology mediation. Adam elaborates:

“If there are any particular queries or any particular issues that the group wants to address or would be added to a certain policy, we just make sure that it’s picked up and appropriately addressed within a policy, make sure we’ve not missed anything, that’s why the group is made of such a wide range of members of staff, to make sure we’ve captured the opinion of everybody, from every angle.” (Adam, Head of Information Governance, interview)

Adam’s vignette showcases how the aim of his committee is to identify potential sense-making gaps for various groups in his organization and to address them in new policies. He specifically talks about the significance of including a diverse group of individuals, who occupy various roles in his committee in order to ensure that all issues regarding technology mediation are dealt with. These policies can then provide a clear description of what the organization is trying to achieve by integrating technology in service delivery.

We also find that it is important to identify gaps in patients’ sense-making efforts. Fiona (Health Technology Assistant, field notes) argues that patients’ familiarity with technology mediation varies: “some patients are young and knowledgeable, using telehealth from 3 months to long-term; some older patients do too. If patients are anxious and nervous about their results, they’re not suitable for telehealth. Better to keep things simple.”
According to Fiona, technology mediation is not suitable for every patient. For instance, certain patients might experience emotional ambivalence (e.g. anxiety, frustration) about telehealth affecting usual care (Go Jefferies et al. 2019a, b). In such cases, it is imperative to recognize patients’ affective states (Gallan et al., 2013) in order to ensure that technology use will not become a barrier at any given point throughout patients’ healthcare journey.

On the contrary, technology mediation should enable the patient to “understand the relationship between some of their actions and how the readings are, then that will help them help themselves […] it is that engagement from the patient in the process that is vital” (Carl, Telehealth Project Manager, interview). According to Carl, the patient is an active participant and co-creator of technology-mediated services (Davey and Grönroos, 2019; Go Jefferies, Bishop and Hibbert, 2019b). Identifying patients’ knowledge gaps is critical in order to avoid life-threatening errors. Sylvia explains:

“When we hand over the clinical decision-making interpretation to patients, in a way, they’re coming up against the same problems that the practitioners have done for years. And what the professionals have done is drawn on other bits of understanding to make judgments. But when your patient is doing it, have they got those other bits of understanding to make those judgments? I think it’s exposing the kind of uncertainty that is around the decision-making process anyway. That it is a judgement, an opinion, not a fact. Then, what you’re doing is basing that on these different bits of information that you’ve managed to cobbble together.” (Sylvia, Registered Nurse/Nursing School Lecturer, interview)

Sylvia’s narrative highlights the dangers associated with patients’ sense-making gaps, when using telehealth as a self-serving decision-aid (Palmeira and Spassova, 2015), which can have severe unintended consequences for how the service network is perceived to respond (Lariviere et al., 2017).
Next, we explain how understanding sense-making gaps can give rise to specific sense-making opportunities.

The identification of sense-giving opportunities

Our findings illustrate that the second step of strategic sense-giving involves the identification of sense-giving opportunities. In line with prior work (Daskalopoulou et al., 2019a; Vuori, 2011), this step refers to detecting instances during which individuals can help healthcare service providers and patients to make sense of the ambiguity and confusion regarding technology mediation (Gioia and Chittipeddi, 1991). Leo discusses organization-wide policies as an opportunity for strategic sense-giving:

“Now, we’re having a meeting in this Trust in a few weeks’ time. From that meeting, I think, there’ll come a document and a policy which will explain the governance around mobile apps, around which apps are desirable, around what we do about patient confidentiality, and what we do about security of such apps and access, and so on.” (Leo, Assistant Medical Director/Caldicott Guardian/Doctor, interview)

Leo describes the process of developing an organization-wide policy about the use of mobile apps as part of healthcare service delivery in his organization. His quote reveals that a number of organizational members are embracing the sense-giver role in a more formalized way which extends informal sense-giving efforts at the peer-to-peer level (Daskalopoulou et al., 2019a). Indeed, our informants highlighted the importance of adhering to locally developed policies about technology mediation: “what we always say to students or nurses is that they have to follow the local policy and guidelines [...] although there are national guidelines, they’re adapted and applied locally”. (Sylvia, Registered Nurse/Nursing School Lecturer, interview). Adam further explains how organization-wide policies are communicated to all organizational members, as well as newcomers:
“What we do, we send out global communication, an email saying that this policy is
now live, and here are the main points that it concerns. My team delivers mandatory
training to all the new staff within the organization, so we have a slide presentation
on the new policies, so everything that affects information governance is covered in
that presentation.” (Adam, Head of Information Governance, interview)

Similarly, Arthur elaborates upon the importance of introducing organization-wide
policies that govern technology mediation (i.e. the use of mobile apps in the hospital
color):

“You have to have a policy like that, you really do, you have to govern the use of them
because what the use of mobile apps gives to the organization is the real agility, real
customer-focused design. [...] There needs to be some governance on approach, and
you write a policy that provides an insight and direction into some of those activities
and some of those benefits, so it’s a controlled environment where you wouldn’t want
to have uncontrolled usage of mobile applications.” (Arthur, Deputy Director for
Health Informatics, interview)

In Arthur’s terms, organization-wide policies provide an opportunity to influence the
interpretation, meaning creation, and actions (Maitlis and Christianson, 2014) of healthcare
service providers in relation to technology mediation. Such guidelines can provide a logical
explanation (Vuori, 2011) of how technology use fits within existing roles and routines, and
how the proposed implementation has potential to improve healthcare service delivery.
Having such policies in place also helps to avoid circulation of conflicting perspectives
(Broderick, 1998).

Apart from organization-wide policies, Michael discusses other opportunities for
strategic sense-giving, both vertically and horizontally in terms of his role:
“A part of my job is to be an influencer, and that influence heads vertically, so in terms of being able to influence the junior doctors: ‘you really must use this system, because that is the standard of care within this organization’. My influence, also, vertically is heading upwards to the senior management of the hospital, being able to influence what systems we are looking to buy next, how we shape our informatics strategy from a clinical viewpoint. My influence is also expected to ... and is effective horizontally, so I’m able to gather loads of Consultants to join some project boards where we’re shaping the next projects, making sure that they’re clinically-led and clinically-shaped.” (Michael, Chief Clinical Information Officer/Doctor, interview)

Michael adopts the sense-giver role in the traditional sense (Daskalopoulou et al., 2019a) by advising junior healthcare service providers about technology mediation.

However, he notes that there are other opportunities to “shape [our] informatics strategy from a clinical viewpoint” by influencing senior management on new technology acquisition and by recruiting Consultants (i.e. Doctors whose role parallels that of Attending physicians in the United States) to participate in projects (Gottfridsson, 2014). In the telehealth context, however, despite local policy encouraging its use, convincing clinicians to integrate it into healthcare activities was an ongoing process:

“We anticipated that it wasn’t going to be easy [...] that it would be a piece of work to accept telehealth technology and get clinicians to feel comfortable with introducing it to patients, but I think that’s more of an uphill [struggle] than we thought it would be.” (Melissa, Assistant Director of Health and Social Care Integration, interview).

This is because opinion is divided over whether technology-mediated services would improve or simply add to provider workloads. This ambiguity was acknowledged by Melissa, who is also a co-author of the region’s telehealth joint strategy document.
“I think [clinicians’] roles will change [from using telehealth]. So, rather than being very reactive and responding to crises all the time, potentially they would be able to identify when somebody was on a downward spiral [...] and able to intervene earlier.

It will never take away your urgent sort of response that is required, because obviously that’s still going to happen, but hopefully just provide a framework so that people can start to try and predict when somebody’s going to need a clinician, to get out there sooner.” (Melissa, Assistant Director of Health & Social Care Integration, interview)

As a lead strategist for telehealth implementation, Melissa identifies sense-giving gaps and sense-giving opportunities for clinicians with operational roles to reduce local ambiguity about the benefits of using telehealth as a decision-aid improving service processes and outcomes (Palmeira et al. 2015). She suggests that adapting roles will be part of local sense-giving (e.g. doctors getting comfortable with telehealth, enabling patients, providing more preventative care).

Sense-giving and decision-making in response to gaps in sense-making is evident in the way clinicians often decide to make use of telehealth solutions. The choice of appropriate technology use can also involve the identification of relevant service gaps as opportunities to use technology-mediated services. Identifying service gaps offers the chance to introduce new patient roles that, in other circumstances, might be considered inappropriate. In order to reduce levels of emergency hospital admissions, healthcare service providers might use telehealth to support early interventions by using patient self-diagnosis or by initiating self-medication with steroids and antibiotics. In other words, healthcare service providers interpret national and local organizational guidelines at the micro level to determine appropriate action using technology-mediated services, especially in contexts where local services lack specialist support.
Although organization-wide policies provide an excellent opportunity for strategic sense-giving to healthcare service providers, our analysis paints a slightly different story. As Carl explains, in order to influence the meaning construction and behavior of patients, a more personalized approach is needed.

“Where some patients have clearly just got on with it, we do know that some patients do struggle. So again, we’ve tried to put it across and give that support to the patient to make it as easy as possible. The role of the monitoring center, for example, is if they’re spotting that a patient just isn’t getting on with it - they’re not taking the readings. Can they support the patient more or should they actually take the decision: ‘It’s not working’?” (Carl, Telehealth Project Manager, interview)

According to Carl, not all patients have the same technology readiness (Mishra et al., 2018; Parasuraman, 2000). He argues that some patients might need more support than others when using telehealth systems (Gallan et al., 2019). In particular, he identifies the role of monitoring centers in providing guidance on how to deal with patients that do not record their readings on a telehealth system. Here, the role of the monitoring center is to help identify if a patient requires additional support from their doctor, when and how it is optimal to provide such support, or if they should stop using telehealth altogether. Sense-giving opportunities therefore involve practical decisions about integrating ‘tech’ and ‘touch’ locally.

The provision of templates of action

Our analysis shows that the last step of strategic sense-giving involves providing templates of action. According to Melissa, it is extremely important to provide clear templates of action in order to enable individuals to understand what technology mediation means in terms of their work (Daskalopoulou et al., 2019b; Go Jefferies et al. 2019a) and healthcare journey (Go Jefferies et al., 2019b):
“I think people then need to acknowledge the challenges that accompany it [telehealth]. I think it shouldn’t be seen as a quick win. I think sometimes there’s a danger with assistive technology that people see it as a quick win, because to describe it, it sounds very simplistic. But actually, people don’t necessarily understand that culture change, change for clinicians just to implement it successfully, if it’s pushed too much into trying to be a quick win, then people will lose interest too quickly and not give it a chance to establish itself.” (Melissa, Assistant Director, Health and Social Care Integration, interview)

Melissa contends that implementing telehealth successfully is no easy task (Green et al., 2016). She specifically notes the dangers of not having a shared understanding of role expectations (Mohr and Bitner, 1991) induced by the introduction of telehealth systems. In other words, strategic sense-giving efforts need to provide specific guidance about expected role behaviors (Bitner et al., 1994) in order to trigger action:

“It is in this organization to make sure we provide guidance and formulate it in our best practice” (Leo, Assistant Medical Director/Caldicott Guardian/Doctor, interview)

“I want to make sure it’s fit and safe and it stays fit and safe, so it’s not about stopping clinicians using these things, we just want to make sure that they are safe apps and that they continue to be safe when they’re developed along their life-spans.” (Sara, Director of Informatics, interview)

Leo’s and Sara’s quotations illustrate that strategic sense-giving efforts should not be seen as a way to constrain healthcare service providers’ and patients’ technology-mediated service interactions. On the contrary, such efforts should provide them with the necessary vocabulary and scripts (Schau et al., 2007) in order to ‘master’ their role behaviors (Broderick, 1998).
Having discussed in the previous theme organization-wide policies as an opportunity for sense-giving, Adam further discusses below how their policy on mobile device use aimed to outline appropriate ways for integrating technology within healthcare service delivery:

“I think the mobile device policy has been introduced a couple of years ago now, because what happened was we’ve seen a lot of people bringing their mobile devices to the hospital, and also bringing iPads and introducing a lot more new mobile technologies, so like laptops, things like that, so we knew that we had to put a policy in place that would regulate the use of technology, so we’ve informed our staff what they can and can’t do with mobile devices, so we were just trying to add some security and governance in place.” (Adam, Head of Information Governance, interview)

Adam explains that the policy document defined specifically what healthcare service providers could and could not do with mobile devices in the hospital context. It is evident from Adam’s narrative that the policy was intended to be used as a basis for understanding the appropriate set of behaviors for each healthcare service provider role (Solomon et al., 1985).

Despite a clear focus on providing templates of action for healthcare service providers, our findings illustrate that efforts to guide patients’ behavior are somewhat underdeveloped, at least in our research context. Nevertheless, our informants highlighted the significance of strategic sense-giving efforts targeting patients. For instance, Michael reflects on what he said when asked how he was planning to promote the use of a new system in his hospital:

“You put posters up on the wards, telling patients that they will see the doctors using it, so the patients are recognizing how technology is going to be used in their care, and we build the confidence from both sides.” (Michael, Chief Clinical Information Officer/Doctor, interview)
Michael finds that by informing patients about changes in service delivery due to technology mediation it will decrease both their and healthcare service providers’ emotional ambivalence, and ‘build the confidence from both sides’. In this example, even though the posters did not provide any guidance about the role of the patient, they at least removed some of the uncertainty associated with technology use (Schau et al., 2007).

However, when patients are expected to actively interact with technology, as in the case of telehealth, strategic sense-giving efforts need to provide them with materials in order to be able to recognize how they need to behave and what to expect (Ashforth et al., 2008).

Discussion

Theoretical implications

The aim of this paper was to explore the role of service providers who hold strategic and operational roles, as well as the impact of coordinated, organization-wide initiatives in technology-mediated healthcare services. Our study develops the process of strategic sense-giving and illustrates how healthcare service providers who hold strategic and operational roles enact the sense-giver role. Our findings highlight that strategic sense-giving involves three steps; (a) recognition of sense-making gaps, (b) identification of sense-giving opportunities, and (c) provision of templates of action.

We showed that the first step of strategic sense-giving involves understanding service providers’ and consumers’ knowledge gaps which arise due to lack of organizational cues (Ashforth et al., 2008) in relation to technology mediation. Our findings suggest that it is not always clear how technology mediation fits within existing work routines and roles (Bowen, 2016; Larivière et al., 2017). This happens either because it is not common to use technology as part of healthcare service providers’ role (Daskalopoulou et al., 2019a) or because service providers are overwhelmed by the plethora of available tools and are anxious about how to use them. Our findings also illustrate how gaps in patients’ sense-making efforts can produce
emotional ambivalence (e.g. stress, uncertainty, frustration) in relation to the use of telehealth systems (Gallan et al., 2019). We argue that organizations need to understand why and when sense-making gaps occur in order to provide tailored support and guidance to healthcare service providers and consumers who are struggling with technology mediation. As Askegaard and Linnet (2011: 381) note, marketing and consumer researchers need to establish links between “the structuring of macro-social explanatory frameworks with the phenomenology of lived experiences, thereby inscribing the micro-social context accounted for by the consumer in a larger socio-historical context”. In other words, this means that both academics and practitioners need to place additional emphasis upon the interplay between microscopic (e.g. dyadic interactions between service providers and consumers) and macroscopic (e.g. the role of the socio-cultural and organizational context) dimensions of technology mediated services.

The second step of strategic sense-giving involves the identification of sense-giving opportunities. In line with prior work (Daskalopoulou et al., 2019a), this step involves detecting instances during which individuals can help service providers and consumers to make sense of the ambiguity and confusion regarding technology mediation (Gioia and Chittipeddi, 1991). Our findings revealed that organization-wide policies provide an excellent opportunity to influence the interpretation, meaning creation, and actions (Maitlis and Christianson, 2014) of service providers about technology mediation. We found that existing policies provide a logical explanation (Vuori, 2011) of how technology use fits within existing roles and routines, and how the proposed implementation would improve healthcare service delivery. Having such policies in place also helps to avoid the circulation of conflicting perspectives (Broderick, 1998). By participating in the development of such initiatives, a number of organizational members embrace the sense-giver role in a more formalized way which extends informal sense-giving efforts at the peer-to-peer level.
(Daskalopoulou et al., 2019a). Finally, our analysis showed that strategic sense-giving should adopt a more personalized approach since not all patients have the same technology readiness (Mishra et al., 2018; Parasuraman, 2000), access to informative material (e.g. policy documents) or health service literacy (Davey and Grönroos, 2019).

The last step of strategic sense-giving involves providing clear templates of action in order to enable individuals to understand what technology mediation means in terms of their work (Daskalopoulou et al., 2019b; Go Jefferies et al. 2019a) and healthcare journey (Go Jefferies et al., 2019b). Our study illustrates that strategic sense-giving efforts should clearly outline the role expectations (Mohr and Bitner, 1991) induced by the increase of technology use (Bitner, 2017; Ostrom et al., 2015), as well as provide specific and logical guidance about expected role behaviors (Bitner et al., 1994; Vuori, 2011). We demonstrated that organizations need to equip both service providers and consumers with the necessary vocabulary and scripts (Schau et al., 2007) in order to be able to ‘master’ new role behaviors (Broderick, 1998). However, we also observed that efforts to guide patients’ behavior were somewhat underdeveloped, at least in our context.

In light of COVID-19, a series of radical transformations and mega-disruptions in services and beyond have occurred which highlight the need for revisiting traditional services marketing concepts (Kabadayi, O’Connor and Tuzovic, 2020). Ongoing social distancing measures also foreground our increasing reliance upon technology use as part of our day-to-day professional and leisure practices. To these ends, our study addresses the call put forth by Ostrom et al. (2015) to better understand how technology can be leveraged to advance service provision. More specifically, we make three important contributions to the ongoing dialogue on the intersection of services marketing and technology use (e.g. Blut et al., 2016; Giebelhausen et al., 2014; Palmeira and Spassova, 2015). First, we extend research on service provider roles (Bowen, 2016; Daskalopoulou et al., 2019a; Lariviére et al., 2017) by
illustrating that strategic sense-giving can be performed by a number of organizational members in a more formalized way which goes beyond informal sense-giving efforts at the peer-to-peer level (Daskalopoulou et al., 2019a). We found that service providers who hold strategic and operational roles engaged in formal sense-giving, for example, by participating in the creation and circulation of organization-wide policies. Second, we contribute to service research focusing on the role of service providers in managing ‘tech’ and ‘touch’ elements in service interactions (Giebelhausen et al., 2014; Green et al., 2016; Makarem et al., 2009; Wünderlich et al., 2013). We do so by illustrating how strategic sense-giving efforts provide service providers with important knowledge about appropriate ways of using technology and safeguard them against confusion and errors during technology mediated service interactions. Moreover, our study extends research on service providers’ and consumers’ affective responses to technology use (Gallan et al., 2013, 2019; Palmeira and Spassova, 2015) by showing how strategic sense-giving efforts help service providers and consumers to cope with the emotional ambivalence (e.g. stress, uncertainty, frustration) of technology mediated service interactions (Christ-Brendemühl and Schaarschmidt, 2019). Finally, our findings also support role theory; the need for familiar and well-defined roles (Solomon et al., 1985; Surprenant and Solomon, 1987), the importance of having a shared understanding of role expectations (Mohr and Bitner, 1991), as well as the need to ‘master’ role behaviors (Broderick, 1998) in order to in achieve favorable technology mediated service outcomes became evident from our analysis.

**Practical implications**

As technology use becomes a common element of service interactions (Bitner, 2017; Larivière et al., 2017), it is vital to understand the ways in which service providers and consumers can leverage technology use (Palmeira and Spassova, 2015). Because technology mediation needs to be accompanied by normative and organizational change, we suggest that
existing organization-wide policies on technology use need to be developed. Policies can offer some structure and guidance to service providers about appropriate technology use. For instance, in healthcare settings, such documentations can outline how technology use falls under hospital rules and regulations, as well as how it fits with healthcare service providers’ roles and work routines (Daskalopoulou et al., 2019a, 2019b).

Further, those responsible for promotion and communication strategies need to communicate clearly the advantages of technology use for the service network (i.e. both service providers and the consumers). Such approaches can contribute to the comprehensibility of technology mediation as part of service interactions and roles. This will also confer that technology mediation is culturally supported by the organization. Given increased pressure on healthcare resources, and the growing trend involving patients as users of healthcare technologies, effective promotion and communication strategies should involve participation from the wider network of community, voluntary and patient voice organizations in shaping normative change for service development.

Limitations and Future Research

Our empirical investigation is based on the U.K. healthcare field; thus, our insights should be transferred with attention to other service contexts. In addition, although our study offers novel insights from the healthcare service provider perspective, future studies involving patients’ input could further inform our understanding about the process of strategic sense-giving. For example, additional research from the patient viewpoint can offer important insights about how strategic sense-giving efforts can be personalized and tailored to the needs of patients with different levels of technology readiness (Mishra et al., 2018; Parasuraman, 2000) or severity of illness at different touchpoints of the healthcare journey (Hunter-Jones et al., 2020). Our qualitative study draws from a relatively small sample size, thus future research should aim to further explore the process of strategic sense-giving by
recruiting organizational actors who hold strategic and operational roles in different levels or with different responsibilities. Future empirical studies (both quantitative and qualitative) can draw from our work to develop scales to measure the effectiveness of strategic sense-giving; how do service providers respond to sense-giving efforts? Do service providers respond differently to sense-giving based on who is providing templates of action (e.g. based on their role, gender)? Future work can also aim to develop better mechanisms for identifying sense-making gaps in a service ecosystem; who is responsible for identifying sense-making gaps? How can service providers ‘code switch’ during a service encounter (Schau et al., 2007) when they identify a sense-making gap?

References


Supplementary Review File

We would like to thank the Associate Editor and the three Reviewers for their extremely helpful and insightful feedback and comments which have helped us to move forward our paper and strengthen its contributions. Following your suggestions, we have structured our revisions using five main revision themes, namely theory and literature review, findings, methodology, contributions and stylistic issues. We will now discuss below how we have addressed the comments of Reviewer 4 on a point by point basis. In closing, we reiterate our thanks to the Associate Editor and Reviewers, and look forward to the outcome of the next stage in the review process.

Reviewer 3

“The updated version of the paper is much improved. In addition, the paper has sufficiently addressed and incorporated all of my previous comments and recommendations. Therefore, I am recommending the paper for acceptance.”

- Thank you for your positive comments and for seeing value in our work.

Reviewer 2

“With this, I think the paper will considerably improve and has the potential to be a highly cited article in the field.”

- Thank you for your guidance in the review process. We are glad to hear that our paper is now much improved and that it has the potential to be a highly cited article in the field.

Reviewer 4

Theory and literature review

“or the vignettes in the introduction. This will help guide the reader and also help substantiate why it is important and needed.”

- Apologies for not addressing this comment but we are unable to see the beginning of the first sentence which seems to be missing.

“As of now, the manuscript needs to build a stronger foundation. It may help to add research questions. Further, did you consider the following before even delving into role theory?
- Role clarity, role ability of the service provider
- How is the technology viewed? Does it complement or replace traditional methods?"

- Thank you for your recommendation to reflect upon these questions. We considered these points carefully. We did not observe any issues in terms of role clarity and ability of the service provider. Our informants did not use technology as a substitute of their ability to treat patients. Technology was seen as complementing traditional ways of treating patients. In other words, our informants did not express the need to replace altogether traditional methods with technology use.

“The concept of sense giver needs to be further developed and explained.”

- Thank you for your recommendation to further develop and explain the sense-giver role. We have now aimed to expand our discussion of the sense-giver role in our ‘Literature Review’ section (page 6), based on your suggestion, and we hope that this concept is now more clearly explained.

“Thought the authors differentiate the job roles of the provider, it would be interesting to delve deeper into see how these different roles influence their sense giver role. Which of these providers are front line service employees? Are there possible spillover/halo effects at play?”

- Thank you for your recommendation. We wish to clarify that we interviewed both front-line service employees and non-frontline workers, e.g. project manager, assistant director, lecturer/nurse educator, that are not regularly patient-facing but regularly interact with and influence sense-giving and govern/operationalise templates of action that affect them. For example, we discuss in our findings how participants adopt sense-giving roles, such as Michael, who identifies opportunities to supplement organization-wide sense-giving initiatives, and Melissa’s traditional sense-giving role involves identifying sense-making gaps at the local level that spill over and involve clinicians engaging in local sense-giving (i.e. the frontline) as they adapt their roles and integrate telehealth (page 17). In terms of actual opportunities to enact the sense-giver role, our findings show that the second step of
strategic sense-giving (i.e. the identification of sense-giving opportunities) can be performed directly and indirectly. For example, in our ‘Findings’ section we show how Michael (with two roles: specialist doctor and Chief Clinical Information Officer) adopts the sense-giver role in the traditional sense (Daskalopoulou et al., 2019a) (directly) by advising junior healthcare service providers about technology mediation. However, he notes that there are also other opportunities to “shape [our] informatics strategy from a clinical viewpoint” by influencing senior management on new technology acquisition and by recruiting Consultants (i.e. Doctors whose role parallels that of Attending physicians in the United States) to participate in projects (Gottfridsson, 2014). Others enact the sense-giver role indirectly by participating in the drafting and circulation of organization-wide policies about technology use (e.g. Leo, Sylvia and Adam).

Findings

“The authors uncover sense giving role through their qualitative approach. Can providers hold multiple roles? How have these roles been studied in healthcare?”

- Thank you for your comment. As mentioned in our ‘Literature review’ section, service providers adopt the sense giver role in order to help their colleagues (i.e. other service providers) to make sense of how they can use technology appropriately (Daskalopoulou et al., 2019a). By adopting this role, service providers help to alleviate some of the ambiguity and confusion (Gioia and Chittipeddi, 1991) that surrounds technology mediation in services. Sense-givers help to create a shared understanding at the peer-to-peer level about technology use (i.e. what to do, how to do it, what is going to be achieved). According to Vuori (2011), a sense-giver needs to build a shared understanding by describing the situation and goals clearly and logically, and to create mutual faith and trust. It is only after this stage that people will be more likely to participate in, and put effort into, coordinated actions (Weick, 1995). In our revised manuscript, we show that strategic sense-giving can be performed by a number of organizational members in a more formalized way which goes
beyond informal sense-giving efforts at the peer-to-peer level (Daskalopoulou et al., 2019a).

We highlight that service providers who hold strategic and operational roles engage in
formal sense-giving, for example, by participating in the creation and circulation of
organization-wide policies. Prior studies have shown that services providers can hold
multiple roles (e.g. Bowen, 2016; Daskalopoulou et al., 2019a; Larivière et al., 2017). Finally,
we cite a number of papers that focus on roles in healthcare (e.g. Daskalopoulou et al.,
2019a; Davey and Grönroos, 2019; Gallan et al., 2013; Gallan et al., 2019; Go Jefferies et al.,
2019a; 2019b; Green et al., 2016; Hunter-Jones et al., 2020). We hope that the revised
version of our manuscript (along with the aforementioned explanation) address your
questions about the multiple roles of service providers and the variety of ways in which such
roles have been hitherto studied in the healthcare literature.

“The results need to be further developed. Specifically, rather than using extracts from the
interview, the quotes need to be interpreted. To that point, there is quite a number of vignettes, you
may wish to move most of them to the Appendix.”

- Thank you for your recommendation. In our revised manuscript, we have now included
additional in-depth interpretations of our informants’ quotations. At this stage, we decided
not to move quotations to an Appendix, however, Table 2 provides a summary of our
findings. In Table 2, we provide a definition for each theme, quotes from our informants and
a set of reflexive questions which relate the steps in the process of strategic sense-giving to
service provider roles.

**Methodology**

“What specific technology mediated tools are used? The authors state that some apps are created
by the doctors? Is this common? How are the apps used? How is the technology being used? Are
providers incentivized to use technology in their practices? For example, in the U.S. reimbursement
may be predicated on use of technology services.”
Thank you for your recommendation to provide a more detailed description of the specific tools used by our informants. Indeed, our informants utilized a variety of mobile apps; some were developed by doctors, while others were developed by third party companies (e.g. by the British National Formulary). This was not common in the sense of having multiple mobile apps created by doctors. However, we came across two widely used mobile apps which were created by a team of doctors that worked at the NHS Trust. All mobile apps and tele-health systems discussed in our interviews were used for work purposes. As we explain in our revised methods section, “mobile apps make information accessible during service encounters. Telehealth enables patients to provide information for algorithms to alert remote service workers and clinicians” (page 8). Providers were not incentivized to use technology in their practices in the form of reimbursements.

“Per my earlier point, it would be nice to include the customer’s perspective to attain a better overall picture. What does the patient population look like? How do the authors account for severity of illness?”

“Role of customer- did you consider interviewing, observing them?”

We thank Reviewer 4 for the suggestion to include patients as respondents. We agree that future studies can extend this line of work by unpacking the customer’s perspective. However, our data collection remit for this context did not allow including patient perspectives and so we feel that these are beyond the scope of the current manuscript. Following your recommendation, we highlighted this need for future studies in the revised version of our manuscript: “In addition, although our study offers novel insights from the healthcare service provider perspective, future studies involving patients’ input could further inform our understanding about the process of strategic sense-giving. For example, additional research from the patient viewpoint can offer important insights about how strategic sense-giving efforts can be personalized and tailored to the needs of patients with
different levels of technology readiness (Mishra et al., 2018; Parasuraman, 2000) or severity of illness at different touchpoints of the healthcare journey (Hunter-Jones et al., 2020).”

“How are these results generalizable? Healthcare is varied across the globe and roles, as well as technology, is perceived and used in various ways.”

- Thank you for your comment. As mentioned in our ‘Limitations and Future research’ section, this is an interpretive study which aims to generate rich and in-depth insights for a specific research context. As per the ontological and epistemological inclinations of interpretive social science research, we focused on the ‘transferability’ (rather than the generalization) of our empirical study. In other words, we focused on theory generation within a specific empirical context, that is the U.K. healthcare field; hence, our theoretical insights should be transferred with attention to other service contexts and help to make sense of and interpret similar phenomena of strategic sense-giving in the context of technology-mediated services. Although healthcare shares many similarities with other professional service contexts (Berry and Bendapudi, 2007), we believe that future research should investigate in-depth other service industries and countries to better understand the process of strategic sense-giving.

Contributions

“The greatest weakness of the study is that the need for the type of work they are pursuing has not been fully substantiated. The authors need to build a stronger argument as to why this research is needed. The study, would benefit from better illustrating why this research is important and how it contributes to the literature. Another important aspect is the “so what” factor. How will this research extend theory and move the field forward. To that point, the introduction needs to be further developed. You need to clearly illustrate why it is important, how it fills a gap in the literature and how it will move theory and practice forward.”

- Thank you for your recommendation. Please see our answer below about the contributions of our work. In terms of the importance of this study and the “so what” factor. Our study aims to make an incremental contribution to these strands of the services marketing
literature dealing with technology-mediated services. The use of technology has become an essential element of service interactions (Bitner, 2017), however service providers and consumers face various demands (e.g. changes in role behaviors, role expectations, skills) and often experience emotional ambivalence (e.g. stress, uncertainty, frustration) when using these new types of services (Bitner, 2017; Christ-Brendemühl and Schaarschmidt, 2019). Our study complements existing literature on the intersection of services marketing and technology use and builds a better understanding of how to provide a “seamless” technology-mediated service across different touchpoints of the (healthcare) journey (Breidbach et al., 2016; Hunter-Jones et al., 2020).

“You may also wish to comment on how research in this area is especially important and needed in light of COVID-19. Please see: Kabadayi, Sertan, Genevieve E. O’Connor, and Sven Tuzovic. "The impact of coronavirus on service ecosystems as service mega-disruptions." Journal of Services Marketing (2020).”

- Thank you so much for pointing us towards this timely and important study. Drawing upon Kabadayi et al. (2020), we have now aimed to include a brief discussion about the significance of our study in light of COVID-19. More specifically, in the discussion section of our revised manuscript, we have now included the following: “In light of COVID-19, we have already been witnessing a series of radical transformations and mega-disruptions in services and beyond which highlight the need for revisiting traditional services marketing concepts (Kabadayi and O’Connor, 2020). With ongoing social distancing measures, such changes also foreground our increasing reliance upon technology use as part of our day-to-day professional and leisure practices.”

“As it stands, this research needs to focus on how it extends theory and helps move the field forward. What are specific implications for theory? Policy? Managers?”

- Thank you for your recommendation. In our revised manuscript, we split up our discussion section into ‘Theoretical implications’ and ‘Practical implications’ in order to signal more
clearly the contributions of our work for theory and practice. On pages 23 and 24 we articulately our theoretical contributions to services marketing literature. Our study addresses the call put forth by Ostrom et al. (2015) to better understand how technology can be leveraged to advance service provision. More specifically, we make three important contributions to the ongoing dialogue on the intersection of services marketing and technology use (e.g. Blut et al., 2016; Giebelhausen et al., 2014; Palmeira and Spassova, 2015). First, we extend research on service provider roles (Bowen, 2016; Daskalopoulou et al., 2019a; Larivière et al., 2017) by illustrating that strategic sense-giving can be performed by a number of organizational members in a more formalized way which goes beyond informal sense-giving efforts at the peer-to-peer level (Daskalopoulou et al., 2019a). We found that service providers who hold strategic and operational roles engaged in formal sense-giving, for example, by participating in the creation and circulation of organization-wide policies. Second, we contribute to service research focusing on the role of service providers in managing ‘tech’ and ‘touch’ elements in service interactions (Giebelhausen et al., 2014; Green et al., 2016; Makarem et al., 2009; Wünderlich et al., 2013). We do so by illustrating how strategic sense-giving efforts provide service providers with important knowledge about appropriate ways of using technology and safeguard them against confusion and errors during technology-mediated service interactions. Moreover, our study extends research on service providers’ and consumers’ affective responses to technology use (Gallan et al., 2013, 2019; Palmeira and Spassova, 2015) by showing how strategic sense-giving efforts help service providers and consumers to cope with the emotional ambivalence (e.g. stress, uncertainty, frustration) of technology mediated service interactions (Christ-Brendemühl and Schaarschmidt, 2019). Finally, our findings also support role theory; the need for familiar and well-defined roles (Solomon et al., 1985; Surprenant and Solomon, 1987), the importance of having a shared understanding of role expectations (Mohr and Bitner, 1991), as well as the need to ‘master’ role behaviors (Broderick, 1998) in order to in
achieve favorable technology mediated service outcomes became evident from our analysis. Moving on, we provide a number of practical implications on pages 24 and 25 for healthcare organisations in terms of developing and circulating policies about technology use and also advice for the promotion and communication of technology use across the service network.
<table>
<thead>
<tr>
<th>Qualitative data: Interview and participant observations with healthcare service providers</th>
<th>Pseudonym</th>
<th>Position</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Michael</td>
<td>Chief Clinical Information Officer and Doctor (interview)</td>
<td>Consultant, reconstructive plastic surgeon. Responsible for creating a ‘mobile and telehealth use’ agenda for the organization. Ensures that staff and patients are all aware what their responsibilities are in terms of maintaining patients’ confidentiality. Advises on data protection, access to health records, feeding information, information security and new technology use. Sits on groups and advising committees, and provides guidance that lines up with regional and national publications on information governance and information security.</td>
</tr>
<tr>
<td>2</td>
<td>Adam</td>
<td>Head of Information Governance (interview)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Arthur</td>
<td>Deputy Director for Health Informatics (interview)</td>
<td>Responsible for the delivery of informatic services to a range of partners, including services such as IT and infrastructure, projecting program management services and system management. Responsible for implementation services, such as training and data quality. Advises on IT all the way to the life cycle of an information system, and project delivery and transformation around those systems.</td>
</tr>
<tr>
<td>4</td>
<td>Brain</td>
<td>Network Manager (interview)</td>
<td>Non-clinical. Responsible for all things network-related, which includes the switches, the wireless network, the phone</td>
</tr>
</tbody>
</table>
system etc. Advises on connectivity with devices and is in charge of setting up the wireless network in the hospital. Executive on the board of the Trust. Responsible for providing the technology needed to enable not just clinical staff but all staff to carry out their day-to-day jobs (e.g. technology that allows staff to work from home, work from different locations as well as working from the hospital itself). Responsible to provide those systems, the devices needed to access them, and to ensure that staff members use the systems. Advises on how to support the use and maintenance of systems.

Consultant in intensive care and emergency medicine. Acts as an “information governance conscience” for the organization. Responsible for following the Caldicott principles around patient confidentiality.

Non-clinical frontline customer service worker. Monitors status of telehealth patient conditions using a dashboard and telephones patients and their carers if there are irregularities flagged by the system. Non-clinical frontline customer service worker. Responsible for installing and maintaining telehealth equipment in patient homes and addressing technical problems. Occasionally provides initial training in use.
9 Aidan  
Telehealth Installer/Technician  
(interview and participant observation)  
of machines without nurse or usual carer present.  
Non-clinical frontline customer service worker. Responsible for installing and maintaining telehealth equipment in patient homes and addressing technical problems. Occasionally provides initial training in use of machines without nurse or usual carer present.

10 Emily  
Health Technology Assistant (interview and participant observation)  
Clinically trained nurse assigned to the heart failure team. Monitors status of telehealth patient conditions using a dashboard and telephones patients and carers if there are irregularities flagged by the system.

11 Fiona  
Health Technology Assistant (interview and participant observation)  
Clinically trained nurse assigned to the heart failure team. Monitors status of telehealth patient conditions using a dashboard and telephones patients and carers if there are irregularities flagged by the system.

12 Carl  
Telehealth Project Manager (interview)  
Non-clinical commissioner and manager of the telehealth service contract with third party providers. Responsible for marketing telehealth service to local doctors, nurses and care homes. Provides service protocols guidelines for best practice for telehealth use by different community health teams (e.g. respiratory, heart failure, post-stroke care, care homes) and patients.

13 Sylvia  
Registered Nurse and Nursing School Lecturer (interview)  
Academic Nurse Practitioner. Teaches registered nurses about policy changes
affecting clinical practice to update their skills.
Non-clinical. Director-level manager of local healthcare partnerships. Responsible for writing joint strategies for integration of healthcare and local government social care services using technology-enhanced services.

14 Melissa Assistant Director Health and Social Care Integration (interview)
Table 2
The process of strategic sense-giving

<table>
<thead>
<tr>
<th>Definition</th>
<th>Example</th>
<th>Reflexive questions in relation to roles</th>
</tr>
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<tbody>
<tr>
<td>Recognition of sense-making gaps</td>
<td>In technology mediated services, service providers and consumers can experience knowledge gaps which arise due to lack of organizational cues about appropriate technology use. By identifying why and when these sense-making gaps occur, organizations can offer tailored support and guidance to service providers and consumers who are struggling to integrate technology mediation.</td>
<td>“If there are any particular queries or any particular issues that the group wants to address or would be added to a certain policy, we just make sure that it’s picked up and appropriately addressed within a policy, make sure we’ve not missed anything” (Adam, Head of Information Governance, interview)</td>
</tr>
<tr>
<td>Identification of sense-giving opportunities</td>
<td>Involves detecting instances during which individuals can help service providers and consumers to resolve the ambiguity and confusion regarding technology mediation.</td>
<td>“From that meeting, I think, there’ll come a document and a policy which will explain the governance around mobile apps, around which apps are desirable, around what we do about patient confidentiality, and what we do about security of such apps and access, and so on.” (Leo, Assistant Medical Director/Caldicott Guardian/Doctor, interview)</td>
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<tr>
<td>Provision of templates of action</td>
<td>Involves providing clear templates of action in order to enable individuals to understand what technology mediation means in terms of their work and customer journey.</td>
<td>“People don’t necessarily understand that culture change, change for clinicians, just to implement [telehealth] successfully” (Melissa, Assistant Director, Health and Social Care Integration, interview)</td>
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