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**Title:** Value Co-Creation Through Digitalization

**Year:** 2018

**Version:**

**Please cite the original version:**

Rantala, K., & Karjaluoto, H. (2018). Value Co-Creation Through Digitalization. In A. Eskola (Ed.), *Navigating Through Changing Times : Knowledge Work in Complex Environments* (pp. 113-129). Routledge. Routledge Advances in Management and Business Studies.

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# **Value Co-creation through Digitization in the Healthcare Sector: A Managerial Perspective**

**Katja Rantala and Heikki Karjaluoto**

## **Digitization is changing the work of professionals**

This chapter investigates the implications of digitized services for value co-creation and for professionals from a managerial perspective. The aim is to create further understanding of the change requirements imposed on professionals by digitization in a healthcare context, to examine the changing roles in the value co-creation process, and to investigate how the pervasiveness of digitization enforces dialogue and service transparency. In particular, these requirements challenge the professional autonomy of decision taking as the black box of the service process is rendered transparent by information sharing and customer participation.

As a subject of intense discussion in the healthcare sector, digitization has become something of a buzzword. However, the discussion has centred mainly on technical digital solutions and customer service expectations, and it remains unclear what the term might actually mean in this context. In particular, there has been little discussion of the implications of digitization from a managerial perspective on new requirements for professionals in terms of their role and practice (Orlikowski and Scott 2008, 435; Lawrence, Zhang and Heineke 2016, 34). New ways of working and interacting create multiple requirements on the professionals' as the customer becomes an active participant in value co-creation. This has significant implications for the professional's working culture, as traditional expert authority gives way to a more open and consultative role (Gummesson, Lusch and Vargo 2010; Saarijarvi, Kannan and Kuusela 2013). As well as giving the customer responsibility for the service process through carrying out for self-care tasks supported by the digital service portal, this transformation brings the customer into dialogue with the professional during the service process. The information available within a digital service portal increases service transparency, as the requirements

of openness and customer empowerment are realized through information sharing and customer participation in decision taking (Carman and Workman 2017).

As the autonomy of healthcare professionals like physicians and medical therapists has traditionally been unarguable, this can become a very sensitive issue when service processes are standardized (Noordegraaf 2007). Based on the defined work processes in the digitized service portal, skills and capabilities of professionals become more transparent. This standardization of work is a consequence of the digital service algorithm, which allows for fewer exceptions in the treatment process than in the traditional format where the service provider could act independently on the best available understanding and knowledge. In this way, the digitization of healthcare services can be said to transform the role of practitioners to such an extent as to generate resistance. Despite mutual benefits, this transparency can be seen as diminishing professional autonomy, giving rise to scepticism and possible resistance. The more standardized processes and the more transparent information changes the way of working and increases the organization's role in defining of these service processes. This transfers the professional autonomy towards organizational professionalism and reduces the level of individual autonomy of the professional. The transfer of professional autonomy and the managerial implications of digitization are discussed here in terms of value co-creation building blocks (Prahalad and Ramaswamy 2004a, 9; 2004b, 8) as a frame or tool for operationalizing the somewhat cumbersome concept of value co-creation.

### **Digitization through the lens of institutionalism**

The chapter builds on theories of institutionalism and value co-creation. These are combined in a multidisciplinary approach to explore the managerial implications of digitization for healthcare professionals. The digital marketing dimension is also explored in terms of the changing customer role and digitization as a transformative factor in value co-creation (Hennig-Thurau et al. 2010, 313).

In a healthcare context, the insistence on democracy and openness in contemporary society creates increasing demand for openness of information and access and availability of services (Flyverbom et al. 2016, 102). In many countries, the demand for digitized healthcare services is driven by government strategies and legislative regulations that seek to reduce overall healthcare costs while increasing access to these services (OECD 2013; Martin, Currie and Finn 2009, 1191). Despite this obvious demand (OECD 2013), some healthcare professionals have questioned the need for digitization of healthcare services and whether this may be no more than a felt need. Due to these doubts, there arises concerns about how independently a service provider should define the service delivery system and whether the question should rather be how to respond to these requirements of openness and availability. One approach is to review digitization through the lens of institutionalism.

Technological development and the digitization of services reflect change processes in organizational environments. Technology and digitization can be regarded as tools of organizational reform in creating structures and constraints for interaction through digital solutions. This includes the healthcare sector, where management seeks increasingly to redevelop structures for managing processes of service provision (Scott 2013, 199-200; Evans 2016, 25; Exworthy and Halford 1999, 10). Requirements for change through digitization as imposed by external actors and internal organizational actions can be better understood in terms of formal and informal institutional forms (Peng et al. 2009, 67).

In general, institutionalization can be described as the process by which an organization's formal structure comes to be accepted by its members, so legitimizing the organization and its structures (Tolbert and Zucker 1983). Formal institutions represent the regulative or coercive form, defining prerequisites through legislation or other regulations for informal institutions to establish norms and cultures intentionally or unintentionally (Peng et al. 2009, 68). In informal institutions, professionals act on their individual and collective professional autonomy. This informal institutional power through autonomy resides within the formal organization of healthcare, which is not a passive recipient of rules

or regulations from outside as it has the power to interpret and to choose how to act in relation to external forces (Zucker 1987, 451; Meyer and Zucker 1989, 56-83; Orlikowski 1992). At the same time, the regulative actions of external institutions like government influence internal organizational interpretation and implementation of these regulations as formal rules and informal organizational norms and cultures.

Although technology is an inseparable element of modern working life, knowledge of how it influences organizational practices or service processes remains limited. From a managerial perspective, the impact of digitization on the role of service professionals has until recently been little studied or discussed (Lawrence, Zhang and Heineke 2016, 26). The need for research on the implications of technology in organizational contexts, including healthcare organizations, is widely acknowledged (Orlikowski and Scott 2008, 435; Dewett and Gareth 2001, 328; Zammuto et al. 2007, 750; Eriksson-Lundstrom and Edenius 2014). According to Orlikowski and Scott (2008), more than 95% of the articles in leading management journals take no account of the influence of technology in organizations. Based on Orlikowski's findings, this absence of research can be seen to relate to a lack of familiarity with technological matters among scholars in the organizational sciences.

Digitization can be defined by taking comparisons from the approach to define technology. In tracing the impact of digitization, technology can be seen either as an independent variable (that is, equipment or program) or as a moderating variable in interaction (that is, specific functions or targets and the means of attaining these) (Orlikowski and Scott 2008, 439). In relation to healthcare services, technology can be viewed as an independent variable in the form of a program or as a moderating variable through which openness and access to services can be realized. In the context of value co-creation, technology or digitization can be regarded as a moderating variable that enables value co-creation by providing a joint platform where customer and service provider can interact in the interests of both parties (Saarijarvi, Kannan and Kuusela 2013).

Typically, healthcare organizations (especially in the field of special healthcare) strive to innovate. However, despite the legitimacy this affords, digitization and associated changes are not automatically accepted, and adaptation may therefore be slow (Tolbert and Zucker 1983). Traditional technology acceptance models focus on the organization's employees (Venkatesh and Davis 2000), but the model has been updated to address the impact of peer support in the technology acceptance process (Sykes, Venkatesh and Gosain 2009, 374), introducing a social network perspective. Despite existing research that includes, for example, evidence of significant changes in radiologists' service processes through digitization, there has been little interest in the organizational implications of technology acceptance. Changes in work processes have not been accepted automatically and follow-up and consistency has been required (Lawrence, Zhang and Heineke 2016, 34; Koivikko, Kauppinen and Ahovuo 2008; Kauppinen, Kaipio and Koivikko 2013, 1020; Hu et al. 1999, 105).

It can be argued that digitization and new professional methods create a new approach to controlling work and managerial control of services. Digital and technological solutions also restructure and create new service systems (Lawrence, Zhang and Heineke 2016, 27). This structural approach to controlling work can be seen as a threat to professional autonomy or even as weakening professionalism (Noordegraaf 2007; Exworthy and Halford 1999, 10; Evans 2016, 16; Lawrence, Zhang and Heineke 2016, 34). Organizational adaptation to innovations like newly digitized services can be evaluated rationally as a necessary change (Zucker 1987, 453). However, despite obvious government targets in this regard, doubts persist among healthcare professionals about the need for change, and organizational support is needed if new digitized services are to be successfully adapted and accepted by professionals (Lawrence, Zhang and Heineke 2016, 34).

There exists substantial element of trust on self-initiated interest to maintain sufficient professional capabilities (Sullivan 2000) while complying with the requirements of digitized healthcare services. Adoption of these digital services in care processes is not necessarily systematically supported and

implemented, and there is evidence of a gap in self-initiated implementation between offered and recommended evidence-based healthcare services (Kristensen, Nyman and Konradsen 2016, 1). On that basis, there is an obvious need for managerial structures and targets if digital reformulation of working practices is to be effectively integrated into the service process (Rintala and Suolanen, 2005, 62; Lawrence, Zhang and Heineke 2016).

### **Transformation of professional autonomy through digitization**

Professionalism is traditionally linked to disciplines that apply specialized knowledge, have the autonomy of self-regulation, enjoy authority and defend their autonomy in the face of competition from other professions (Noordegraaf 2007; Lawrence, Zhang and Heineke 2016, 26; Freidson 1988, 3-10).

Traditionally, in these professions, which include law, education and medicine, there has been a tendency to protect the core work to maintain professional autonomy or even a monopoly of techniques and competencies and justification of self-regulation (Martin, Currie and Finn 2009, 1193; Light 2000; Freidson 1988, 3-10; Noordegraaf 2007).

Medical professionals have traditionally enjoyed support from professional associations outside their own place of work, contributing to a strong collegial culture among practitioners in healthcare organizations. In addition to organizational procedures, their work has been governed by this collegial understanding and agreement on procedures, and a strong culture of professional autonomy has prevailed. New managerial controls arguably weaken traditional professional groups, creating scope for a new professionalism (Noordegraaf 2007) — specifically, occupational professionalism becomes a more organizational professionalism (Evetts 2009, 255), defined by measures that include digitized service processes, target setting and measurement. In this environment, technology is strongly linked to social structures and institutions, and most organizations deploy digital solutions in their work processes (Orlikowski and Scott 2008, 434; Dewett and Gareth 2001, 328). This process of digitization

is challenging current healthcare service processes, introducing new requirements for professionals in terms of interaction, transparency, capabilities and operating procedures. This new professionalism does not happen automatically, and professionals' capacity to adapt is crucial in determining how this unfolds.

Digitization may be seen to threaten professional autonomy, as information and knowledge is embedded in the digital service portal and the algorithm standardizes ways of working. The embedded information is transparent to all who enter the service portal. The standardized way of working can be seen as limiting professional autonomy, although it can also free up the professional's time for questions that require their specific skill and knowledge while the customer can play a more active role in self-care or routine tasks supported by the digital service platform (Lawrence, Zhang and Heineke 2016, 27; Donnelly, Shaw and van den Akker 2008, 9).

### **Digitization enhances value co-creation**

As a form of technology, digitization can be said to play a pervasive role in interaction with the customer (Dewett and Gareth 2001, 334; Orlikowski and Scott 2008, 444) by supporting interaction and dialogue and making the service black box transparent (Dawson 2012, 3-7). As ICT enables access to information and reduces the monopoly on knowledge, customers turn increasingly to actors other than professionals for information (Donnelly, Shaw and van den Akker 2008, 9; Dedding et al. 2011, 51). Digitization supports this trend, enforcing greater transparency and more open dialogue with customers (Lawrence, Zhang and Heineke 2016, 27; Noordegraaf 2007). Technology expands interaction roles (Dewett and Gareth 2001, 328; Orlikowski and Scott 2008, 444), challenging existing ways of interacting and altering the roles of customer and professional service provider as customers become able and willing to interact and participate in shared decision-making of healthcare and professionals must adopt a more consultative approach with the customer (Carman and Workman



2017; Gulbrandsen et al. 2016; Hoffman, Montori and Del Mar 2014). This transparency of information and interaction challenges professionals' current ways of working, as well as their professional autonomy and monopoly of knowledge (Lawrence, Zhang and Heineke 2016, 34). Value co-creation proceeds from the customer's participatory role in their interaction with the service provider (Vargo and Lusch 2008, 8; Prahalad and Ramaswamy 2004a, 9; 2004b, 8). Value co-creation stems from the service dominance logic, according to which value is always co-created among stakeholders. As joint targets or mutual interests of the interaction play a crucial role in value co-creation, there is arguably a natural analogy with shared decision-making in healthcare (Vargo and Lusch 2008, 8; Vargo, Maglio and Akaka 2008, 149; Vargo 2011; Carman and Workman 2017). Value co-creation removes the producer-consumer dualism of the producer or service provider "producing" and the customer "consuming" value and shifts the focus to co-creation (Vargo, Maglio and Akaka 2008, 149; Akaka and Vargo 2014, 371). Saarijarvi et al. (2013) discussed the impact of technology in the value creation process by adding the influence of the technical solution to the interaction between service provider and customer. The process of value co-creation is supported by the organization's systems and processes, including technology — that is, the digital service platform influences the interaction (Zainuddin, Russell-Bennet and Previte 2013, 1509; Saarijarvi, Kannan and Kuusela 2013), enabling the value co-creation process and supporting the changing, expanding roles of stakeholders (Orlikowski and Scott 2008, 444; Dewett and Gareth 2011, 339). However, digitization of services is not just about transfer to a digital format but entails significant changes in the service interaction and value co-creation mechanisms. While Orlikowski's (1992) structurational model of technology emphasizes how technology is socially constructed or defined within an organization, Akaka and Vargo (2014) argued that the model does not take into account the complexity and dynamic systems in which value co-creation emerges. Value co-creation is a process in which the customer and service provider interact at multiple stages to co-create the value (Akaka and Vargo 2014, 371; Prahalad and

Ramaswamy 2004a, 9; 2004b, 8). Akaka and Vargo's (2014) approach emphasizes how technology is embedded in the service ecosystem, defining technology as a combination of practices, processes and symbols for a purpose to be fulfilled. They further define technology as a medium that influences how value is created. The technology's purpose therefore becomes central, influencing motivation to adapt (Lawrence, Zhang and Heineke 2016, 26), which in a healthcare context involves a commitment to help and so create value.

### **A look into developing digital services of health care**

This chapter describes a research carried out in Finland. The target of the research is to develop a health care organization and provide digital services in a health care organization undergoing strategic change in moving toward digitized services at the customer interface. The empirical data referred to here are drawn from multiple interviews with representatives of the case organization.

The case organization commenced development of digital healthcare services for direct customer interface some years ago and has continued to make more services available in this form to increase availability and address unmet needs for the service as determined both by external actors and internally by healthcare professionals. The case organization pointed out two of these digital services to be studied closer: the mental house and the house of weight control. Both offer evidence-based services at three levels: open service, therapy service (referral only) and a forum for professionals. From the professionals' perspective, these digital services are seen as outreach from special healthcare to primary care practitioners to obtain a high standard information that is evidence-based and professional and is not possible or easy to provide through traditional service processes. The majority of psychotherapists working in Finland operate in the private sector, and the case organization sources a number of short therapy services from outside. The digital service is developed among special healthcare professionals of the organization and made available also for the sourced professionals. The information in these

service portals is of special healthcare standard and based on evidence, and it is continuously updated by a network of professionals.

The findings are based on the views of professionals within the case organization, including some of those directly involved in developing the digital services, also acting as practitioners and managing other practitioners. Data collection involved semi-structured qualitative thematic personal interviews and group interviews. The personal interviews were constructed using snowball sampling, in which each interviewee identified the next contact, resulting in nine individual interviews all consisting of healthcare professionals within the organization. The group interviews were organized as two focus groups, comprising professionals involved in developing and using the digital service portals, as well as people involved in planning the portals. The thematic frame for the interviews was based on pre-selected themes, using the DART-model of value co-creation building blocks (dialogue, access, risk assessment, and transparency) (Prahalad and Ramaswamy 2004a, 9; 2004b, 8). Personal interviews were tape-recorded, and group interviews were video-recorded with the participants' permission. The accumulated interview material was grouped and organized, using the DART-model guiding themes of the interviews for the purposes of analysis. Within these building blocks of DART-model, certain point of views were guiding the regrouping of the themes for interpreting the findings more on managerial basis.

The interviews were further enriched and supplemented by observations and active participation in the discussions and in eHealth workgroups within the organization. The observations were conducted at in-house seminars on the digitization of healthcare services, including discussions and material provided by the seminar representatives. All of this material was treated anonymously and provides a comprehensive understanding of the organization's actions in respect of value co-creation through digitization of services.

The findings of the research are presented under three headings. *New roles* identifies the new kind of dialogue with the customer and the changing roles of the parties to value co-creation. *New skills* introduces the requirement for different interaction skills in changing roles to enhance value co-creation. Additionally, this section addresses the transparency of information and of the service process as new phenomena introduced by digitization, emphasizing the need for managerial support for the required capabilities. *New way of working* considers the implications of digitization for the service process and how the form of organizational measures influences the work of the professional in the value co-creation process and how professional autonomy is perceived in this context.

Digitized services alter interaction with the customer to an ongoing process of dialogue through the service portal, where the professional can act proactively beyond only responding to a question. The customer can pose questions at any time, and the professional can respond when available. Discussion is ongoing, and the customer receives the necessary support. Digitization transforms the need for immediate contact to an ongoing process of dialogue, as the platform renders communication independent of location and time. The information and dialogue available within the digital service portal enables the customer to become an active participant and contributor to the service process and enables the professional to act proactively as the customer's condition-related information becomes available.

In the service portal, specific customer-related information is shared between customer and therapist, but the customer decides what information is passed on to the physician responsible for that customer. This sharing of professional information benefits the whole treatment process, including the therapist as well as the primary care practitioner. The dialogue among these actors is based on transparent, evidence-based, high quality special healthcare information.

The digital service referral grants access to the portal, and the customer is assigned to a therapist. Their relationship is built and supported by the digital service portal. In the case of weight control house, the

connection is built with an identifiable therapist, but in the case of mental health services, the therapist or psychiatrist is not identifiable and remains anonymous to the customer. This anonymity is one means of empowering the customer to be active and to participate in their treatment through self-care tasks. In the weight control house, it is considered more effective to provide an identifiable therapist, as customers often have a history of neglected issues with obesity, and there may be a need for coaching and support with an identifiable therapist. Through empowering the customer “is given role of expert in his or her own life, and the professional becomes more a mentor or coach. The patient is made responsible, and targets are jointly set, all of which is designed to enable the patient to feel a sense of agency.”

The service process begins with joint target setting for the different phases of the process and for the overall outcome. Target setting is a form of shared decision-making with the customer, in which self-care tasks and training customer contributes actively to successful treatment. This new customer role as a responsible and active participant in the treatment process calls for a new approach with coaching abilities from the professional. One of the interviewees described the change: “The earlier malfunctioning of the psychiatric treatment owed largely to the fact that there were no requirements for the patient. Treatment was mixed with care. Now, we offer training components in the net therapy portal.”

As a new tool that integrates the therapy service in the primary care service process, the digital service platform alters the roles of the special and primary healthcare professionals. Through the service portal, primary care practitioners can make referrals, allowing customers to access the digital service. While the therapist works on a consultative basis, responsibility for the customer remains with the primary care practitioner, supporting meaningful and cost effective allocation of professional resources. The change in resource allocation with positive consequences is illustrated with the excerpt: “The number of patients directed to special healthcare is diminishing as digital psychotherapy services cure

customers before their condition requires special healthcare.” For the referring physician, the process is not transparent within the service portal itself. However, as the therapist provides a consulting report following treatment, with symptom measures and further instructions, the service outcome is also transparent to the physician.

The digital service transforms the traditional face-to-face dialogue to online interaction, requiring new behaviours and skills from the professionals. Among these, the dialogue takes the form of a written conversation, requiring an ability to express issues in writing, which may prove challenging for many professionals as this is not necessarily something that comes naturally. Similarly, working with a net portal is not automatic and the communication through the portal requires planning and training. The sceptics make comments of the work with the digital portal such as “Do I really have to respond to the customer via the tool?” This kind of comment strongly calls for management involvement in defining and supporting the development of new behaviour and skills.

Online sessions with the customer requires communication skills that differ from the traditional face-to-face appointment. Because the customer actively participates in the treatment process as a responsible actor, the professional must develop a coaching approach. The digital service portal makes information transparent for the customer that only the professional could previously access. Again, this consultative approach is not automatic for professionals; as one interviewee said, this requires a significant shift of mind-set.

Within the organization, there is substantial trust in the professional’s self-initiated willingness to maintain the required professional capabilities. However, use of the net therapy portal requires a specific range and level of expertise, which according to managers of the therapy services can present a challenge to the autonomy of professional knowledge. The digital service process makes the knowledge of the practicing therapist visible and requests timely knowledge. From the managerial perspective, this creates a requirement for standards in relation to the requisite level of skills and capabilities followed

by management that is more systematic as more technologically skilful and process-oriented professionals enter working life.

The digital service portal offers a huge range of psychiatric therapy possibilities that must be integrated with new tools, medical training and measurements, and the professionals developing the service understand the pressing need for systematic practical training for new psychiatrists or therapists. More generally, there is a need for systematic familiarization with the digital service portals.

The problem of professional autonomy becomes clear in open-ended psychiatric therapy, where the case organization sources a number of short therapy services from outside, making control of service quality extremely difficult. The digital service offers a possibility to improve the service quality as illustrated by the following excerpt: “The therapy portal secures the quality of services bought outside the organization.”

Through defined processes and algorithm, the therapy portal harmonizes and so improves service quality. While the professionals using the mental net therapy portal still show signs of indecisiveness or a semi-voluntary approach, the weight control portal is well accepted and used. The optional or semi-voluntary use of the digitized service by some professionals is considered problematic, as it does not deliver the benefits that could be achieved through use that is more systematic. This may also lead to situations where managers are unable to evaluate the level or timeliness of the knowledge of the practicing therapist.

In psychiatry, the organization struggles to be systematic in this way, as some of the therapists and psychiatrists providing the service find it hard to follow any systematic process and favour a more unsystematic and empathetic approach. According to the interviewed specialists, some service providers and participants tend to work in an unsystematic way involving a high level of empathy. Clearly, then, value creation in digitized healthcare services requires an adequate combination of the systematic and the empathetic within the treatment process.

By defining procedures to follow, the service process offered by the digital portal creates new standardized ways of working. This allows for fewer exceptions in the treatment process than in the traditional format, where the service provider could independently decide on treatment and duration based on their best understanding and knowledge. The challenge, then, is how to integrate the defined service process into the work so that use of the service portal no longer depends on the personal preferences of the individual practitioner. Within the case organization, there is an understanding that this will have significant implications for the working culture as the traditional “authoritarian artisan” approach is transformed into a more systematic way of working, with defined processes and targets and the operating culture will transform to more process way of working.

By empowering the customer, the portal frees professionals to focus more on tasks and questions demanding their specific knowledge and expertise. However, acceptance of the new digital services among professionals is not automatic, and there remains plenty of doubt and scepticism concerning implementation, which is expressed in the next excerpt: “The sceptics see the risk of jeopardizing the profession of psychiatry, but on the other side there is the help for the customer.” Further, there needs to emerge new, systematic measures to enhance the acceptance of the digital service, which is expressed in the following excerpt: “Systematic marketing of digital services to professionals is needed.”

Professionals are concerned whether use of the net therapy service portal will add to workloads. The target is to around 50% of working time using the net therapy portal while the rest of the time is allocated to clinical work. At present, therapists in both the mental health and weight control services allocate one day a week to customers using the digital service portal, which accounts for some 20% of working time. Since net therapy is still quite new and perhaps more tiring as a way of working, the ratio of net therapy time to total working time remains limited.



As the digital therapy service always involves some clinical work, there is no such work as a pure net therapist. As expressed by one of the interviewees: “The advancement and implementation of digital services will depend on how well they can be integrated into the daily working actions as new tools of the artisan.” The integration of the digital service into the daily practices is a complex issue and the allocated working time is one possibility to maintain the attractiveness of working through the digital service portal and so increase its share in the service offering. Typically, net therapists are newer and younger and are more eager to adapt and use the digital service portal in their work.

For professionals, a further concern about the digital portal relates to multiprofessional collaboration in the service process. Traditionally, the treatment process involves a team of professionals, but the digital service portal is not open to the team. Because team members do not have access to the information in digital format, there is no transparency, and this is seen as problematic in terms of quality and multiprofessional collaboration during the treatment process.

### **Managerial commitment required**

While the multidisciplinary approach has some challenging aspects, these seem worthwhile in pursuing an understanding of how digitization transforms value co-creation in a complex environment such as healthcare and helpful in clarifying the challenges for the professionals and their work from a managerial perspective. Understanding the complex issues posed by healthcare organizations and their processes in combination with issues of professionalism seems to require this broader view.

The management culture in healthcare has generally been defined by professional competency and the autonomy legitimated through that competency (Noordegraaf 2007; Martin, Currie and Finn 2009, 1192; Lawrence, Zhang and Heineke 2016, 26; Freidson 1988, 3-10). Digitization inevitably affects professional autonomy by shifting the emphasis toward organizational professionalism (Noordegraaf

2007; Evetts 2009, 255). In other words, in defining digital service processes and the capabilities required by digitization, the organization is perceived as reducing individual professional autonomy. At its core, value co-creation is about open communication and interaction with the customer for mutual benefits (Vargo and Lusch 2008, 8; Prahalad and Ramaswamy 2004a, 9; 2004b, 8). In the digital service portal, the dialogue becomes a more ongoing process, involving the professional in an online interaction that differs from the traditional appointment-based consultation. The communication skills required in this online environment are also different, as online communication can also be anonymous, as in the case of mental health services. While this approach to service provision can appear quite radical to many, it is a well-reasoned means of supporting the treatment process. It is also important to remember that the customer is supported on a continuous basis rather than having to wait for the traditional fixed and perhaps rare appointment. Although the anonymity of the therapist differs from the traditional service, the interviewed professionals did not raise this as an issue. However, perceptions of this anonymity among healthcare professionals and customers clearly warrant further research.

The information available in the service portal and jointly agreed targets for the treatment or service process increases transparency to a level that may be perceived as challenging for the professional, who is required to act in a more systematic way. However, through dialogue with the empowered customer, this increased transparency supports mutual target setting for the service process and so enhances value co-creation (Prahalad and Ramaswamy 2004a, 9; 2004b, 8).

The interviewees realized that this would have implications for the working culture, as the role of expert is transformed into a more coaching and consultative role and professional autonomy may be challenged (Donnelly, Shaw and van den Akker 2008, 9; Noordegraaf 2007; Lawrence, Zhang and Heineke 2016, 27). There is a clear analogy here with the shared decision-making concept in healthcare, where the patient as customer participates in decision making on the basis of mutual

information sharing (Carman and Workman 2017; Gulbrandsen et al. 2016; Vargo and Lusch 2008, 8; Prahalad and Ramaswamy 2004 a, 9; 2004b, 8). This finding opens the door to further research in the healthcare sector from a customer or consumer perspective and suggests that the development of the service portal can be enhanced by the customer's more active role.

The use of the digital service portal requires different skills, as more of the dialogue is an ongoing process, mainly in written form, in which both parties play an active role. This also means that the professional is enabled to act proactively with the dialogue. The computer literate skills to engage proactively with the dialogue and readiness to communicate through the digital service portal may require stronger managerial support. There is an obvious need for systematic training and support for appropriate use of the digital service portal for professionals, and there is already evidence that new therapists or younger professionals are more eager to adapt.

Digital service processes introduce a more systematic or standardized way of working. This more standardized process enables the organization to control and enhance overall service quality by reducing person-related variation. However, the standardized way of working is not automatically accepted (Tolbert and Zucker 1983; Venkatesh and Davis 2000; Sykes, Venkatesh and Gosain 2009, 377), and if use of the digital service portal is based on voluntarism, managerial targets for the service are unlikely to be met. Sceptics tend to perceive the possibilities of net therapy negatively because digitization will eliminate the need for therapists. In addressing this concern, management should emphasize the help offered to people who would probably otherwise go untreated. In the case organization there is still a lack of systematic implementation of targets for the new digitized services, and there is an urgent need for managerial commitment to targets for implementation. This is why digital service portal treatment processes must be properly integrated with clinical work to address issues like multiprofessional team working. Based on the research the level of successful implementation among the professionals is seen to depend on how well digital service process can be

integrated with therapy practices, requiring redefinition of work processes and training in the relevant skills.

To conclude, as service digitization introduces a new mechanism of organizational control, professional autonomy is challenged and transformed into organizational professionalism (Noordegraaf 2007; Evetts 2009, 255), and acceptance and implementation of digital service portals by the professionals cannot be based on self-initiated and voluntary use. The interview findings highlight the need for managerial action to support acceptance, implementation and adoption of the digital service portal. Adoption of digital services and the associated changes in working processes largely determine the success of value co-creation in healthcare through digitization, based on open dialogue and increased service availability (Prahalad and Ramaswamy 2004a, 9; 2004b, 8; Hennig-Thurau et al. 2010, 319).

This chapter has described organizational implications of digitization, changes in the work and role of professionals less often studied in this context, customer relationship management and value co-creation in healthcare and the importance of evaluating digitized service processes and their implications for value co-creation from the professional's point of view. The evident similarities with shared decision-making offers a new and perhaps wider definition of the healthcare customer's role.

## References

- Akaka, Melissa, and Stephen Vargo. 2014. "Technology as an operant resource in service (eco) systems." *Information Systems and e-Business Management* 12, no. 3: 367-84. Accessed July 6, 2016. doi:10.1007/s10257-013-0220-5.
- Carman, Kristin, and Thomas Workman. 2017. "Engaging patients and consumers in research evidence: Applying the conceptual model of patient and family engagement." *Patient Education and Counselling* 100, no 1: 25-9. Accessed December 29, 2016. doi:10.1016/j.pec.2016.07.009.

- Dawson, Ross. 2005. *Developing knowledge-based client relationships*. Oxford: Elsevier Butterworth Heinemann.
- Dedding, Christine, Roesja van Doorn, Lex Winkler, and Ria Reis. 2011. "How will e-health affect patient participation in the clinic? A review of e-health studies and the current evidence for changes in the relationship between medical professionals and patients." *Social Science & Medicine* 72, no.1: 49-53. Accessed December 29, 2016. doi:10.1016/j.socscimed.2010.10.017.
- Dewett, Todd, and Gareth. Jones. 2001. "The role of information technology in the organization: A review, model, and assessment." *Journal of Management* 27, no.3: 313-46. Accessed January 12, 2017. doi:10.1177/014920630102700306.
- Donnelly, Louise, Rachel Shaw, and Olga van den Akker. 2008. "eHealth as a challenge to 'expert' power: A focus group study of internet use for health information and management." *Journal of the Royal Society of Medicine* 101 no.10: 501-6. Accessed December 29, 2016. doi:10.1258/jrsm.2008.080156.
- Eriksson-Lundstrom, Jenny, and Mats Edenius. 2014. "Anchoring tablets in organizational practices-a practice based approach to the digitalization of board work." Paper presented at 2014 International Conference on Information Systems (ICIS 2014), Auckland, New Zealand, December 14-17. Accessed December 27, 2016. <https://pdfs.semanticscholar.org/8dc2/b73d6d2c5e55d979a2e0e53ec3a2b79bf37b.pdf>.
- Evans, Tony. 2016. *Professional discretion in welfare services: Beyond street-level bureaucracy*. New York: Routledge.
- Evetts, Julia. 2009. "New professionalism and new public management: Changes, continuities and consequences." *Comparative Sociology* 8, no. 2: 247-66. Accessed January 15, 2017. doi:10.1163/156913309X421655.

- Exworthy, Mark and Susan Halford. 1999. "Professionals and managers in a changing public sector: conflict, compromise and collaboration?" In *Professionals and the new managerialism in the public sector*, edited by Mark Exworthy and Susan Halford, 1-17. Buckingham: Open University Press.
- Flyverbom, Mikkel, Paul Leonardi, Cynthia Stohl, and Michael Stohl. 2016. "Digital age| the management of visibilities in the digital Age—Introduction." *International Journal of Communication* 10: 98-109. Accessed December 29, 2016.  
<http://ijoc.org/index.php/ijoc/article/view/4841/1532>
- Freidson, Eliot. 1998. *Profession of medicine: A study of the sociology of applied knowledge*. Chicago: University of Chicago Press.
- Gulbrandsen, Pal, Marla Clayman, Mary Beach, Paul Han, Emily Boss, Eirik Ofstad, and Glyn Elwyn. 2016. "Shared decision-making as an existential journey: Aiming for restored autonomous capacity." *Patient Education and Counseling* 99: 1505-10. Accessed December 29, 2016.  
doi:10.1016/j.pec.2016.07.014.
- Gummesson, Evert, Robert Lusch, and Stephen Vargo. 2010. "Transitioning from service management to service-dominant logic: Observations and recommendations." *International Journal of Quality and Service Sciences* 2, no. 1: 8–22. Accessed July 6, 2016. doi:10.1108/17566691011026577.
- Hennig-Thurau, Thorsten, Edward Malthouse, Christian Frieger, Sonja Gensler, Lara Lobschat, Arvind Rangaswamy, and Bernd Skiera. 2010. "The impact of new media on customer relationships." *Journal of Service Research* 13, no. 3: 311-30. Accessed December 29, 2016.  
doi:10.1108/17566691011026577.
- Hoffmann, Tammy, Victor Montori, and Chris Del Mar. 2014. "The connection between evidence-based medicine and shared decision making." *Jama* 312, no. 13: 1295-6. Accessed December 29, 2016. doi:10.1001/jama.2014.10186.

- Hu, Paul, Patrick Chau, Olivia Liu Sheng, and Kar Yan Tam. 1999. "Examining the technology acceptance model using physician acceptance of telemedicine technology." *Journal of Management Information Systems* 16, no. 2: 91-112. Accessed September 9, 2016. doi:10.1080/07421222.1999.11518247.
- Kauppinen, Tomi, Johanna Kaipio, and Mika Koivikko. 2013. "Learning curve of speech recognition." *Journal of Digital Imaging* 26, no. 6: 1020-4. Accessed September 9, 2016. doi:10.1007/s10278-013-9614-7.
- Koivikko, Mika, Tomi Kauppinen, and Juhani Ahovu. 2008. "Improvement of report workflow and productivity using speech recognition—a follow-up study." *Journal of Digital Imaging* 21, no. 4: 378-82. Accessed September 9, 2016. doi:10.1007/s10278-008-9121-4.
- Kristensen, Nanna, Camilla Nymann, and Hanne Konradsen. 2016. "Implementing research results in clinical practice—the experiences of healthcare professionals." *BMC Health Services Research* 16, no. 1: 48: 1-10. Accessed December 27, 2016. doi:10.1186/s12913-016-1292-y.
- Lawrence, Benjamin, Jie Zhang, and Janelle Heineke. 2016. "A life-cycle perspective of professionalism in services." *Journal of Operations Management* 42: 25-38. Accessed December 27, 2016. doi:10.1016/j.jom.2016.03.003.
- Light, Donald. 2000. "The Medical Profession and Organizational Change: From Professional Dominance to Countervailing Power." In *Handbook of Medical Sociology*, edited by Chloe Bird, Peter Conrad and Allen Fremont, 201-16. Prentice-Hall. Accessed December 27, 2016. [http://www.academia.edu/download/1950047/Pro-Hdbk\\_2000\\_5th.doc](http://www.academia.edu/download/1950047/Pro-Hdbk_2000_5th.doc).
- Martin, Graham, Graeme Currie, and Rachael Finn. 2009. "Reconfiguring or reproducing intra-professional boundaries? specialist expertise, generalist knowledge and the 'modernization' of the medical workforce." *Social Science & Medicine* 68, no. 7: 1191-8. Accessed December 27, 2016. doi:10.1016/j.socscimed.2009.01.006.

- Meyer, Marshall, and Lynne Zucker. 1989. *Permanently failing organizations*. Newbury Park: Sage Publications, Inc.
- Noordegraaf, Mirko. 2007. "From "pure" to "hybrid" professionalism present-day professionalism in ambiguous public domains." *Administration & Society* 39, no. 6: 761-85. Accessed January 10, 2017. doi:10.1177/0095399707304434.
- OECD E-Government Project. 2013. "Draft OECD Principles for Digital Government Strategies." Paper presented at the OECD E-Leaders' meeting, Bern, Switzerland, October 29-30. Accessed January 8, 2017. <http://www.oecd.org/governance/eleaders/Draft-OECD-Principles-for-Digital-Government-Strategies.pdf>.
- Orlikowski, Wanda. 1992. "The duality of technology: Rethinking the concept of technology in organizations." *Organization Science* 3, no. 3: 398-427. Accessed January 19, 2017. doi:10.1287/orsc.3.3.398.
- Orlikowski, Wanda, and Susan Scott. 2008. "10 sociomateriality: Challenging the separation of technology, work and organization." *The Academy of Management Annals* 2, no. 1: 433-74. Accessed December 27, 2016. doi:10.1080/19416520802211644.
- Peng, Mike, Sunny Li Sun, Brian Pinkham, and Hao Chen. 2009. "The institution-based view as a third leg for a strategy tripod." *The Academy of Management Perspectives* 23, no.3: 63-81. Accessed January 11, 2017. doi:10.5465/AMP.2009.43479264.
- Prahalad, Coimbatore, and Venkat Ramaswamy. 2004a. "Co-creation experiences: The next practice in value creation." *Journal of Interactive Marketing* 18, no. 3: 5-14. Accessed July 1, 2015. doi:10.1002/dir.20015.
- Prahalad, Coimbatore, and Venkat Ramaswamy. 2004b. "Co-creating unique value with customers." *Strategy & Leadership* 32, no. 3: 4-9. Accessed July 1, 2015. doi:10.1108/10878570410699249.



- Rintala, Niina, and Sanna Suolonen. 2005. "The implications of digitalization for job descriptions, competencies and the quality of working life." *Nordicom Review* 26, no. 2: 53-67. Accessed December 29, 2016. doi:10.1515/nor-2017-0258
- Saarijarvi, Hannu, PK Kannan, and Hannu Kuusela. 2013. "Value co-creation: Theoretical approaches and practical implications." *European Business Review* 25, no. 1: 6-19. Accessed January 7, 2017. doi:10.1108/09555341311287718.
- Scott, Richard. 2013. *Institutions and organizations: Ideas, interests, and identities*. Thousand Oaks, Sage Publications.
- Sullivan, William. 2000. "Medicine under threat: Professionalism and professional identity." *CMAJ: Canadian Medical Association Journal = Journal De l'Association Medicale Canadienne* 162, no. 5: 673-5. Accessed December 27, 2016. <http://www.cmaj.ca/content/162/5/673.full>.
- Sykes, Tracy Ann, Viswanath Venkatesh, and Sanjay Gosain. 2009. "Model of acceptance with peer support: A social network perspective to understand employees' system use." *MIS Quarterly* 33, no. 2: 371-93. Accessed December 27, 2016. <http://www.jstor.org/stable/20650296>.
- Tolbert, Pamela, and Lynne Zucker. 1983. "Institutional sources of change in the formal structure of organizations: The diffusion of civil service reform, 1880-1935." *Administrative Science Quarterly* 28: 22-39. Accessed December 27, 2016. <http://digitalcommons.ilr.cornell.edu/articles/131/>.
- Vargo, Stephen. 2011. "Market systems, stakeholders and value propositions: Toward a service-dominant logic-based theory of the market." *European Journal of Marketing* 45, no. 1/2: 217-22. Accessed September 18, 2014. doi:10.1108/03090561111095667.
- Vargo, Stephen, and Robert Lusch. 2008. "Service-dominant logic: Continuing the evolution." *Journal of the Academy of Marketing Science* 36, no. 1: 1-10. Accessed September 18, 2014. doi:10.1007/s11747-007-0069-6.

- Vargo, Stephen, Paul Maglio, and Melissa Akaka. 2008. "On value and value co-creation: A service systems and service logic perspective." *European Management Journal* 26, no. 3: 145-52. Accessed September 18, 2014. doi:10.1016/j.emj.2008.04.003.
- Venkatesh, Viswanath, and Fred Davis. 2000. "A theoretical extension of the technology acceptance model: Four longitudinal field studies." *Management Science* 46, no. 2: 186-204. Accessed September 10, 2015. doi:10.1287/mnsc.46.2.186.11926.
- Zainuddin, Nadia, Rebekah Russell-Bennet, and Josephine Previte. 2013. "The value of health and wellbeing: an empirical model of value creation in social marketing." *European Journal of Marketing* 47, no. 9: 1504-24. Accessed October 24, 2014. doi:10.1108/EJM-10-2011-0564.
- Zammuto, Raymond, Terri Griffith, Ann Majchrzak, Deborah Dougherty, and Samer Faraj. 2007. "Information technology and the changing fabric of organization." *Organization Science* 18, no. 5: 749-62. Accessed January 12, 2017. doi:10.1287/orsc.1070.0307.
- Zucker, Lynne. 1987. "Institutional theories of organization." *Annual Review of Sociology* 13, no. 1: 443-64. Accessed December 27, 2016. doi:10.1146/annurev.so.13.080187.002303.