Institutional Logics and Digital Innovations in Healthcare Organizations in Response to Crisis

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Abstract. In all countries with advanced welfare systems, healthcare organizations operate in complex institutional systems, which define their space of autonomy in relation to health policy choices and affect their strategic choices, organizational design and management. Healthcare systems are a particularly fruitful context in which to examine how a range of contrasting norms and practices shape innovation. They are in fact confronted with multiple values and demands and the challenge is to simultaneously enhance the quality and reduce the costs of care. The paper examines how competing institutional logics shape innovation development through the use of digital technologies in healthcare organizations responding to emerging events, such as Covid-19 pandemic. Specifically, we adopt an institutional logics perspective to provide insight into the process of innovation, with a focus on the role of telemedicine. The need for social distancing and minimal physical contact challenged and interrupted hospital practices and, in response, digital technologies lead to new processes and services. Remote audio-visual functionality of digital technologies were appropriated in different ways, as stakeholders (state actors, managers, health professionals, and family members) sought to improvise and enhance the protection of persons concerned. Through remote monitoring of patients, telehealth works as a preventative measure to avoid admissions and is therefore a carrier of the managerialist logic of reducing costs by enabling, at the same time, a fast and accurate response to patients' needs.

Keywords: Institutional pressures · Healthcare organization · Digital innovation

1 Introduction

In all countries with advanced welfare systems, healthcare organizations operate in complex institutional systems, which define their space of autonomy in relation to health policy choices and affect their strategic choices, organizational design and management. Over 20 years, hospitals in Italy as well as in other European countries have evolved and changed in response to institutional pressures. The entrance of new logics and governance structures contributed to a transformation of the health system, with a distinction between productive and managerial dimension. The need for rationalization was stimulated by a number of factors, such as the rising health care costs, due to the use of increasingly

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sophisticated technologies, the progressive aging of the population, the general rise in the cultural level of the population, which led to growing needs to meet [1].

The changes in political and institutional mechanisms defining the resource allocation, and the increasing complexity of relationships among internal and external stakeholders create new challenges to hospital administrators. Governments introduce measures to save costs, patients express growing demands, and citizens demand greater transparency on the functioning and resource utilization. Healthcare organizations must be able to develop appropriate traits of flexibility and innovation to deal with these pressures [2].

The institutional approach focuses on social processes of construction of reality, and how the existence of social interactions tends to stabilize reality through processes of legitimation and to define constraints on the range of possible actions, reducing the variability and unpredictability of individual behavior. The context in which organizations operate is composed of shared and ingrained cultural elements that act as template to organize activities and the modification of this template determines potential organizational changes [3]. If organizations want to survive, their organizational choices must consider external pressures [4]. An organizational form can be adopted not because it is more efficient in terms of transaction costs [5] or adaptation through differentiation-integration (theory of structural contingencies), but because it is considered the appropriate way to organize activities as legitimized in the institutional context. Thus, an organization can adopt an innovation not just for the need to improve its performance, but to get legitimacy. Organizations in a population adapt to their environment, which is constituted by other organizations adapting to it [6]. This reflects the tendency to isomorphism, useful concept to understand innovative processes in health sector.

Thus, healthcare systems are a particularly fruitful context in which to examine how a range of contrasting norms and practices shape innovation. In particular the paper examines how a crisis event shapes innovation development through the use of digital technologies in a healthcare organisation. The crisis is an high-impact and unexpected situation that is perceived by stakeholders to threaten the survival of the organization [7, 8]. The crisis can be defined as "creeping" characterized by the uncertainty of its temporal boundaries, which hinders rapid detection, and by the unforeseen changes that create problems for managers and politicians [9]. Crisis is open to rapid innovation, with established ways of working replaced by alternative practices guided by institutional logics.

The research question of this study is how does the presence of multiple logics affect the adoption of an innovative practice in health care? In the following sections, we discuss institutional logics and how they can be linked to digital technology innovation in healthcare and conclude with implications for practice and directions for future research.

2 Institutional Logics and Digital Innovations

In time of crisis, organizations often introduce innovation practices in order to appear legitimate towards influential external actors. Institutional logics constitute the norms and beliefs that regulate the behaviour of individuals and the selection of technologies [10]. Due to their normative power, logics can constrain human action and be a source of

resistance to change [2] and digital innovation [11]. New practices and technologies carry with them new institutional logics which, in turn, challenge the dominant logic of an organisational field. In the institutional approach, the analyses unit is the organizational field including different typologies of actors of a recognized area of institutional life: key suppliers, resource and product consumers, regulatory agencies, and other organizations that produce similar services or products [6]. In the healthcare field the main actors are: hospitals, health professionals, pharmaceutical companies (key suppliers); patients and potential patients (resource and product consumers); national and regional government, medical associations (regulatory agencies); medicine providers, social service provider (organization producing similar services or products) [12]. New logics challenging the dominant logic of an organisational field can become a source of new meanings and practices that actors may enact to bring about change [13]. An organizational field is commonly accepted as a unit of analysis characterized by the dynamics of its institutional logics comprehensive of common beliefs and values both formalized in the law and not [14].

Institutional logics, the beliefs and practices that guide and shape individual or organisational identities and actions [9], are important filters of attention activating goals and schema for individuals to act on, thus guiding how technology is taken up. Logics can thus be important in directing actions during the organisational recovery and adjustment of work practices and influence digital innovation.

During the Covid-19 pandemic, stakeholder groups are connected around digital technology use, including state level actors (the Ministries) corporate actors (technology firms, industry partners and hospital executives), professionals (medical doctors and nurses), and end users (patients and their family). Italian hospitals rapid responses to the COVID-19 crisis demonstrate how telemedicine technologies, serving as digital personal protective equipment, were reutilized for diverse purposes, such as surveillance, control of operations, inpatient safety and quality of care, and family support, as guided by the different institutional logics [15].

Stakeholders with a dominant *state logic* directing their recovery to the emerging pandemic focused their attention on affording national pandemic control, with a goal of protecting citizens within the national boundaries. Drawing on their interests of national governance within the healthcare arena, improvised use of telemedicine technologies traced disease progression and the movement of individuals to contain the disease. Stakeholders with a dominant *managerial logic* focused their attention on affording control of hospital operations. The sudden influx of patients, rapid redistribution of new spaces for hospital beds and new work routines directed their recovery to regain efficiency by integrating real time logistics information with telemedicine technologies. These adjustment practices enabled them to reclaim visibility over their dispersed operations without the need to physically visit contaminated zones. Stakeholders with a dominant *professional logic* addressed their attention towards collaboration and communication with colleagues, overcoming the interferences of protective barriers. Drawing on their need to coordinate expertise, improvised enactment of telemedicine in care delivery enabled them to make use of safe spaces to interact with colleagues and patients from a distance. Their adjustments to the new protective requirements imposed by the pandemic directed their recovery to innovate new ways of sharing expertise and monitoring

patient care. The professional logic has been characterised as basing its norms in guilds and associations, following a strategy of increasing personal reputation, and deriving its authority through professional expertise [9]. Stakeholders directed by this logic would be expected to focus their attention on the possibilities for using technology to maintain their expert autonomy and to increase their knowledge, or projecting this knowledgeability to others. Stakeholders with a dominant *family logic* focused their attention on affording encouragement and commitment to kin. Patients respond positively to family involvement and recovery of contact was improvised using telemedicine technology. The digital innovation of electronic visiting hours became an important crisis response to encourage grieving families [15].

3 Innovation in Healthcare: Telemedicine

Healthcare information technology is the application of information systems and technology to clinical and administrative work in healthcare facilities [16]. It refers to a wide range of clinical, operational, and strategic systems used in hospitals, such as electronic medical records, computerized physician order entry, and patient billing systems.

In Covid-19 time the disease presented the hospital with a marked influx of patients requiring respiratory related treatment, and needing ICU beds. All incoming patients had to be screened. Further, Covid-19 patients could infect others including staff, putting the workforce at risk. In response, directors at Italian hospital constructed rapid design solutions to increase the inpatient bed capacity, pointing to their logic of extending corporation size. Telemedicine is a modality of providing health care services through the use of information technology in situations where health professionals and patients are not in the same location, with transmission of secure information and medical data in the form of texts, sounds, images, or other forms necessary for the prevention, diagnosis, treatment, and patient follow-up. Telemedicine solution included: medical care for isolated coronavirus inpatients, home hospitalisation for coronavirus patients, and continuity of care for non-coronavirus ambulatory patients [17]. Operations were further adjusted to separate coronavirus patients from most of the medical staff. All the healthcare units were designed with separation between 'clean' and 'contaminated' zones, distinguished circulation routes, and a special control room to supervise remotely the operations of the unit. Digital technologies can afford the management of patients through audio-visual communication between a 'control room' in the 'clean' zone and the patients and necessary staff in the 'contaminated' zone. As stakeholders sensitised by corporate logic direct their attention to gaining control, the innovative use of technology provides real-time information supporting workforce and patient safety. Using the telemedicine, operational directors of the hospital guided by the logic of keeping managerial control and authority remotely adjusted their practices.

Telemedicine technologies were set up to care for patients in the hospital, particularly Covid-19 patients in critical care. These patients required intense monitoring, which was difficult for staff to sustain wearing the stifling personal protective equipment. The Covid-19 pandemic presented a crucial challenge to family as they were suddenly unable to visit their hospitalised relatives, and thus separated from their ill loved ones. In response, practices were adjusted through remote care technologies to enable patients

to communicate with family. Sensitized by the family logic of making family interests part of the hospital's processes, visiting practices were adjusted using telemedicine technologies to afford encouragement between patients and family members in difficult times.

Italy as well as other several countries increased their intensive care units (ICU) capacity response by converting general ICU in dedicated Covid-19 facilities. In the ICU of University of Naples Federico II logistics and staff organizations were fundamental to avoid in hospital the spread of the virus while creating dedicated Covid-19 facilities [18]. Each ICU bed was equipped with a full monitoring of vital parameters and a mechanical ventilator. Each monitor is duplicated in the centralized control unit equipped with microphones and glasses to allow the communications between the staff. During the 12-h shift, the nursing and medical working was organized as follow: the most experienced ICU physician is the work shift coordinator and stays in the green area to control the compliance of the staff with the procedures and to check the patients from the centralized monitoring area. Medical staff review the medical records of each patient, and then a briefing with the whole staff is made to plan the actions of the shift. A simple logistic project and clear organizational plan may be the keys to the success of surging the ICU capacity with dedicated facilities during the COVID-19 outbreak [18].

4 Information Technology Innovation as Carrier of Multiple Logics

Information Technology (IT) innovations are complex initiatives involving various stakeholders and professions, with divergent expectations of what an IT innovation should do and how it should be deployed, often, retarding its adoption and implementation [10, 19]. Multiple interpretations of an IT innovation resonate different institutional logics [20]. namely, the cultural resources and norms that shape the way individuals perceive their social reality and, therefore, guide their behaviours and decisions [21].

IT innovation promote the logic of managerialism, a set of principles and practices that value cost-efficiencies, performance, and accountability, in contrast with the logic of medical professionalism, which safeguards the autonomy of clinical practice in the provision of patient care [22]. More recently, healthcare policies and IT innovations promoting health self-management and home-based monitoring have contributed to the diffusion of the logic of patient-centred care. This logic promotes a care model that empowers patients to make informed decisions giving them more control over their own health [23]. It thus challenges medical professionalism by diminishing the authority of medical practitioners over patients' decisions. Hence, medical professionals with managerial positions and in charge of IT innovation have to integrate new technologies into day-to-day work by safeguarding the integrity of medical practice.

IT innovations can generate tensions among competing logics. Clinical management information systems often respond to the managerialist logic of performance and efficiency in healthcare resource management and clinical practice [24, 25]. The introduction of these systems creates tension with medical professionalism by disrupting established patterns of work and challenging the professional autonomy of clinicians [26–28].

Telehealth can thus be the carrier of multiple logics. Through remote monitoring of patients, telehealth works as a preventative measure to avoid admissions and is therefore a carrier of the managerialist logic of reducing costs. At the same time, telehealth can enable a fast and accurate response to patients' needs, by improving the quality of care [24].

The success of IT innovation in healthcare depends on how stakeholders shape and are shaped by the tensions among competing logics and the misalignment of interests and values that such logics entail [19].

5 Conclusions

This paper has important implications for theory, particularly in the interaction between logics, digital technology and crisis. We add to understand the role of institutional logics in directing the attention of stakeholders to find diverse action possibilities through digital technology in times of crisis. Understanding the dominant logic held by a stakeholder group is important in shedding light on how digital innovation emerges in response to a crisis.

For management, awareness of the different institutional logics informing innovation processes can help decision-making to become more proactive, and reflect on priority issues, as well as the necessary trade-offs between stakeholders.

The health care sector is a striking example of a public organizational field where multiple values and demands are at play. Hospitals in many countries are confronted with the challenge to simultaneously enhance the quality and reduce the costs of care.

In times of transformative environmental changes, only those organizations, matching their capabilities to the changing environment, will survive and learn. Organizations must find the way to get external legitimacy in order to achieve knowledge, financial and intellectual resources [29].

Clinical managers play a crucial role in securing the implementation and sustainability of IT innovation in healthcare. Yet, not all clinical managers are willing and able to support IT innovation, particularly when the institutional logics of an IT innovation challenge their professional practice [24].

Institutional pressures stimulate the development of innovations and organizational learning, the process by which organization must adapt to environmental changes, modifying its behavior to meet both internal and external demands [1]. The interaction between environment's demands and organization's capabilities can create innovative processes not planned before (involuntary isomorphism). If the hospital organization is able to maintain its legitimacy, the acquisition of knowledge will lead to knowledge creation and ensure that the hospital organization will fit its changing institutional environment. Differently, organizations can decide to imitate other innovator actors to get external legitimacy (voluntary isomorphism).

Given the possible trajectories and uses for a digital technology, a practical implication is to encourage decision makers to develop greater awareness and openness to the multiple logics that are relevant for the success of their organisation.

A research question is to further examine the role of digital innovation in sustaining organisational responses to crises over the longer term and how these might be enabled through a culture of innovation both within the organisation and across a wider range of stakeholders embodying a complex array of institutional logics.

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